Norges Bank Watch 2021

An Independent Evaluation of Monetary Policy in Norway

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FOREWORD

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

This year the NBW committee consists of Kjersti Haugland, Chief Economist at DNB Markets, Professor Ola Honningdal Grytten, Norwegian School of Economics (NHH), and myself, Professor at BI Norwegian Business School. The NBW 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 uses the Norges Bank Watch reports as input to their annual Financial Markets Report to the Parliament, when assessing the conduct of monetary policy. The Ministry of Finance partly funds the Norges Bank Watch reports.

Oslo, March 5, 2021

Centre for Monetary Economics

Tommy Sveen

NORGES BANK WATCH 2021 – EXECUTIVE SUMMARY

NBW supports Norges Bank's decision to use the whole policy leeway by cutting the rate to zero. Granted, unlike in normal circumstances, the policy was neither able to nor aimed towards boosting activity in an economy heavily constrained by virus containment measures. However, we monetary policy could give its contribution through keeping financial conditions as easy as possible, reducing interest-rate costs for strained businesses and households with debt, and thereby lifting the room for recovery after the crisis.

The first non-scheduled policy announcement was made on the morning of 13 March, one day after the lockdown was announced by the Prime Minister on the 12 March. Norges Bank was not informed in advance about the announcement. Given the harsh economic consequences of the lockdown, we believe that the central bank should have been informed.

Also, given the severity of the situation in March, with the unprecedented shock hitting both the economy and the financial markets, we do believe that Norges Bank was slightly too hesitant in its decision making. The central bank advised the Ministry of Finance to cut the countercyclical capital buffer from 2.5% (the maximum level) to 1%, instead of to 0% (the minimum level). Ex-post, we know that the situation in the economy and the financial markets did improve in the course of the next months. However, judged in real-time, the decision seems overly conservative, and we question whether the framework is flexible enough to handle severe shocks in a good way. Also, the policy rate was cut to 0.25% in March, whereas the final cut to 0.00% was delayed until early May. As downside risks were much less mounting at that point in time, the delayed cut seemed to result from a renewed reflection regarding the lower effective bound of the policy rate, rather than resulting from a decision to hold off the last cut - to "wait and see" how the situation evolves. However, we do not believe that the delay of the last 0.25%-point cut has had a significant negative effect on the economy.

NBW believe that Norges Bank did its uttermost to contribute to curbing the risk premiums during the first wave of the pandemic. However, we are critical regarding how the central bank handled higher money market premiums in the second half of 2020 that stemmed from domestic conditions. The absence of sufficient measures to reverse a nearly quarter percentage point rise in the Nibor, in a situation in which the central bank wishes to provide a maximum amount of monetary stimulus, is puzzling, in our view.

NBW remarks that 2020 did not turn out to be a year with clear improvements or innovations in Norges Bank's communication. We certainly acknowledge that the focus paid on evolving communication rightfully was overshadowed by the overwhelming turn of events, leading to even more intense analytical work than normal. However, the statement given by Olsen in January leaves an impression of lacking ambitions to make large innovative changes in the communication. We, in line with many preceding committees, encourage Norges Bank to have bolder ambitions. Specifically, we urge that the central bank introduces minutes to give further details on the discussions and elaborations.

In our opinion Norway basically has had good experiences with flexible inflation targeting during the twenty years since its introduction in March 2001. The average core inflation has since its introduction in December 2003 been 1.8 percent, which is 0.2 percent units under the present inflation target. The policy has additionally chiefly contributed both to production and employment stability, as well as financial stability.

The policy management has changed substantially. In the first place it has been more flexible and has given room to more discretion. Secondly, it has paid increasingly more attention to financial stability. Thirdly it has become more open and transparent.

The development seems to have followed some general patterns. Firstly, the central bank has often adapted its policy to macroeconomic circumstances. Secondly, the central bank has chiefly acted with rapid and appropriate reactions to macroeconomic shocks. Thirdly, the central bank has competently used its room of manoeuvre. Fourthly, the central bank has learned from the shocks and adapted the system to them.

The NBW believe that the guidelines for monetary policy objectives and trade-offs are helpful for understanding monetary policy, but we encourage Norges Bank to quantify how the different consideration are weighed against each other. The trade-off between flexible inflation targeting and financial stability remains unclear.

We believe that the drop in the output gap during the initial phase of the pandemic was substantially lower than estimated by Norges Bank. We encourage Norges Bank to reconsider the estimate of the output gap during this period. It is worth emphasizing that we still think the substantial cut in policy rates was warranted.

The NBW welcomes the clarification given in the new framework for advice on the countercyclical buffer. We encourage Norges Bank to develop their analysis further. Currently, the analysis mainly consists of comparing indicators to their historical average and comparing with their developments before the banking crisis and the financial crisis. An important exception is the so-called stress test, which is presented in the report on financial stability. We encourage Norges Bank to add this analysis to the monetary policy reports.

1. Introduction

This report, Norges Bank Watch 2021, is an evaluation of the conduct of monetary policy in Norway in 2020. The report also celebrates the 20th anniversary of inflation targeting.

In section 2 we review and comment on monetary policy and communication in 2020. Norges Bank's conduct of monetary policy in 2020 was heavily market by the pandemics. Two announcements were made outside of the scheduled set-up, the key policy rate was cut from 1.50% to 0.00% percent, a new record low and measures were taken to curb money market premiums. Moreover, for the first time during the inflation target regime, the central bank intervened in the FX markets.

In section 3 we discuss the experiences with flexible inflation targeting during the twenty years since its introduction in March 2001, while we in section 4 make some suggestions on central bank communication and the framework for the advice on the countercyclical capital buffer.

The committee met with the Ministry of Finance on November 3, 2020, and with Norges Bank on January 15, 2021. We wish to thank Norges Bank, Agnes Simensen, Ingrid Solberg, Nathalie Sørhaug, and Mads Solberg help and constructive comments.

2. Monetary Policy and Communication in 2020

2.1 Introduction and main conclusions

2020 turned out to be a highly dramatic year for the global economy. The world faced a pandemic, which triggered unprecedented containment measures among governments worldwide. The measures were aimed towards preventing a health crisis with very high death tolls and overloaded hospitals and intensive care units. The economic consequence of the measures was an unusually abrupt, deep downturn, particularly in March and April. As measures were eased again, the economic rebound turned out to be very strong. In the autumn however, a second wave of the pandemic broke out, leading to new, albeit much less harsh, restrictions and a new curb on economic activity.

Chart 2.1 Mainland GDP

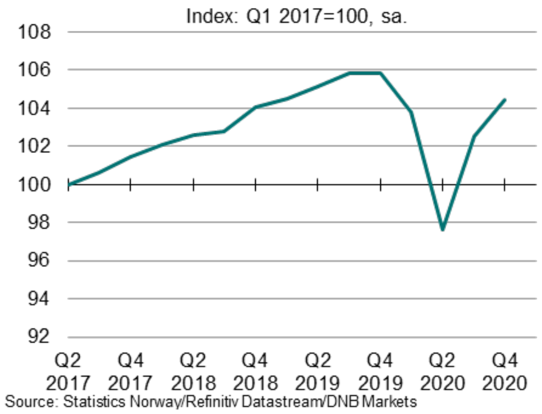
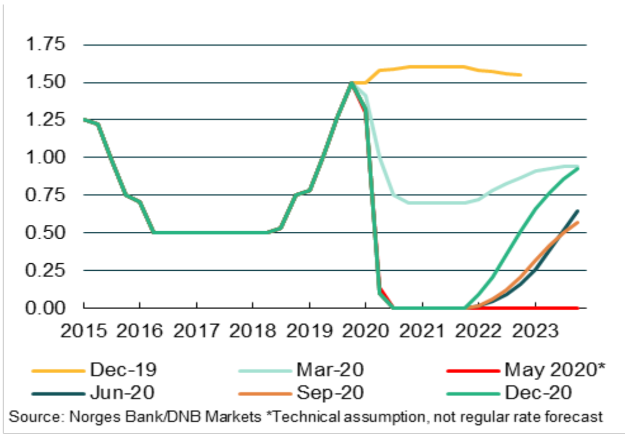


Chart 2.2. Policy Rate Paths



Norges Bank's conduct of monetary policy in 2020 was heavily market by the pandemics. Two announcements were made outside of the scheduled set-up, and the key policy rate ended up at zero percent, a new record low. For the first time during the inflation target regime, the central bank intervened in the FX markets. After a highly dramatic spring, the vast negative downside risks seemed to gradually narrow throughout the rest of the year. From June onwards, the familiar dilemma between supporting the real economy and curbing financial imbalances became increasingly evident.

Below, we outline the main events throughout the extraordinary year 2020, along with the announcements and policy actions made by Norges Bank as events unfolded. For the period between January and May, we tell the story of events that unfolded chronologically, and in some detail, both regarding the pandemic, the economy, the markets and major central bank's actions. This is done to try to give a realistic and fair picture of what knowledge Norges Bank had at different points in time. In the period thereafter, the focus is mainly on Norwegian developments and Norges Bank actions alone.

Our main conclusions about the policy conducted in 2020 are as follows:

- We support Norges Bank's decision to cut the policy rate to zero percent. Granted, unlike in more normal circumstances, the policy was neither able to nor aimed towards boosting activity in an economy heavily constrained by virus containment measures. The contribution of monetary policy was rather to serve to keep financial conditions as easy as possible, and to contribute by reducing interest-rate costs for strained businesses and households with debt, lifting the room for recovery after the crisis. On an analytical level, however, we are sceptical regarding Norges Bank interpretation of the shock, signalled by a calculation of a highly negative output gap. In our view, the supply side has been constrained during the pandemic, pointing towards a less negative output gap.
- We do question why the countercyclical capital buffer was cut from 2.5% (the maximum level) to 1%, instead of to 0% (the minimum level). In its advice to the Ministry of Finance, Norges Bank emphasized that Norwegian banks were solid, with sufficient capital to absorb losses in the event of a severe downturn. However, at this point in time economic and financial circumstances could hardly been any worse. This was acknowledged by other European countries, which cut the countercyclical buffer to zero (Sweden from 2.5%, Denmark from 1.5%, Germany from 0.25% and the UK from 1%. Norges Bank seems to have been driven by an attempt to be cautious, fearing that it would be difficult to increase the buffer if the situation improved again. Ex-post, we know that the situation in the economy and the financial markets did improve in the course of the next months. However, judged in real-time, the decision seems overly conservative, and we question whether the framework is flexible enough to handle severe shocks in a good way.
- Norges Bank was not among the first-movers within the central bank space. With the benefit of the hindsight, NB could have acted sooner, for instance in the beginning of March, when Bank of Australia, the US Federal Reserve (the Fed) and Bank of Canada were cutting rates. However, we do not think that the somewhat slower response has served to make the outcome worse for the economy. After all, the Fed had a much more important role in alleviating the global market stress and thereby also in easing Norwegian market conditions. When it comes to policy more directly aimed at improving economic conditions, i.e. the policy rate cuts, it is also evident that in a crisis like this, fiscal policy had a much more important and urgent role to play than monetary policy. Swift implementation of measures like stronger income support for laid-off workers and direct support to enterprises struggling to pay their unavoidable costs while being restricted to operate were crucial. Rate cuts alleviates the situations for debt-burdened households and corporates, but the same sense of urgency was not present. Furthermore, we acknowledge that it was very hard for everyone to foresee how severe the impact of the coronavirus would turn out to be in the beginning of March. To illustrate this, Prime Minister Erna Solberg said in a speech on 1 March "All those who believe that we can close the borders and lock ourselves in, are very wrong" and that "we have to operate as

normally as possible, also in a situation in which a contagious disease is spreading". 11 days after that, she announced the most intrusive measures seen in peace time.

- Also, ideally, the central bank would have gone all the way down to zero in March, instead of holding off the last 25 basis points to the May meeting. As downside risks were much less mounting in May than in March, the delayed cut seemed to result from a renewed reflection regarding the lower effective bound of the policy rate, rather than resulting from a decision to hold off the last cut - to “wait and see” how the situation evolves. We expected the central bank to have a clear view already in March of the lower effective bound of the policy rate, especially in the light of Governor Olsen’s speech on 8 October 2019 on the tools of monetary policy, which included thorough reflections on these matters. However, we do not believe that the delay of the last 0.25%-point cut has had a significant negative effect on the economy.
- Although we acknowledge that the situation was changing very rapidly, we find it puzzling that Norges Bank was not informed about the very harsh restrictions that were about to be imposed.
- One of Norges Bank’s main tasks is to make sure that the transmission mechanism works well. In situations in which money market premiums rise, increasing the distance between the Nibor, which is the basis of lending rates to households and enterprises, and the key policy rate (sight deposit rate), the transmission mechanism weakens. The increasing risk premiums and market stress that appeared during the most acute phase of the Covid-19 crisis was a global phenomenon. Hence, it was the world’s largest central banks, with the Fed in the lead, that had the crucial role in getting the situation under control. In our view, Norges Bank did its uttermost on its part to contribute to curbing the risk premiums, providing extraordinary F-loans to banks with longer maturity and easier terms, relaxing collateral standards and offering USD F-loans to banks in conjunction with the Fed. Importantly, Norges Bank made a right and timely decision to intervene in the FX markets, when the adverse feedback loops appeared and caused malfunctioning of the market.
- We are, on the other hand, critical regarding how the central bank handled higher money market premiums in the second half of 2020. At that point in time, this increase stemmed from domestic conditions, which we expected Norges Bank to alleviate more effectively. Specifically, the set up with a mechanical approach to the NOK purchases conducted on behalf of the government to cover the budget needs had unfortunate effects on liquidity when the extent of fiscal spending ended up being far smaller than estimated during the second half of 2020 (see box). Money market premiums were allowed to rise, weakening the monetary policy transmission channel. We hope that Norges Bank will investigate measures or strategies to curb domestically induced money market risk premia increase in the future. A solution could be that the central bank makes its own judgement regarding the evolving need for transfers from the oil fund to the budget. This is probably not an option preferred by the central bank, that strives to avoid suspicion of the purchases being driven by other considerations, like the desire to push the NOK stronger or weaker. A different approach would be to have the Ministry of Finance re-estimating the need for

NOK for the budget more frequently. A third option could be to increase the amount of liquidity in the system on a more general basis, or in periods with liquidity stress. In any case, as effects on the Nibor were evident for some time, we believe that Norges Bank should have introduced sufficient measures to curb the rise in money market premiums. Granted, the rise was far smaller than during the spring of 2020. However, the absence of sufficient measures to reverse a nearly quarter percentage point rise in the Nibor, in a situation in which the central bank wishes to provide a maximum amount of monetary stimulus, is puzzling.

2.2. The events of 2020, including Norges Bank actions

2.2.1. January 2020: Calm before the storm

In the beginning of 2020 Norges Bank's key policy rate was 1.50%, after having been gradually lifted by a total of 1%-point from September 2018 to September 2019. The central bank had carried through with the hikes knowing that the Norwegian economy was experiencing strong tailwind due to a temporary spike in oil investments. The benign domestic situation clearly differed from the situation among important trading partners, for which growing uncertainties weighed on growth. Importantly, trade tension was escalating, first and foremost connected to a sharp rise in tariff and non-tariff barriers between the US and China. Moreover, the US administration also threatened to impose higher tariff on imports from Europe and other traditional allies. This led to several bouts of market turmoil in 2019, and to a clear shift in major central banks' policy plans, in the direction of cuts.

The market turmoil was an important reason why Norges Bank was able to "go solo", increasing Norwegian rates while foreign rates were steady or falling, without harming the outlook for inflation and exports through the exchange rate channel. Traditionally, a significant increase in the interest rate differential between Norway and its trading partners has gone hand in hand with a sharp appreciation of the NOK. This time, though, the NOK continued to weaken despite of the widened differential, as the sour market sentiment appeared a much more important driver for the Norwegian currency.

At the threshold of the new decennium Norges Bank deemed the economy to be "close to a cyclical peak" (Monetary Policy Report 4/19), with prospects of slowing growth in the mainland economy. Specifically, mainland GDP growth was expected to abate from 2.5% in 2019 to 1.9% in 2020, and further down to 1.4% in the next two years. This was expected to lead capacity utilization back down towards a normal level and inflation converging to the target rate. Moreover, financial imbalances were no longer building up, and there were some signs of them receding, after a period of continued moderate home price growth and abating growth in household credit.

At the December 2019 meeting, the Executive Board made the assessment that "(…) the outlook and balance of risks suggests that the policy rate will most likely remain at this level in the coming period". However, the interest rate path presented in report had an upward bias, signalling that the Board found it more likely that the rate would be hiked another notch in the coming year, rather than being cut.

Interim monetary policy announcement 23 January 2020

The January meeting marked the first meeting at which the new Monetary Policy and Financial Stability Committee met to make monetary policy decisions, instead of the Executive Board.

The Committee left the policy rate unchanged at 1.50%. The decision was unanimous. The Committee's assessment was that new information largely confirmed the picture of the economic developments presented in the December Report. Thus, the Committee clung to the message from the December MPR report, stating that "the current assessment of the outlook and the balance of risks suggests that the policy rate will remain at the present level in the coming period".

NBW remarks that the decision was well in line with previous signals, and with expectations among analysts and in markets. In advance all the 30 analysts participating in a Bloomberg survey expected the rate to be unchanged. The EURNOK was not much changed after the announcement.

2.2.2. End-January – early March: From Chinese virus outbreak to pandemic, market stress appearing

On 21 January, Asian stock markets fell after news of an outbreak of a coronavirus in the province of Wuhan in China, just days before the Chinese New Year celebration. At that point, the virus was said to have infected 224 people, with four of them confirmed dead. Extraordinary measures were taken by Chinese authorities to gain control over the situation, involving harsh restrictions on mobility and activity, including curfews, travel bans and a prolonged New Year national holidays. The measures led to a severe contraction in activity. On 30 January, the number of cases had risen to 10 000, and over 200 people were declared dead. WHO declared the outbreak a global health crisis.

In the beginning of February, death tolls were still increasing in China, but the rate of increase had become lower due to the restrictions. This led markets to believe that the virus had been contained. Thus, global stock markets started rising again, after some weeks of decline.

In the following weeks, reports were coming in on contagion in other countries, not originating from China. On 9 February, WHO' chief Ghebreyesus, called these reports "worrisome".

In the second part of February, it became evident that while China seemed to have gained control over the virus, the virus had spread to Europe, leading to increased fear that the outbreak would evolve into a pandemic. Italy was the hardest hit country in Europe and introduced extraordinary restrictions. On 21 February, cities in the North of Italy were put in lockdown. It became increasingly clear that the virus was spreading rapidly within and across countries. By the beginning of March, 58 countries were affected.

The 20th of February marked the start of a pronounced downturn for stocks, From the peak on 19 February to the trough on the 23rd of March, US stock markets fell by 34%.

The first phase of this market turmoil, which lasted until 9 March, was marked by a flight out of risky asset into safe assets. Markets started to price in lowered key policy rates around the world, including in Norway. Gold prices rose steeply, and 10-year government bond yields fell to record-lows. The oil price also fell steeply.

On Friday 28 February, Jerome Powell, the Governor of the US Federal Reserve (Fed) released a short press statement providing clear signals that the Fed would ease monetary policy.

The fundamentals of the U.S. economy remain strong. However, the coronavirus poses evolving risks to economic activity. The Federal Reserve is closely monitoring developments and their implications for the economic outlook. We will use our tools and act as appropriate to support the economy.

Markets reacted by pricing in a total of 75 basis points cut from the Fed by July.

On 2 March, the ECB and Bank of Japan followed up similar statements

ECB: *The coronavirus outbreak is a fast developing situation, which creates risks for the economic outlook and the functioning of financial markets. The ECB is closely monitoring developments and their implications for the economy, medium-term inflation and the transmission of our monetary policy. We stand ready to take appropriate and targeted measures, as necessary and commensurate with the underlying risks.*

Bank of Japan: *Global financial and capital markets have been unstable recently with growing uncertainties about the outlook for economic activity due to the spread of the novel coronavirus. The Bank of Japan will closely monitor future developments and will strive to provide ample liquidity and ensure stability in financial markets through appropriate market operations and asset purchases.*

On 3 March, the Reserve Bank of Australia cut its signal rate to 0.50%, due to the "significant effect" of the coronavirus on the economy. On the same day, a G7 teleconference between finance ministers and central banks in the seven largest countries failed to result in coordinated policy action. The statement was vague and did not meet the markets' expectations on specific, coordinated measures.

G7 statement: *We, G7 Finance Ministers and Central Bank Governors, are closely monitoring the spread of the coronavirus disease 2019 (COVID-19) and its impact on markets and economic conditions. Given the potential impacts of COVID-19 on global growth, we reaffirm our commitment to use all appropriate policy tools to achieve strong, sustainable growth and safeguard against downside risks.*

Later, the same day, the Federal Reserve (Fed) took the markets by surprise by cutting its policy rate interval by 50 basis points to 1–1.25%, two weeks ahead of the scheduled policy meeting. Governor Powell said the Fed would continue to monitor the economy closely, and act as appropriate. The market responded by pricing in a considerable probability of a further 50 basis point cut already at the meeting on 18 March.

On 4 March, Bank of Canada cut its policy rate by 50 basis point to 1.25%.

2.2.3 9-22 March: Severe market stress, pandemic declared, Norges Bank acts

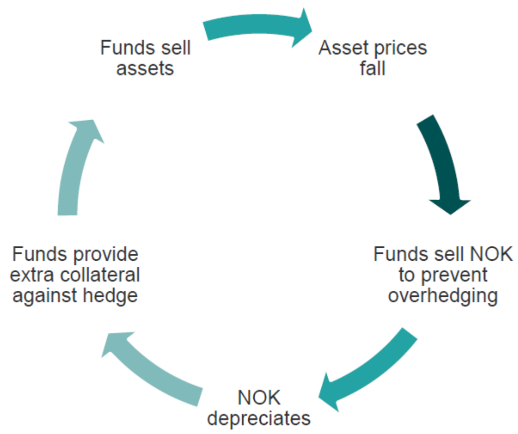
On the morning 9 March, the oil price collapsed. Woes about the global demand outlook were already weighing on the oil price, but the unexpected breakdown of a three-year pact between OPEC and Russia on 7 March led to an increase in supply pulling the price of a barrel of Brent Blend down from 50 to 33 USD. Specifically, Russia refused to support deeper oil cuts to cope with the outbreak of coronavirus and OPEC responded by removing all limits on its own production.

The NOK, which tends to correlate well with movements in the oil price, reacted by depreciating sharply. The EURNOK climbed to a new record high, at 10.955.

At this point in time, the money market showed severe signs of stress. A negative spiral in the global financial market appeared, in the form of a “dash for cash”. Leveraged funds needed to meet regulatory margin requirements, typically in the form of bank deposits. These needs were increasing rapidly as markets continued to fall. The need to obtain cash led to a general sell-off of securities, probably strengthened by outflows from funds. Consequently, bond yields rose, particularly for risk assets, but also of so-called risk-free assets, like sovereign bonds. In 9 days, the 10-year US government bond yield rose from record-low 0.54% to 1.19%. The corresponding Norwegian bond yield rose from 0.7% to 1.07%.

The Norwegian bond market was even more severely affected than its international peers, due to an adverse feedback loop that started to take hold during these weeks.

Chart 2.3: Adverse feedback loop



Norwegian non-bank financial institutions (NBFIs), consisting of mutual funds, life insurance companies and pension funds, primarily invest in foreign assets. Hedging is normal, particularly for fixed income investors, to reduce currency risk, and it is common to have a particular target for the hedging ratio. When global markets plunged, the NOK volumes purchased in the hedges became too large compared to the value of the underlying assets. Hence, they sold NOK to reduce the hedging ratio, contributing to further depreciation pressure.

As the NOK depreciated strongly, the market value of the hedges turned negative. Due to regulation aimed at limiting counterparty risk, the NBFIs needs to post variation margins when this happens, commonly in the form of cash. To get cash, they sold assets, contributing to a further plunge for NOK bonds. In the high yield segments, the primary markets were in practice closed.

Also, money market risk premiums were on the rise globally, leading to higher interest rates despite of expectations of lowered key policy rates worldwide. The Nibor spread above the expected policy rate rose steeply, from about 30 basis points in the beginning of March to more than 1%-point in the period 16-20 March.

The unsettling developments triggered responses from central banks. The Bank of England cut the policy rate by 50 basis points to 0.25% at emergency meeting on March 11, the same day as the WHO officially declared Covid-19 a pandemic.

The ECB introduced a package of targeted measures to improve liquidity and spur lending at its scheduled meeting on 12 March. These included an increase in the ongoing asset purchase program (APP) (a temporary envelope of EUR120bn until the end of 2020) and easier terms on and access to cheap loans for banks through the so-called TLTROs (targeted long-term refinancing operations). On the same day, the Fed announced another two measures aimed at dampening volatility and stress in the financial system. Firstly, the already on-going asset purchases for the coming month were twisted to include longer maturities. Secondly, USD1500bn was offered in repo operations on a weekly basis in March. The measures did not prevent the S&P 500 falling by 9.5%.

Importantly, 12 March was the day when Norwegian Prime Minister Erna Solberg introduced what she called “the most imposing national restrictions in peace time”. Schools, universities, and day care facilities ended up being closed in the period from March 12 to March 26. Activity in the health sector was cut, to make room to cope with a wave of admittances. Organized sports activities both indoors and outdoors, as well as cultural arrangements with a certain number of attendants were not allowed. Remote work became the norm for all employees with such a possibility. Personal services involving close physical contact, such as hairdressers, skin care, massage, tattoos etc were closed. Restaurants and stores were instructed to allow for at least 1-meter distance between guests.

13 March: Norges Bank cuts policy rate after non-scheduled meeting

On the following morning, March 13, a week ahead of the scheduled meeting, Norges Bank announced a 50 basis point cut in the key policy rate, to 1.0%. The decision was unanimous.

The press release stated:

"There is considerable uncertainty about the duration and impact of the coronavirus outbreak, with a risk of a pronounced economic downturn. The Committee is monitoring developments closely and is prepared to make further rate cuts.

A lower policy rate cannot prevent the coronavirus outbreak from having a substantial impact on the Norwegian economy, but it could dampen the downturn and mitigate the risk of more persistent effects on output and employment."

In addition, Norges Bank advised the Ministry of Finance to lower the countercyclical capital buffer from 2.5% to 1% with immediate effect, an advice that was followed by the Ministry. This was done to counteract a tightening of banks' lending standards that could amplify an economic downturn.

NB also released a short version of the Monetary Policy Report including forecasts for the economy and for the interest rate. Mainland GDP growth was forecasted to drop to 0.4% in 2020, rebounding to 1.3% in 2021 and further to 2.0% in 2022. The registered unemployment rate was forecasted to 2.5% in both 2020 and 2021. Core inflation was forecasted to 2.2% in 2020 and 2.3% in 2021. Annual wage growth was expected to drop to 2.8% in 2020, and further to 2.5% in 2021 before slowly picking up again in the next two years. House price growth was projected to 3.0% in 2020 and 4.1% in 2021.

The interest rate projection showed the quarterly policy rate falling from 1.50% in Q4 to 1.41% in Q1 and further to 1.00% in Q2. That indicated unchanged rates until the June meeting. For Q3 the expected rate was 0.75%, indicating a 25bp rate cut at the June meeting. The rate path reached a trough at 0.70% in Q4 2020 and started to increase slowly in Q1 2022 towards 0.94% in Q4 2023. The 0.70% in Q4 2020 indicated a modest probability for a rate cut also at the September meeting.

The largest contribution to the downward revision of the interest rate path came from lower domestic demand, and lower growth and interest rates abroad. A negative contribution from lower petroleum prices also contributed. The exchange rate depreciation gave a small contribution to pulling the rate path up.

NBW remarks that the forecasts were based on information up to and including March 11, and consequently did not take into account the harsh restrictions introduced by the Government on March 12. Thus, the forecasts were clearly outdated at the time of publication. Nevertheless, it was important that Norges Bank acted quickly after the Government's lockdown message, confirming that the central bank saw a clear role also for monetary policy in fighting the economic consequences of the pandemic. We also remark that the decision to cut the countercyclical capital buffer to 1%, rather than down to the minimum (0%) seems overly conservative. At this point, the situation could hardly be worse. Financial conditions were very tight, uncertainty was vast, also regarding outlook for the economy and possible defaults. Judging the decision in "real time", one could ask: If not now, when is the right time to cut such a buffer to its minimum level?

The following days: Intensified market stress, NOK loop spirals out of control

Responding to increasing market stress, the US Fed made another emergency move on Sunday 15 March. The key policy rate interval was cut by a whole percentage point, to 0-0.25%. Moreover, the Fed's holdings of Treasuries would increase by at least USD500bn and its holdings of mortgage-backed securities by at least USD200 bn over the coming months. Also, the Fed reopened a facility to buy commercial papers, an important market for redistributing liquidity for banks.

Despite of the announcements stock markets plunged the following Monday, with US markets falling by the most for over 30 years. Liquidity conditions worsened further across the markets. Interest rates on commercial papers as well as Libor continued to rise. The Norwegian interbank market was marked by low activity. Banks were trying to quote prices on smaller amounts, but the difference between bid and ask spreads was high.

The negative spiral between the NOK and the Norwegian bond market gathered pace. The krone was already being strongly hit by the falling oil price, and by bouts of risk aversion in the market. Adding heavily to the depreciation pressure, over-hedged investors needed to sell even more NOK. As the market value of the FX hedges continued to take on negative values, there was a continued sell-off of Norwegian securities as the investors needed to meet margin requirements. The negative feedback loop that occurred is thoroughly and well explained in Norges Bank Staff Memo no. 2 2021.

The NOK lost 25% of its value against the euro and the dollar during in a short period of time. On 19 March, the NOK reached record-weak levels, after the largest one-day depreciation seen since the introduction of a flexible exchange rate. The import-weighted NOK (I-44) depreciated by 14% and reached its weakest level in history. Around 4AM CET the EURNOK reached as high as 13.17, and the USDNOK rose above 12.13.

19 March: Norges Bank intervenes in the FX market

On March 19, Norges Bank issued a press release:

Extraordinary situation in the market for Norwegian kroner

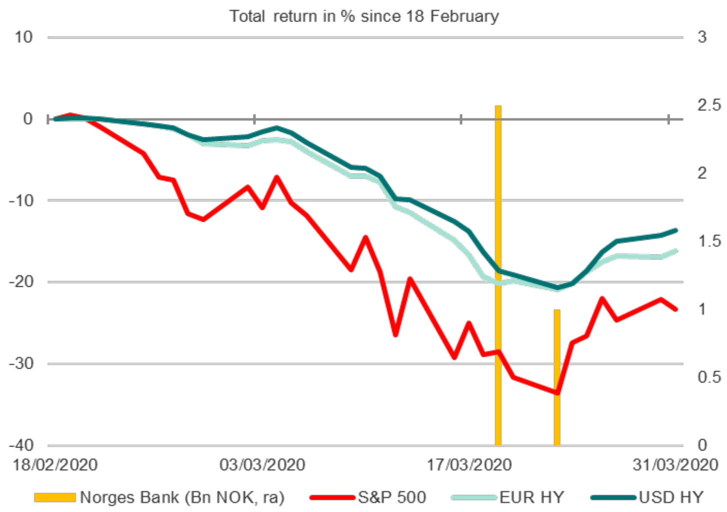
In recent days, there has been an extraordinary situation in the market for Norwegian kroner and movements in the exchange rate have been historically large.

Against this background Norges Bank is continuously considering whether there is a need to intervene in the market by purchasing Norwegian kroner.

Norges Bank followed up by intervening by a total of NOK 3.5 billion on 19 and 23 March. The NOK recovered ground, and the negative feedback loop weakened.

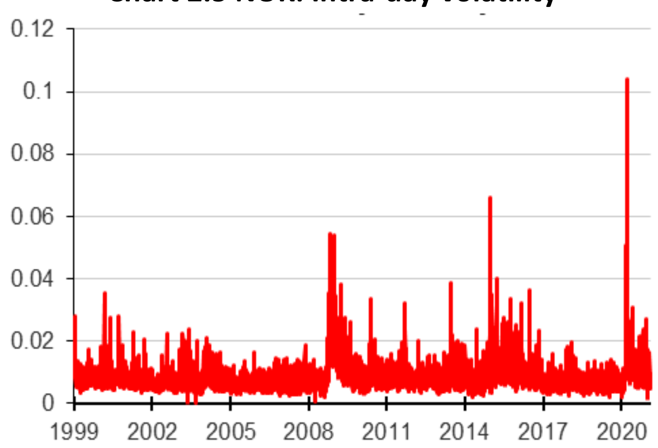
NBW remarks that the decision to intervene was timely and necessary, as the NOK market was clearly malfunctioning, and seemed to have the intended calming effect.

Chart 2.4 Markets and Norges Bank NOK interventions



Source: Bloomberg, Norges Bank and DNB Markets

Chart 2.5 NOK: Intra-day volatility*



* Intra-day minus intra-day low, divided by the mid-rate
Source: Refinitiv Datastream/DNB Makrets

Around the same time, large central banks also took more action, to alleviate market tension. On 18 March, the ECB surprised markets by announcing new easing measures, only a week after the previous announcement. A new pandemic emergency purchasing program (PEPP) was introduced, with a frame of EUR750bn. In addition, the corporate sector purchasing program (CSPP) was extended, and collateral standards eased. On the same day, the Federal

Reserve issued two press releases. In a coordinated action with several other central banks, the frequency of USD swap lines was been shifted from weekly to daily to improve USD liquidity further. Also, money market facilities were expanded to include single-state and municipality debt to increase liquidity and ensure market functionality.

Norges Bank's (non-scheduled) monetary policy announcement March 20

One week after the previous rate cut, Norges Bank announced another cut, this time of 75 basis points to 0.25%. The decision was unanimous.

In the press release it was stated that further cuts were not ruled out.

Since Norges Bank cut the policy rate last week, the situation in the Norwegian economy has continued to worsen. The measures to contain the spread of coronavirus have led to a number of businesses having to close or reduce their activities. Many workers are being laid off, and unemployment has shown a marked increase. The negative impact on the world economy is intensifying, and oil prices have fallen further. Financial market stress has increased, and higher credit and money market premiums make funding more expensive for Norwegian enterprises. The krone has depreciated sharply.

Norway has space for economic policy manoeuvre, good welfare arrangements and solid banks. As such, we are essentially well positioned to face the prevailing crisis. Lower borrowing costs for existing and new loans can make it easier for Norwegian enterprises to weather a difficult period. This can also help households facing reduced income. When the containment measures are scaled back, and the situation returns to normal, low interest rates can support a faster rebound in activity.

Norges Bank will continually consider measures to ensure that the policy rate passes through to money market rates. The Committee does not rule out that the policy rate may be reduced further.

On this occasion Norges Bank did not release new forecasts or a rate path.

NBW remarks that the decision to cut further was well in line with expectations, given the severity of the situation. Even though the press release said that further cuts were not ruled out, the general view at that time was that Norges Bank at this point wanted to add as much stimulus to the economy as possible. The decision to go to 0.25%, rather than 0.00%, signalled that Norges Bank was uncomfortable going further down.

BOX: Norges Bank's actions to reduce money market premiums during "the first wave"

On 12 March, Norges Bank announced measures to alleviate stress in the money market that had served to push up the Nibor rate, hampering the monetary policy transmission channels. Extraordinary three-month F-loans to banks was offered for as long as deemed necessary. These would be fully allotted at an interest rate equal to the prevailing policy rate.

On 18 March, Norges Bank made temporary revisions in the guidelines for pledging securities for loans from Norge Bank. The revision was aimed at improving liquidity, making the access to central bank loans easier.

The required minimum outstanding volume of securities in NOK issued by a private entity is reduced to NOK 100 million (Section 2.7, first paragraph)

The required minimum outstanding volume of securities in foreign currency issued by a private entity is reduced to the equivalent of EUR 50 million (Section 2.7, second paragraph)

For securities other than Norwegian government securities, the maximum limit of 20 percent of the issue's (ISIN) volume outstanding is removed (Section 2.7, third paragraph). There is no upper limit on the collateral a borrower can pledge per ISIN.

Securities in NOK guaranteed by local government authorities are exempt from the credit rating requirement.

On 19 March, Norges Bank announced that banks would be offered extraordinary liquidity loans with a maturity of one week, one month, three months, six months and twelve months. Under normal circumstances, banks do not have access to loans with this long maturity. Norges Bank said that the extraordinary F-loans would be offered for at least four weeks ahead.

The interest rate on F-loans with a maturity of one week, one month and three months was the prevailing policy rate. The interest rate on F-loans with a maturity of six months was the prevailing policy rate plus 15 basis points. The interest rate on F-loans with a maturity of twelve months was the prevailing policy rate plus 30 basis points.

All extraordinary F-loans would be fully allotted. All banks would receive the desired volume at the announced interest rate.

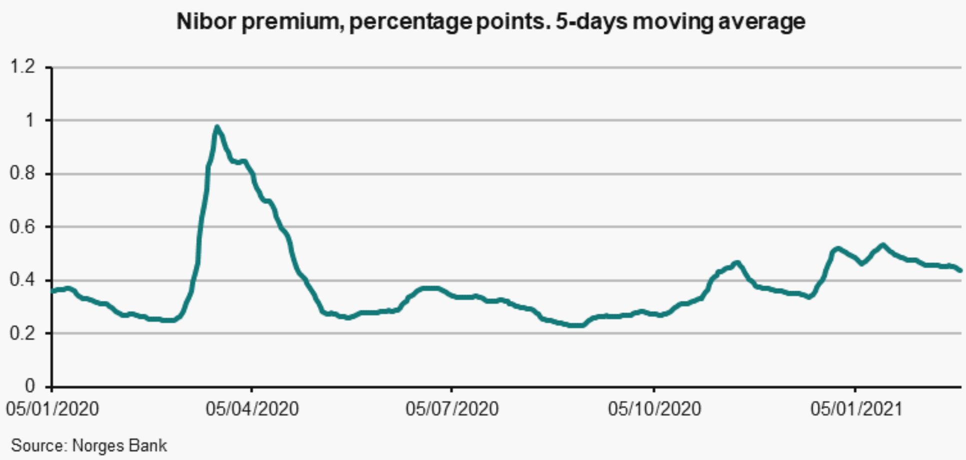
Injection of dollar liquidity in the Norwegian market

On 19 March the Fed had extended its credit lines for dollar swaps to a number of central banks, including the Norwegian. The new swap lines supported the provision of USD liquidity in amounts up to USD30bn for Norges Bank. On this background Norges Bank was able to offer F-loans in US dollars to banks.

Press release 24 March: *Norges Bank will offer banks an F-loan in US dollars with a maturity of three months on Thursday, 26 March 2020. The loan will be provided against collateral by means of auction, which will open at 14:00 pm on Thursday. The F-loan's maximum allotment volume is set at USD 5 billion.*

The same type of USD F-loan was offered on several following occasions, on 2 April, 16 April, 23 April 7 May, 28 May and 18 June.

The measures served to lower the market interest rates, but they remained high relative to the policy rate. Thus, the arrangement was prolonged on several occasions. On 14 August, however, Norges Bank had seen a clear improvement in market conditions. Hence, only the extraordinary F-loan with 3-month maturity was extended, until year-end. The interest rate was set at the policy rate plus 15 basis points.



2.2.4 20 March – 5 May: Fed measures boost market conditions, virus outbreak curbed

While activity in economies worldwide continued to fall, due to the virus and the containment measures, 23 March turned out to be a turning point for the stock markets.

The trigger was the announcement of a USD2tn fiscal package in the US, in combination with an extraordinary policy announcement from the Fed that took place on 23 March.

Firstly, the frame set for asset purchases (USD500 for Treasury securities, USD200bn for MBS) was replaced by a lower bound for purchases. The Fed now said it would *"purchase Treasury securities and agency mortgage-backed securities in the amounts needed to support smooth market functioning and effective transmission of monetary policy to broader financial conditions and the economy."*

Secondly, and even more importantly: For the first time in history, the Fed said it would directly support credit access for enterprises and households. This message had a "shock and awe" effect on market, turning the sentiment in a positive direction by underlining the extent of measures the world's most important central bank would be willing to, when necessary.

The Fed established new programs aimed at *"supporting the flow of credit to employers, consumers, and businesses"* that *"taken together, will provide up to USD300bn in new financing. The Department of the Treasury, using the Exchange Stabilization Fund (ESF), will provide USD30bn in equity to these facilities."*.

"Establishment of two facilities to support credit to large employers – the Primary Market Corporate Credit Facility (PMCCF) for new bond and loan issuance and the Secondary Market Corporate Credit Facility (SMCCF) to provide liquidity for outstanding corporate bonds."

"Establishment of a third facility, the Term Asset-Backed Securities Loan Facility (TALF), to support the flow of credit to consumers and businesses. The TALF will enable the issuance of asset-backed securities (ABS) backed by student loans, auto loans, credit card loans, loans guaranteed by the Small Business Administration (SBA), and certain other assets."

"Facilitating the flow of credit to municipalities by expanding the Money Market Mutual Fund Liquidity Facility (MMLF) to include a wider range of securities, including municipal variable rate demand notes (VRDNs) and bank certificates of deposit."

"Facilitating the flow of credit to municipalities by expanding the Commercial Paper Funding Facility (CPFF) to include high-quality, tax-exempt commercial paper as eligible securities. In addition, the pricing of the facility has been reduced."

More measures followed, like the establishment of a temporary FIMA Repo Facility to help support the smooth functioning of financial markets on 31 March. This allowed foreign and international monetary authorities with accounts in the Fed to access dollar by selling US government bonds with an agreement to repurchase them later. The cost was set to Fed's deposit rate plus a 0.25% premium. This lowered US government bond yields, as there was less need globally to sell off papers to get a hold of dollars. On 9 April the Fed announced that it would provide up to USD2300bn in loans to support the economy. Included in the measures was the allowance to buy corporate bonds from “fallen angels” (former investment grade that have been recently downgraded).

In the time that followed, financial conditions improved, with falling money market rates due to more normal money market premiums. The oil price, however, continued to fall. On 20 April, the price of US oil, as measured by the WTI, fell well below zero. The price of Brent Blend fell to 25.4 per barrel.

Meanwhile, economic indicators were confirming the severity of the economic downturn due to the Covid-19 crisis. The Norwegian labour and welfare administration (NAV) released weekly registered unemployed figures, showing an increase to more than 10% in mid-March. On 8 April GDP statistics showed that mainland GDP dropped by 14% from the start to the end of March. Statistic Norway’s estimate was based upon some very short-term indicators and the models from the national accounts.

Monthly national account figures from Statistics Norway on Friday 24 April showed that mainland GDP fell 6.4% MOM in March, following a 1.9% QOQ decline in Q1.

However, the gradual relaxation of the virus-containment measures post-Easter onwards marked a turning point for the economy. Registered unemployment started declining again in the second half of April.

Norges Bank conducted a phone survey of a limited sample of its contacts in the Regional Network in the period 21–22 April 2020. Summarizing the findings, Norges Bank stated: *“The outbreak of Covid-19 and the containment measures have affected most of the enterprises. A majority of contacts reported that activity in 2020 Q2 would be lower than in 2020 Q1, and for some, the decline has been dramatic. The travel industry and parts of retail trade have been the hardest hit so far. Among oil service contacts, the fall in oil prices is also further weighing on activity.”*

Monetary policy announcement 7 May: Norges Bank surprises by cutting further, to zero

On 7 May the Monetary Policy and Financial Stability Committee decided to cut the policy rate from 0.25% to 0.00%, a new record low. The decision was unanimous.

“In the Committee’s current assessment of the outlook and balance of risks, the policy rate will most likely remain at today’s level for some time ahead. We do not envisage making further policy rate cuts.”

From the Committee Assessment:

"Activity in the Norwegian economy has fallen sharply owing to the coronavirus pandemic. The uncertainty surrounding developments ahead is unusually high. Low interest rates cannot prevent the coronavirus outbreak from having a substantial impact on the Norwegian economy but can help dampen the downturn. This reduces the risk of a more prolonged impact on output and employment".

"Petroleum investment will show a pronounced decline in the coming years. Oil companies have cut investment plans in the face of the oil price decline. Demand for Norwegian export firms has fallen sharply, reflecting both a sharp contraction among our trading partners and a drop in foreign tourists".

"The authorities have deployed extensive measures to dampen the economic fallout of the coronavirus outbreak. Financial support is being provided to prevent bankruptcy of viable businesses and to alleviate the situation of households that have suffered a loss of income. … Norwegian banks are solid. Banks' credit losses have increased recently, but solid profitability enables banks to absorb large credit losses."

"In discussing the balance of risks, the Committee gave particular weight to the risk that the downturn could have a prolonged impact and that unemployment could become entrenched at a high level. The Committee also discussed the risk of a marked rise in inflation while activity remains low. This could occur in the event of a further krone depreciation, higher costs due to the coronavirus outbreak, or shortages of some goods and services. High unemployment and low wage growth are nevertheless expected to dampen inflation in the somewhat longer term."

At this point, GDP forecasts were slashed. Mainland GDP was expected to fall by 5.2%, a downward revision from the March forecasts amounting to 5.6%-points. In 2021, the economy was expected to rebound by 3.0%. The output gap was expected to be deeply negative, at -5.2% in 2020. In 2023, the end of the forecast horizon, it was expected to still be negative, at -1.0.

Core inflation forecasts were not much changed. It was expected to climb from 2.5% in 2020 to 2.8% in 2021, and afterwards abate again, towards 1.7% in 2023. Wage growth was expected to be very meagre, both in 2020 and 2011, at 1.8 and 1.3%, respectively. Home prices were expected to abate somewhat both in 2020 and in 2021, before rebounding again.

Norges Bank did not publish a regular interest rate forecast, but instead called the included interest rate path a "technical assumption" behind the forecast. It showed a key interest rate unchanged at 0.00% throughout the whole forecasting period (2020-2023).

The following emphasized a reluctance to enter the territory of negative rates: *"With a rate close to zero, there is a limit to how much further the rate can be lowered. Other countries* *have experienced that policy rates can continue to have an impact at slightly below zero, but it is uncertain how negative rates could influence the economy and financial markets, particularly in the current situation. The Committee emphasizes that it is now of particular importance to ensure well-functioning financial markets."*

NBW remarks that Norges Bank took the market by surprise with the decision to cut further to zero. According to Bloomberg, 19 out of the 21 surveyed analysts expected unchanged interest rates in advance, as downside risks appeared less mounting than in March. Two expected a cut to 0%. The question was: Why did Norges Bank need almost two months to decide that a further 25 basis point cut would add further stimulus to the economy? Given the very thorough speech on the monetary policy toolbox, given in October 2019, we know that matters connected the lower effective bound of the key policy rate had been actively discussed in the central bank before the crisis struck.

In hindsight, the forecasts given in May turned out to be too pessimistic. Given the exceptionally large uncertainty, also underlined by Norges Bank, especially given the future development of Covid-19, this is highly understandable.

2.2.5 From May to year-end: Returning to more normal policy setting circumstances

Financial condition improved further in the time running up to the June meeting. Money market premiums fell to around 35 basis points. The krone appreciated, with the import-weighted foreign exchange rate (I-44) 4.6% stronger than Norges Bank had forecasted for Q2. Part of the strengthening for the NOK was related to rebounding oil prices.

Importantly, in May and the first weeks of June, several of the imposed restrictions on the economy were eased, both in Norway and abroad, leading to a pronounced pickup in activity.

GDP statistics showed that the mainland economy had fallen by 4.7% MOM in April, after a 6.9% MOM decline in March. More frequent data showed an encouraging trend. Weekly numbers for registered unemployment fell to 5.8% by the end of May, 4.6%-points below the peak. Retail sales had rebounded by a stunning 4.8% MOM in April, and transaction data pointed towards a solid pick-up for both goods and services in line with easing restrictions.

The outlook for petroleum investments also appeared much less gloomy, due to the tax relief package passed by the Norwegian parliament, along with rebounding oil prices.

Core inflation turned out to be more heavily impacted by the sharp NOK depreciation than anticipated. CPI-ATE rose 3.0% YOY in May and 2.8% in April, well above Norges Bank's 2.2% estimate for Q2.

Home prices had rebounded more strongly than anticipated in May, reversing most of the price decline from March and April.

Monetary policy announcement 18 June: Rate hike indicated in the latter half of 2022

The Monetary Policy and Financial Stability Committee decided to keep the policy rate unchanged at 0.00% at the June meeting. The decision was unanimous. The rate path had the policy rate stable at 0.00% throughout 2021 and indicated that the policy rate could start to increase in the latter half of 2022 and increase further in 2023.

It was reiterated that *"The Committee does not envisage making further policy rate cuts."*

The press release stated: *"The policy rate forecast implies a rate at the current level over the next couple of years, followed by a gradual rise as economic conditions normalise. With such a policy rate path, there are prospects that capacity utilization will gradually increase and approach a normal level towards the end of the projection period."*

Economic forecasts were strongly upwardly revised from the May Update. Mainland GDP was now projected to fall by 3.5% in 2020 followed by a 3.7% rise in 2021. Registered unemployment was forecasted to 5.0% in 2020, falling to 2.6% in 2023. Core inflation was estimated to 3.0% in 2020, falling to 1.6% in 2023.

NBW remarks that the decision to keep the rate unchanged was well in line with expectations. According to Bloomberg, all of the 17 surveyed analysts expected unchanged interest rates in advance. The much less pessimistic estimates, indicating a 3.5% decline in mainland GDP in 2020, ended up being very close to the actual (preliminary) outcome (-3.1%).

Developments running up to the August monetary policy meeting

Through the summer, the strong trends for several indicators continued. Existing home prices rose more steeply than Norges Bank expected, by 1.1% MOM in June and 0.6% MOM in July, adjusted for seasonal variations. The YOY rate reached 4.9% in July. Household credit growth had also started to rise, reaching 4.4% YOY in June; 0.2%-points above Norges Bank's forecast.

Retail sales had surged by another 2.8% MOM in May and 5.7% MOM in June, and consumer confidence had recovered strongly. Seen together, the indicators gave strong support to the view that household demand had picked up considerably and that financial imbalances were about to rise again.

Statistics showed that mainland GDP rose 2.4% MOM in May, less than the 3.5% estimated by Norges Bank. The unemployment rate was abating further though, mainly in line with Norges Bank's expectations.

Core inflation jumped to 3.5% YOY in July, 0.3%-points above Norges Bank's forecast.

The pandemic had, however, taken a turn for the worse again. In the late summer, the spread of Covid-19 was increasing, leading to reintroduction of some virus containment measures.

20 August interim monetary policy meeting

On 20 August, Norges Bank left the policy rate unchanged at 0.0%, and reiterated the signals from the June meeting regarding the future path of policy. As this was an intermediate meeting, neither new forecasts nor a new monetary policy report was published. In the Monetary Policy and Financial Stability Committee's assessment it was stated that:

"(…) new information largely confirms the picture of the economic developments presented in the June Report. The Norwegian economy is in the midst of a deep downturn. Activity has picked up in recent months but remains lower than prior to the pandemic. Unemployment has declined but is still high.

Overall inflation is low. At the same time, underlying inflation has risen and is higher than the inflation target. The krone appreciation and prospects for low wage growth suggest that inflation will moderate further out.

In its assessment of the balance of risks, the Committee gave weight to the considerable uncertainty surrounding the further economic recovery. Recently, the spread of Covid-19 has increased, and some containment measures have been reintroduced. The Committee also focused on housing market developments. Persistently high house price inflation may result in accumulating financial imbalances.

The Committee decided unanimously to keep the policy rate unchanged at zero percent. The Committee's assessment of the outlook and balance of risks suggests that the policy rate will most likely remain at today's level for some time ahead."

NBW remarks that at this point, the trade-off between continuing to support the real economy and preventing the upbuilding of financial imbalances was lifted up in the monetary policy assessment. However, the committee did not provide new signals regarding the future path of the policy rate.

Developments between the August and September announcement

Up to the September meeting changes in the economic outlook and interest rates among Norway's trading partners had been rather small. Both the NOK and the oil price had rebounded more than anticipated by Norges Bank in June, but levels remained weaker than before the pandemic. Developments in the economy, including the labour markets, had been well in line with the central bank's expectations, with GDP growth moderating somewhat in July, after two preceding months of strong rebound. Registered unemployment had dropped further, reaching 4.1% at the beginning of September.

Core inflation had yet again been exceeding Norges Bank's expectations, reaching 3.5% YOY in July. The wage settlement in manufacturing, which establishes the general wage growth benchmark, ended at 1.7% for 2020. This was well in line with the central bank's expectations.

Home prices had risen less briskly in August, after several very strong months. Contrary to Norges Bank's expectations, credit growth had risen further in July, to 4.6% YOY.

Monetary policy announcement with Monetary Policy Report on 24 September

At the September meeting a unanimous committee kept the policy rate unchanged and made only minor revisions to the interest rate path from the June report. The first hike was still forecasted to happen in Q3 2022, but the policy rate forecasts was flattened somewhat in the second half of 2023, now indicating less than 50% probability for a third rate hike before the end of 2023.

Norges Bank reiterated that *"…the policy rate will most likely remain at today's level for some time ahead".*

"The sharp economic downturn and considerable uncertainty surrounding the outlook suggest keeping the policy rate on hold until there are clear signs that economic conditions are normalising".

Some outlines from the Committee's assessment:

"The Covid-19 pandemic has led to a sharp downturn in the Norwegian economy. Low interest rates are dampening the downturn and mitigating the risk of a more prolonged impact on output and employment. Since the June 2020 Monetary Policy Report, economic activity has picked up broadly as expected, but there is still substantial uncertainty about developments ahead."

"The Committee does not envisage making further policy rate cuts."

"There are prospects that the policy rate will remain at the current level for some time ahead."

"In discussing the trade-offs facing monetary policy, the Committee placed weight on the contribution of low interest rates to speeding up the return to more normal output and employment levels. This reduces the risk of unemployment becoming entrenched at a high level. In its discussion of the balance of risks, the Committee was also concerned that a long period of low interest rates increases the risk of a build-up of financial imbalances."

"The sharp economic downturn and considerable uncertainty surrounding the outlook suggest keeping the policy rate on hold until there are clear signs that economic conditions are normalising.

In the Monetary Policy Report, Norges Bank forecasted mainland-GDP to fall by 3.6% in 2020, followed by a 3.7% rise in 2021, roughly unchanged from June. Registered unemployment forecasts were unchanged, at 5.0% in 2020, declining to 2.6% in 2023. Norges Bank forecasted core inflation to 3.1% in 2020, falling to 1.5% in 2023.

NBW remarks that with the sentence *"The sharp economic downturn and considerable uncertainty surrounding the outlook suggest keeping the policy rate on hold until there are clear signs that economic conditions are normalising"* Norges Bank sharpened its forward guidance, implicitly stating that expectations of a normalization were not sufficient for the central bank to start tightening policy again. For that to happen, one would have to see clear signs that conditions actually *are* normalizing. In our view, this sharpening of guidance was valuable.

Developments from the September to the November meeting

During the autumn, infection rates were again increasing substantially both in Norway and abroad. Containment measures were reintroduced, albeit far from as harsh as during the first Covid-19 wave. While most economic indicators had evolved in line with Norges Bank's expectations, the rising infection rates now posed a more severe downside risk for the economy than in September.

Monthly GDP readings had confirmed that growth remained solid in Q3, well in line with Norges Bank's forecasts. The sharp improvement in the labour market over the summer was losing momentum though. In September inflation dropped below Norges Bank's expectations, to 3.3% YOY. Meanwhile, the temperature in the housing market remained high, with high turnover and price growth.

Monetary policy announcement on 5 November after intermediate meeting

On 5 November Norges Bank kept the policy rate unchanged at 0.0%. The decision was unanimous and in line with expectations. The press release reiterated that the outlook for the policy rate *"…and balance of risks suggests that the policy rate will most likely remain at today's level for some time ahead"*. The Monetary Policy and Financial Stability Committee's assessment was that new information largely confirmed the picture of the economic developments presented in the September Report but increased Covid-19 infection rates and more containment measures abroad and in Norway would likely put a brake on the upswing in the coming period.

From the Committee's assessment:

"The Committee gives weight to the fact that the Norwegian economy is in the midst of a deep downturn. So far, economic developments have largely been in line with the projections in the September Report. Activity has picked up further, but the level is still lower than prior to the pandemic. Unemployment has declined, but remains high. Increased Covid-19 infection rates and more containment measures abroad and in Norway will likely put a brake on the upswing in the coming period.

House prices have continued to rise. A long period of low interest rates increases the risk that financial imbalances are building up.

Underlying inflation has fallen, but is still higher than the inflation target. The effects of the krone depreciation earlier in 2020 are gradually fading. Together with prospects for low wage growth, this suggests that underlying inflation will moderate in the coming years.

In the Committee's assessment, the sharp economic downturn and considerable uncertainty surrounding the outlook suggest keeping the policy rate on hold until there are clear signs that economic conditions are normalising.

The Committee decided unanimously to keep the policy rate unchanged at zero percent. The Committee's assessment of the outlook and balance of risks suggests that the policy rate will most likely remain at today's level for some time ahead."

NBW remarks that, in contrary to the preceding meetings from May onwards, the statement *"Norges Bank does not envisage making further policy rate cuts from the current level"* was left out. It was not clear to those who follow the central bank if this was a signal that negative rates were back on the table, although there was little reason to suspect that this was the case.

Developments from the November to the December meeting

Shortly after the November meeting, the news of a major breakthrough for one of the vaccine contenders was announced. The Pfizer/BioPharma vaccine was reported to have moderate side-effects and a degree of efficiency above 90%, the latter an unusually strong efficiency compared to other vaccines. Other positive news followed, from competing vaccine developers. The UK was the first country out to start vaccinating in early December, and the US and Europe were expected to follow around the turn of the year.

Clearly, the vaccine news lifted the prospects of an economic rebound, when rolled out, and not least reduced the downside risk for the economic outlook. However, many, including the central bank governors in the US and the eurozone warned that substantial uncertainty remained, both regarding the efficiency among different age groups, how quickly the vaccines could be rolled out, and whether the vaccines could lead to herd immunity rather than merely preventing sickness for the person infected.

The positive reaction in the stock market was substantial, while the reaction in the fixed income markets was more modest. These developments were reflecting expectations of continued strongly expansionary policy by the major central banks in the years to come.

While the economic outlook seemed brighter, the current economic situation had deteriorated markedly. Both the domestic economy and the economy among trading partners was again weighed by the ongoing restrictions on mobility and activity imposed to get control over a new, strong wave of Covid-19 cases.

Figures for mainland GDP in October showed that the Q4 had gotten off to a significantly stronger start than anticipated, also adjusted for some special effect due to strong production of fish. However, weekly unemployment figures pointed towards a GDP decline in November, with layoffs modestly on the rise again.

Core inflation had turned out clearly weaker than Norges Bank projected in the September report, falling by as much as 0.5%-points to 2.9% YOY in November. The boost in imported inflation, due to the substantial NOK depreciation, seemed to be waning out.

Home prices, however, had continued to grow briskly, and much more than Norges Bank expected. In November, YOY growth came to 7.8%, well above NB's estimate of 4.9%. Moreover, household credit growth had continued to rise, to 4.8% YOY in October.

Monetary policy announcement and report 17 December: Signalling an earlier rate hike

On 17 December Norges Bank kept the policy rate unchanged, as was widely expected. The decision was unanimous. NB still communicated that the rate will be kept unchanged 'for some time', and that clear signs that economic conditions are normalising must be observed before the rate is increased.

The interest rate path signalled a stable policy rate at 0.00% throughout 2021, and a 70-80% chance of a rate hike in March 2022, followed by another hike in September. The new path suggested a rate close to 1.0% towards the end of the forecast horizon 2023.

The countercyclical capital buffer was unchanged at 1.0%, but the Committee signalled that it would advise increasing the buffer in the course of 2021.

From the assessment:

"The forecast implies a somewhat faster rate rise than projected in the September Report. With such a policy rate path, there are prospects that capacity utilisation will gradually increase and that the output gap will close during the projection period. Unemployment is projected to decline, but remain somewhat higher than prior to the pandemic. Underlying inflation is projected to edge down over the next year and a half, before rising to somewhat above 1.5% towards the end of the projection period."

"The Committee does not envisage making further policy rate cuts."

"In discussing the trade-offs facing monetary policy, the Committee placed weight on the contribution of low interest rates to speeding up the return to more normal output and employment levels. This reduces the risk of unemployment becoming entrenched at a high level. In its discussion of the balance of risks, the Committee was also concerned that a long period of low interest rates increases the risk of a build-up of financial imbalances."

"The sharp economic downturn and considerable uncertainty surrounding the outlook suggest keeping the policy rate on hold until there are clear signs that economic conditions are normalising."

Forecasts were little changed from the September report. Mainland GDP was expected to fall by 3.5% in 2020 and rise by 3.7% in 2021. Registered unemployment was forecasted to 5.0% in 2020, falling to 2.4% in 2023. Core inflation was forecasted to 3.0% in 2020, falling to 1.5% in 2023.

To illustrate the high uncertainty related to the development of infection and vaccination, Norges Bank had constructed three scenarios. In their baseline scenario, vaccination of risk groups starts in Q1 2021 and the wider population in Q2 2021. Containment measures are expected to be 'less strict' in Q1 and only 'some containment measures' will apply from Q2 2021 until there will be no containment measures in Q1 2022.

NBW remarks that the decision and signals of earlier rate hikes were well in line with expectations, reflecting a clearly more optimistic outlook due to the vaccine news. The vaccine scenarios were, in our view, a very clear and effective way to illustrate the vast uncertainty that remained.

BOX: Another rise in money market premiums during the autumn of 2020

From the middle of October to the middle of November, the Nibor rose from 0.25% to 0.51%, merely due to higher money market premiums. This time, the rise in premiums was a domestic phenomenon, not seen in other -IBOR rates.

It was driven by a drain of liquidity in the banking system, which again was driven by an increasing gap between the financing needs of the government and the Norges Banks daily NOK purchases, conducted on behalf of the government.

As the Norwegian fiscal stimulus is primarily financed though transfers from the Government Pension Fund Global ('the oil fund', GPFG), the extraordinarily high fiscal spending led to elevated daily NOK purchases. NB's annual NOK purchases are meant to be close to the oil-corrected budget deficit. Already in August and September, it was evident that the budget deficit would end up being smaller than earlier estimated, due to a clear improvement in the economy and smaller take-up of some crisis measures than expected. However, the NB continued carrying out extraordinarily high daily NOK purchases.

By depleting NOK from the system and into the government's account, held with Norges Bank outside the commercial banking system, the NOK purchases tightened the structural liquidity in the commercial banking system. By November, the government's cash reserves had roughly doubled from NOK 188bn in Dec-2019 to NOK 374bn.

In January Norges Bank had forecasted structural liquidity to be at its tightest in November with a shortfall of roughly NOK 60bn. The shortfall ended up more than twice as high. As NOK became a scarce resource, the Nibor rose sharply.

Norges Bank did not respond with new measures to curb the money market premiums and the uptick in the Nibor. On the worst day, Norges Bank had to add 125bn in ordinary F-loans to the market, the highest amount in the history of the current liquidity system.

On 23 November, Norges Bank issued a press release, reducing its FX sales on behalf of the Government from NOK1.6bn to NOK500m from the same day. The press release stated:

Owing to reduced transfers from the GPFG, there is less foreign exchange for Norges Bank to convert than previously assumed.

The decision was taken based on new information from the Ministry of Finance regarding the reduced need of transfers from the oil fund.

2 .3. Norges Bank's communication throughout 2020: No innovations, despite new set-up

2020 was the first year in which the new Central Bank Act came into force, with a Monetary Policy and Financial Stability Committee making monetary policy decisions rather than the Executive Board. The committee members are economists, and stand on equal terms, having access to the same information, also on an earlier stage of the decision process than was the case for the Executive Board. In 2020 the committee consisted of five members: the governor, the two deputy governors and two external members. The latter are Ingvild Almås (Professor at Stockholm University and Professor II at NHH) and Jeanette Strøm Fjære (former DNB Markets, now HousingLab at OsloMet).

The most visible sign of the change to a Monetary Policy Committee is the signatures by all members under the press release. The Committee's assessment is slightly more thorough than the preceding Executive Board Assessment, containing charts to illustrate the deliberations.

Importantly, in a separate statement at the day of the first monetary policy announcement in 2020 on 23 January, Governor Olsen stated:

We give weight to continuity in the communication of monetary policy. At the same time, it is natural for the new Committee to develop communication further over time",

The new governance structure entails changes to decision-making processes. The Committee will be involved earlier in the rate-setting process than under the previous regime.

Norges Bank's communication shall be transparent, accountable and clear. Information about the orientation of monetary policy will be published in "The Monetary Policy and Financial Stability Committee's Assessment", and provide comprehensive and simultaneous information to all stakeholders. The Committee's assessment will reflect an exchange of views within and assessments by the Committee, and any dissents will be reported. Detailed minutes of the meetings will not be published. Summary minutes of monetary policy meetings will not contain any monetary policy assessments other than what appears in the Committee's assessment.

The Governor is the Committee's external spokesperson. Press conferences will continue to be held in conjunction with the monetary policy meetings that coincide with the publication of the Monetary Policy Report.

NBW remarks that 2020 did not turn out to be a year with clear improvements or innovations in Norges Bank's communication. We certainly acknowledge that the focus paid on evolving communication rightfully was overshadowed by the overwhelming turn of events, leading to even more intense analytical work than normal. However, the statement given by Olsen in January leaves an impression of lacking ambitions to make large innovative changes in the communication. In our view, the new Central Bank Act puts forward expectations that the new organization, entailing a separate committee for monetary policy considerations, would allow the central bank to improve its communication. We, in line with many preceding committees, encourage Norges Bank to have bolder ambitions. Specifically, we urge that the central bank introduces minutes to give further details on the discussions and elaborations. With a committee consisting of merely economists, the argument that such minutes would curb the discussions are less valid, in our opinion. Granted, the assessment has evolved over time, given more details and nuances, but is still not as valuable as minutes or accounts.

3. 20 years of inflation targeting

3.1 Inflation targeting

Flexible inflation targeting as the operational target for the Norwegian monetary policy, was officially announced in a regulation from the Ministry of Finance on March 29th, 2001 (Ministry of Finance 2001). This marked the end of a long period of struggles connected to the fixed or stable exchange rate policy during the last three decades of the twentieth century (Norges Bank 2017).

Inflation targeting was pioneered in New Zealand in 1990. Canada followed as the second country in 1991, when the United Kingdom adopted inflation targeting in 1992. The UK also decided to have a monetary policy committee within the Bank of England to have the sole responsibility for setting the interest rates from 1998. Sweden and Australia followed with inflation targeting in 1993 and Spain in 1994 (Scott 2010). Although the European Central Bank did not formally adopt inflation targeting as a central bank policy, it did after the inception of the euro in January 1999, manoeuvre towards maintaining price stability within the eurozone. The Governing Council of the ECB in October 1998 defined price stability as inflation below two percent. In 2003 it was changed to below, but close to two percent in the medium term range (Hammond 2011).

Table 1. Inflation targeters by adoption year.

Country	Year of adoption	Early target inflation rate*	Country	Year of adoption	Target inflation at adoption
New Zealand	1990	1-3	Guatemala	2005	5 ±1
Canada	1991	2 ±1	Indonesia	2005	5 ±1
United Kingdom	1992	2	Romania	2005	3 ±1
Australia	1993	2-3	Serbia	2006	4-8
Sweden	1993	2	Turkey	2006	5.5 ±2
Czech Republic	1997	3 ±1	Armenia	2006	4.5 ±1.5
Israel	1997	2 ±1	Ghana	2007	8.5 ±2
Poland	1998	2.5 ±1	Uruguay	2007	3-7
Eurozone**	1999	<2	Albania	2009	3 ±1
Brazil	1999	4.5 ±2	Georgia	2009	3
Chile	1999	3 ±1	Paraguay	2011	4.5
Colombia	1999	2-4	Uganda	2011	5
South Africa	2000	3-6	USA	2012	2
Thailand	2000	0.5-3	Dominican Republic	2012	3-5
Hungary	2001	3 ±1	Japan	2013	2
Mexico	2001	3 ±1	Moldova	2013	3.5-6.5
Iceland	2001	2.5 ±1.5	Russia	2014	4
South Korea	2001	3 ±1	India	2015	2-6
Norway	2001	2.5	Kazakhstan	2015	4
Peru	2002	2 ±1	Ukraine	2016	12 ±3
Philippines	2002	4 ±1	Argentina	2016	8-12

± are max/min deviations from target
* Preliminary and intermediary targets not included
** Not formally inflation targeting
Source: Jahan (2018)

3.2 Norway and inflation targeting

Despite inflation targeting having seemed to be a relevant solution for Norway, it was not introduced until the old system collapsed by itself in 1998. This seems to have been the Norwegian way. Monetary policy has been changed when it has been necessary more than as proactive measures. This to a large extent also applies for the flexible inflation targeting policy (Lie 2020).

In 1998, the Asia Crisis led to a negative shock in the demand for raw materials. Hence, petroleum prices plummeted by 60 percent from its peak in January 1997 to its bottom in November 1998. The sharp decline made the Norwegian krone depreciate in the currency markets, and despite a dramatic increase in key interest rates, Norges Bank was not able to defend its value. In January 1999 the central bank then used the room of manoeuvre they had and de facto left the manged floating regime (Eitrheim 2020).

However, it was not until March 29th, 2001 that the Ministry of Finance decided Norges Bank was to monitor a policy aiming at a low and stable inflation of 2.5 percent (Ministry of Finance 2001). This inflation target existed until March 2018, when it was revised to 2.0 percent, due to lower inflationary pressure from the oil and gas industry, which had already peaked and to adopt a target more at the same level as our trading partners (Ministry of Finance 2018).

At the same time, it was stressed that the inflation targeting should be forward looking and flexible, in order to contribute to high and stable production and employment levels, and additionally contribute to the prevention of financial instability (Norges Bank 2020c).

3.3 Trends in Norwegian flexible inflation targeting

During the last 20 years, several adjustments of the monetary policy have been carried out. In this development, one can discover three main trends. Firstly, the monetary policy has been continuously more flexible both regarding time horizons and parameters decisive for the policy management. Secondly, financial stability has been increasingly more in focus. Thirdly, the processes around the monetary policy have become increasingly more open and transparent (Olsen 2021).

The increasing flexibility of the inflation targeting and increasing emphasis on financial stability have to a large extent been results of adaptation to the market development. The need for financial stability in order to reduce the frequency and effect of financial crisis, has become far more important than assumed when inflation targeting was introduced (Eitrheim 2016). Increasing transparency has served the need for predictability for the business community and credibility for the central bank and its monetary policy. It also contributes to a more efficient monetary policy (Qvigstad 2009).

Hindsight, one may ask if the regulation from March 2001 was insufficient to meet the future monetary challenges. Particularly, it seems as the need for financial stability and flexibility of inflation targeting was underestimated. However, in the time of the introduction of the regulation it was an important invention and improvement of the monetary policy given the macroeconomic framework. All countries adopting inflation targeting had a way to go, when it comes to the flexibility of the targeting and the emphasis of financial stability.

Adaptations were rarely carried out previous to the up building of crises, but rather in consequence of crises and in order to prevent new crises of the same kind. In this perspective central banks and their regulatory authorities seem to have reacted more reparational than proactive. However, one can argue that inflation targeting as a new monetary system had to be revised according to one’s experiences. In that respect central banks, and perhaps particularly Norges Bank and the Ministry of Finance, as regulatory authority, have done a good job with their emphasis of flexibility in the system. In other words, the central bank has been successful in its adaptation of its policy to the economic realities. Also, the central bank has in most cases been taking the initiative to changes, when the Ministry of Finance has been following after.

Table 2. Important changes in Norwegian flexible inflation targeting.

Time	Event	Policy consequences
Jan 1999	NB leaves float management	Flexible inflation targeting de facto introduced
Mar 2001	New regulation on monetary policy	Flexible inflation target set to 2.5%
Jul 2004	Extended horizon for reaching inflation target	More flexible inflation targeting
		Time horizon changed from 2 to 1-3 years
Nov 2005	First publication of interest rate path	Innovation for transparency
		More room for expectation management
Mar 2007	Adjustment of the time horizon of the monetary policy	Horizon becomes medium term
		More flexible inflation targeting
Sep 2008	Global financial crisis	Increased focus on financial stability
		Leaning against the wind becomes central
Mar 2013	Inclusion of financial stability in monetary policy report	More focus on financial stability
Aug 2014	Petroleum price fall	More flexible inflation targeting
		as focus is set on counter cyclical policy
Jun 2015	Counter cyclical capital buffer in use	More focus on financial stability
Mar 2018	New regulation on monetary policy	New inflation targeting 2.0%
		Focus on high and stable employment
Jun 2019	New central bank law	Central banks independency emphasized
		New professional monetary committee
		Responsibility for financial stability emphasized
May 2020	COVID-19 crisis	Key interest rate set to 0

Source: Hanken og Syse (2020).

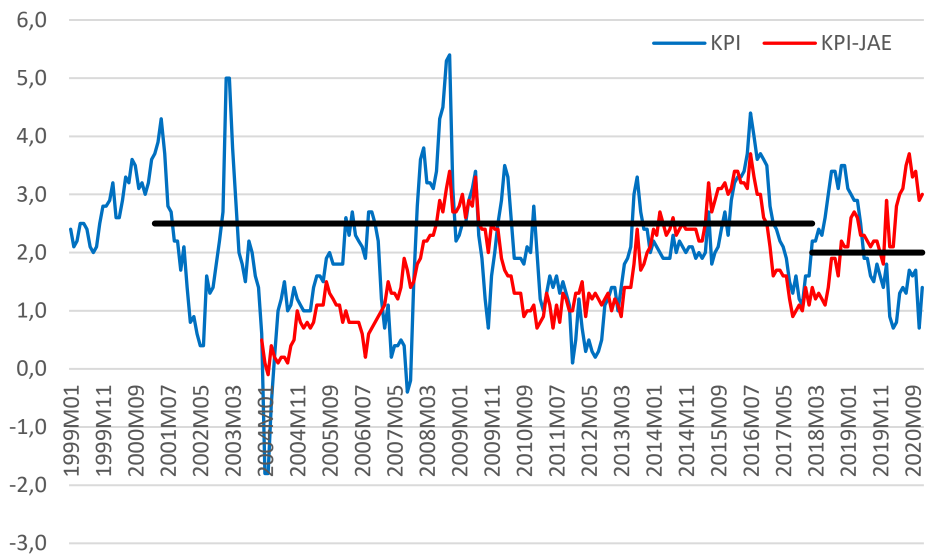
Table 2 reports the most important events in the moderation of the introduction and revisions of the flexible inflation rate targeting policy. It shows that the policy gradually went in the direction of more flexibility, more emphasis on financial stability and more openness and transparency. In the following sections we will discuss the development in more details.

3.4 Regulation of monetary Policy March 2001

According to the regulation given by the Ministry of Finance on March 29th, 2001 the monetary policy should still aim at stability in the domestic and the international value of the krone, including stable expectations of the exchange rate. At the same time the monetary policy should support the fiscal policy by contributing to the stabilization of the development in production and employment. The operational aim for the central bank should be directed towards low and stable inflation. The operational inflation target should be 2.5 percent over time (Finansdepartementet 2001).

The inflation was to be measured as the consumer price index adjusted for external disturbances without any lasting effects. Thus, Statistics Norway developed the CPI-ATE (KPI-JAE) in use from December 2003, which adjusts for changes in indirect taxes and exclude energy production. This would apply a measure of the core or underlying inflation. It represents a smoother measure of inflation than the common CPI (Jonassen 2006). The major reason for not introducing a 2.0 percent target, more like that of the Eurozone, was that one assumed a higher real appreciation pressure than in Europe in general, due to the high oil income. Thus, one also assumed higher inflationary pressure.

Chart 3.1 12 month's inflation rates, 1999-2020.



Source: Statistics Norway

From the beginning it was made clear that the inflation targeting was flexible, which should give more room for manoeuvre with regards to business cycles and other factors important for the monetary policy. However, it was clearly assumed that the central bank would be able to reach the target quite soon. And the central bank had to explain to the Ministry of Finance, why they didn't converge towards the 2.5 target (Ministry of Finance 2017).

3.5 Extended horizon for reaching inflation target July 2004

After some time, it turned out to be more difficult to reach the 2.5 percent inflation target than believed, as the core inflation was hovering around 0 - 1 percent. In July 2004, the time horizon for reaching the inflation target was not only extended, but widened from 2 to 1-3 years (Norges Bank 2004).

This change in time perspective meant that the inflation targeting became more flexible in respect of timing, which implicitly also gave more room for taking the real economy into account within this longer time frame.

3.6 Publication of interest path November 2005

Informative publications by the central bank have assured some level of transparency since the 1990s. In 2007 the inflation report was transformed to a wider monetary policy report. From 2013 it included reports on financial stability (Norges Bank 2013).

An important central bank innovation was the publication of the interest path from November 2005 (Norges Bank 2005). This gave estimations of expected future key interest rates with statistical confidence intervals. This meant an important step on the road to more transparency by more explicit communication on the elaborations behind the central bank's policy and their future expectations. This was an extension of the practice of publishing a forward guidance of expected interest rates. Hence, the market would know in which direction the central bank tended to move, and could adjust to that. By communicating this way, it would be easier for both households and businesses to make more optimal investment choices and for the central bank to carry out its policy, since markets adapt to expectations. Thus, this was a move towards more openness and expectation management.

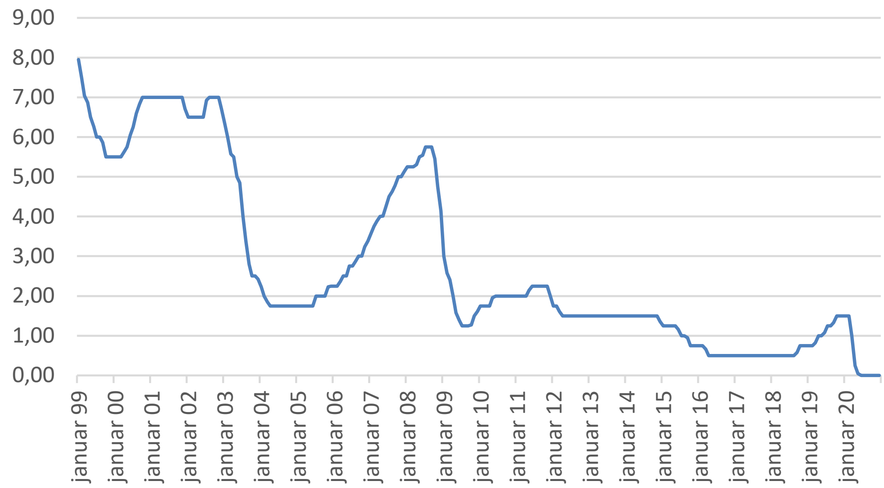
On the other hand, the expectations made by publishing the interest path may influence the future interest rate both by forming market expectations and future key interest rate decisions, which are not necessarily optimal (Natvik 2020).

The increasing focus on discretionary monetary policy the last years has on the other hand made the communication of interest decisions less precise, as the central bank is unable to communicate their deliberations as explicitly as during the first years of the inflation targeting regime.

3.7 New adjustment of time horizon for inflation targeting March 2007

During the Spring of 2007 there was an increasing concern about overheating in the economy with low unemployment, and financial instability with asset bubbles, in particular in the stock and the housing market. Still, the central bank struggled to converge to the inflation target, with a core inflation of around one percent. The low inflation should indicate lower interest rates. In fact, the interest rates had been set down from 7 to 1.75 percent between December 2002 and May 2004, basically due to a negative demand shock from abroad, and low inflation imported from low-cost countries (Gjedrem 2003). The relative strict focus on inflation targeting, thus, demanded lower interest rates. In fact, Norges Bank has used the interest instrument quite willingly, in particular to mid 2009.

Chart 3.2. Key interest rate, monthly figures.



Source: Norges Bank

In 2004 the cycle turned. The extension of the EU in 2004 resulted in a significant influx of labour from eastern Europe. This made the supply side of the economy more flexible and improved the economy's capability of dealing with shocks. In addition, it made labour costs lower and contributed to a positive supply shock. Together with high petroleum prices this led to a significant boom (Kravik & Mimir 2019). During the autumn of 2005 the central bank became increasingly concerned about the danger of overheating and possible asset bubbles followed by asset crashes, indicating higher interest rates (Gjedrem 2020). Thus, inflation targeting was made more flexible and the 2.5 percent target explicitly became a medium-term target instead of a 1-3-year target (Norges Bank 2007).

The formal adjustment was in many ways a result of what had been going on in the central bank from June 2005, when the key interest rate was set up 16 times until June 2008. All in all, it increased from 1.75 to 5.5 percent, far more than the moderately increasing core inflation rates would suggest. However, wages increased considerably and made a possible threat to long-term price stability (Norges Bank 2009a).

Since the increase came together with a positive business cycle, it seemed within the borders of the central bank mandate to increase the interest rates. However, it came on the expense of the low inflation, which indicated the opposite action to be taken.

Hindsight it is rather clear that Norges Bank did the right thing. Arguably the rates should have been raised earlier, in particular with reference to the high levels of the stock market and house prices. However, Norges Bank's mandate at the time made that difficult.

3.8 Global financial crisis September 2008

After a turbulent second half of 2007 and a first half of 2008, the international stock market crash heavily disturbed the international economy during the Autumn of 2008. The Oslo Stock exchange crashed with a 64 percent contraction from late May to late November that year. Real house prices fell with 18 percent from August 2007 to December 2008 (Grytten & Hunnes 2014). During the Autumn 2008 Norwegian banks were threatened by a huge liquidity crisis, as they were unable to obtain necessary credit in order to conduct their duties as banks. The Norwegian situation to a large extent mirrored what happened in the international arena.

The crisis demanded rapid action from the government and the central bank. Norges Bank action was counter-cyclical. In the first place, the key interest rate was set down from 5.5 to 3.0 percent from late October to late December. This was done in order to reduce interest costs, ease the situation for the banks and motivate investments (Norges Bank 2009a). Norges Bank also played a central role in the crisis package to Norwegian banks provided by the government. This implied the government acted as a guarantor for the banks searching for liquidity in the money market. Technically this was done by the exchange of the most liquid bank bonds by state government bonds. The latter served as a guarantee for Norwegian banks searching for credits. In addition, Norges Bank provided loans to smaller banks. Targeted crisis measures, a solid bank system and a rapid recovery of oil prices, after a short but deep dive, led to a shorter and milder crisis in Norway than among its trading partners. Also, the weakening of the krone worked as a buffer and against a huge fall in income from exports and thus, a stabilizer for the economy (Norges Bank 2009b).

Financial instability with rapid increase in debts led to the overheating of the economy. This was to a large extent caused by low interest rates. Low interest rates were a consequence of the low inflation, significantly under the target levels. Thus, central banks were to set low key interest rates. However, this led to a rapid growth of debt, overheating and asset bubbles (Thakor 2015). Central banks, among them Norges Bank, tried to “lean against the wind” when they raised their key interest rates between the Autumn of 2006 until the summer of 2008, but it was too late.

In addition, it has been argued that a global savings glut contributed to the crisis through excess of desired savings over desired investments. This was hugely emanating from China and emerging Asian economies along with Middle east oil producing countries. This held long-term interest rates down, when the flow of global savings into the United States helped the state of lower long-term than low-term interest rates, when Fed was raising the key interest rates in order to stop the potential overheating. Huge capital inflow to the United States also pushed up the dollar value and by that contributed to an extraordinary large American trade deficit (Bernanke 2015).

In result of the deep crisis, financial stability became more in focus globally, among governments, financial supervisory authorities and central banks. Norway and Norges Bank were no exceptions.

In consequence, Norges Bank put significantly more emphasis on financial stability in the years to come. This should be seen as a formalization of a development that gained pace since the autumn of 2006. During this period the bank played a central role both in the construction of crisis packages and future preventive measures against financial instability.

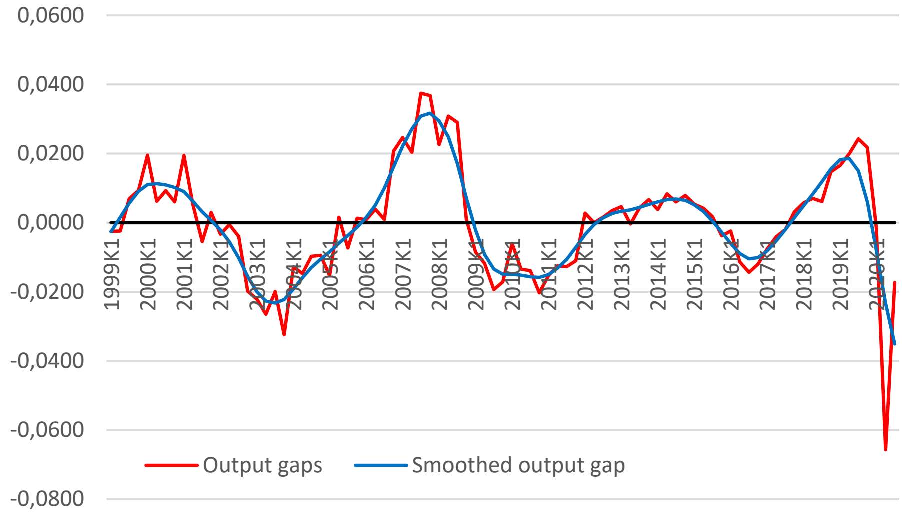
3.9 Financial stability included in reports on monetary policy March 2013

The first years after the financial crisis Norway experienced relatively stable growth (Norges Bank 2011). Both the solidity and liquidity of Norwegian banks were quite good. However, the recovery within the Eurozone was still weak after the negative shocks from the financial crisis until 2012 (Norges Bank 2012). This had negative effects on the Norwegian economy. But these were neutralized by high domestic demand. Thus, the central bank decided to increase the key interest rate from 1.25 percent in September 2009 to 2.25 in May 2011. The bank had more focus on financial stability, and from March 2013 this was formalized by including financial stability in the quarterly monetary policy report, when it previously had been in an independent and less central report (Norges Bank 2013).

3.10 Negative oil price shock August 2014

From August 2014, petroleum prices plummeted from around a 100 to under 30 US dollars per barrel, without returning to the old level again until now. The incident led to a huge downturn in the real economy, with oil and gas related industries suffering the most, with a loss of around 50,000 jobs. The Norwegian maritime sector, in particular the ship building industry and the offshore ship owning companies, ran into a huge debt crisis during a period of low activity, which still is mirrored in the maritime industries. Despite the build-up of financial instability with abnormally high levels of gearing in these industries, this was not a foreseen crisis, and it evolved rapidly (Koilo & Grytten 2019).

Chart 3.3. Production gaps, seasonally adjusted GDP per capita figures.



Source: Statistics Norway

Also, from 2015 important trading partners changed their approach to inflation targeting. Both the ECB and the Swedish central bank lowered their key interest rates to zero. This was basically done in consequence of continuously low aggregate demand levels with high public debts. In 2015 and 2016 low external demand influenced the Norwegian economy via negative demand shocks.

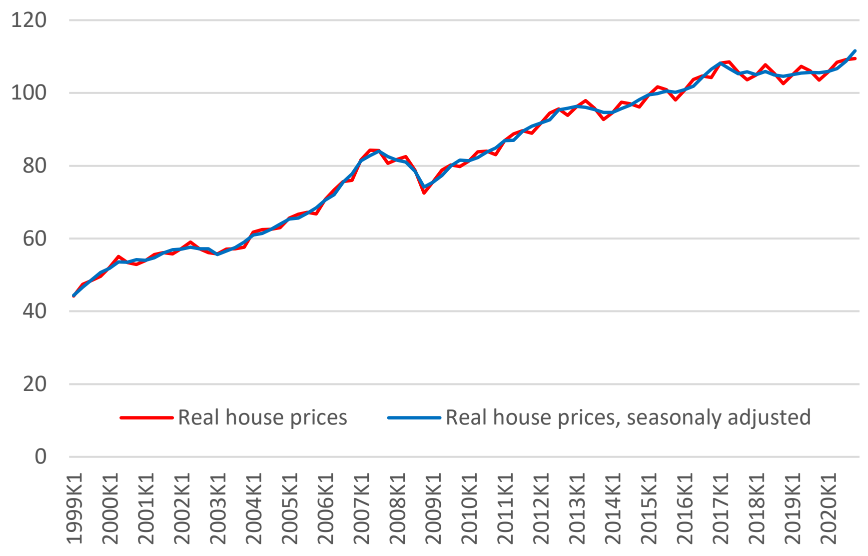
Norges Bank responded to the negative business cycle by lowering the key interest rate from 1.5 to 0.5 percent in four steps from December 2014 to March 2016, despite the increasing inflation reached levels above the 2.5 percent target. Thus, Norges Bank according to its instruction seemed to have paid attention to the production gap in this period, which emphasis its flexibility (Norges Bank 2016).

The low interest rates among important trading partners may have reduced the room for manoeuvre in the Norwegian monetary policy. The economy may have been more sensitive to a rapid increase in interest rates, which again may reduce economic growth, increase unemployment rates and reduce inflation. Low Norwegian interest rates combined with high debts in households also reduced the room for manoeuvre for the central bank, and seemed to be a threat to financial stability.

3.11 First use of the countercyclical buffer June 2015

A consequence of the financial instability that caused the financial crisis, was the introduction of counter cyclical buffers for banks and financial institutions, in line with the Capital Requirements Directive IV by the European Union in 2013 (EU 2013). The system of counter cyclical buffer was first approved by the parliament in June, when the buffer was introduced by the Ministry of Finance in October the same year (Finansdepartementet 2013a). The buffer was decided to be within 0 to 2.5 percent of the bank's risk weighted assets, and set by the Ministry of Finance based on recommendation from Norges Bank. It is supposed to work countercyclical to financial development. In particular, Norges Bank pays attention to the development in the house market and debt indicators. Almost 2.5 times higher house prices in 2017 than 1999 gives reason to be on the alert.

Chart 3.4 Real house prices, quarterly figures (deflated by CPI).



Source: Statistics Norway

This has become an important part of the central bank's mission. The buffer was first in use from 31st of June 2015 (Finansdepartementet 2013b). This was half a year later than Norges Bank recommended. Since then, the central Bank's recommendations have always been followed both concerning level and timing. The buffer clearly is an attempt to be proactive and countercyclical as a response to the experiences learned during the financial crisis.

3.12 New inflation target March 2018

On the 2nd of March 2018 the Ministry of Finance gave a new public regulation regarding the monetary policy (Finansdepartementet 2018a). The new regulation basically gave two important changes. In the first place, the inflation target was reduced from 2.5 to 2.0 percent. Secondly, it was explicitly stated that the inflation targeting should be forward looking and flexible in order to contribute to high and stable production and employment, and additionally work as a stabilizer against financial instability.

The Ministry made it clear that this to a large extent was decided in order to adjust the monetary policy rules according to its practical development adjustments. Hence the regulation was tailored according to how the monetary policy actually was carried out at the time. It was also emphasized that the new regulation rested on the experience of flexible targeting since its introduction in Norway in March 2001. The regulation also took into account that the phasing in of revenues from the petroleum sector basically was done. Hence, the inflationary pressure would fall, and, thus, there were no longer strong arguments for having a higher inflation target than the trading partners (Finansdepartementet 2018b).

3.13 New central bank law June 2019

The new central bank law in June, to a large extent mirrored the development of the monetary approach since the introduction of flexible inflation targeting. The law explicitly states that the aim of the activity of the central bank is to assure a stable value of money, promote financial stability and an efficient and secure system of payments. It is also within the central bank's responsibility to contribute to high and stable production and employment. The new law clearly emphasizes the aim of the central bank, its independence and its responsibility for financial stability (Finansdepartementet 2019).

A monetary policy committee was introduced with three members from the bank and two external experts (Norges Bank 2020c). Hence, important monetary decisions were taken over by a special board of experts, like in many other countries.

Theoretically the decision on the level of the key interest rate takes into account the inflation gap, the output gap and financial stability vectors. In practice, it is based on quantification of economic shocks, macro projections and discretion (Gerdrup 2017). This is in contrast to the first introduction of inflation targeting in 2001, when the main focus was steering towards an inflation rate of 2.5 percent (Olsen 2021). During and after the financial crisis of 2008 discretion became more important for interest decisions until presently. Thus, the loss function seems to be paid less attention as background for the decision of the interest rate (Thøgersen 2020).

The monetary committee is more hands on the decision making than the old board, and in principle both internal and external members receive the documents of the meetings at the same time. They aim at consensus decisions. And until now it has not been any tendency towards split in views between internal and external members.

3.14 Covid-19 crisis March 2020

Norges Bank's response to the Covid-19 crisis represents crisis management. Thus, a huge negative production gap and the risk of failure in the financial system were decisive factors for the actions made by the central bank. At the end of March 2020, the key interest rate was reduced from 1.5 to 0.25 percent, before it was set to zero for the first time ever in Norway, in May.

The aim was firstly to reduce the burden for businesses and consumers running into liquidity problems. Secondly, it would contribute to increase the activity in industries less influenced by the lock down. Thirdly, it was seen as a measure against a crash in the property market (Norges Bank 2020a).

Despite the central bank losing huge parts of its key interest rate room of manoeuvre, it still had room for manoeuvre within currency trade. The generous crisis packages by the government and the parliament also made it necessary to buy Norwegian kroner, which made it stronger than it would have been without these requirements.

It is worth noticing that the central bank and the government did not formally synchronize their policy during the first times of the crisis, and there was no joint meeting on the situation previous to the crisis (Olsen 2021). However, they both worked in the same direction when the crisis hit the Norwegian economy (Bache 2021).

From June it became evident that the falling house prices were about to turn to increase. This development continued throughout the year. However, the central bank deemed this as a lower risk than the negative development of the real economy (Norges Bank 2021b). Thus, the focus of financial stability, seems to have been less important and output gaps more important during the crisis.

3.15 Conclusions on 20 years of flexible inflation targeting

In our opinion Norway basically has had good experiences with flexible inflation targeting during the twenty years since its introduction in March 2001. In the long run the average core inflation has since the introduction of the measurement in December 2003 been 1.8 percent, which is 0.2 percent units under the present inflation target. The policy has at several episodes contributed both to production and employment stability, as well as financial stability.

The policy management has changed substantially. In the first place it has been more flexible and has given room to more discretion. Secondly, it has paid increasingly more attention to financial stability. Thirdly it has become more open and transparent.

The development seems to have followed some general patterns. In the first place, the central bank has often adapted its policy according to macroeconomic shocks, rather than acted proactive to them. Secondly, the central bank has acted with rapid and appropriate reactions to these shocks. Thirdly, the central bank has very competently used its room of manoeuvre. Fourthly, the central bank has learned from the shocks and adapted the system to them. Fifthly, the Ministry of Finance has been adapting to the monetary management by the central bank by revising their understanding and regulations of flexible inflation targeting according to the central bank's practice. In this way the central bank has acted proactive.

4. Policy Issues for Norges Bank

In this section, we consider policy issues for Norges Bank. We start by discussing some issues related to inflation targeting - both in general and under a pandemic. Then we raise some issues regarding the advice on the countercyclical buffer. The Ministry of Finance sets the buffer, so the tool is not contained in Norges Bank's toolbox. Norges Bank has the task of preparing the decision basis and gives an advice to the Ministry regarding the buffer, however. We will mostly focus on the new framework for the advice, which was introduced at the end of 2019.

4.1 Inflation targeting

Norway formally introduces an inflation target 20 years ago – in March 2001. Here we discuss issues related to central bank communication and to policy during a pandemic. To this end, we set up a simple toy model and use it to highlight some of the trade-offs faced by policy makers.

4.1.1 A simple toy model

We will develop a simple toy model that will help us build some intuition regarding both communication of monetary policy and policy during a pandemic.

Aggregate demand

We start by describing the so-called monetary policy transmission mechanism. We consider a small, open economy and assume the following simple representation of aggregate demand:

$$x = -\alpha_1(r - \rho) + \alpha_2 e + \chi q + v \qquad (1)$$

where $x = y - y^*$ is the output gap, with y and y^* respectively denoting actual and potential GDP (in logs). The output gap is the percentage difference between actual GDP and potential, or trend GDP. Furthermore, we let $r = i - \pi^e$ be the real interest rate, which is defined as the nominal interest rate, i, minus expected inflation, π^e. We allow for two different financial variables in the model, the real exchange rate, e, and the financial variable q, which we, for simplicity, will refer to as (excess) credit. We measure both as deviations from their trend values. The last variable, v, is a demand disturbance. Parameters α_1, α_2, and χ measure the extent to which aggregate demand is influenced by the real interest rate, the real exchange rates and asset prices, respectively.

The equation is based on a very simple intuition. First, aggregate demand decreases when the real interest rate increases. The simple reasons are both a fall in investment demand and a fall in consumption demand. The intuition for the former is that fewer investment projects are profitable with a higher cost of borrowing. Consumption demand fall both because the return to saving increases which makes household want to delay some consumption but also because households with large debt will decrease consumption when the interest rate payments on their debt increases.

The intuition for the other terms are straightforward as well. An increase in the real exchange rate, that is a real depreciation of the domestic currency, implies an increase in demand for domestically produced goods and services, since they are then relatively less expensive. An increase in the access to credit also increases demand for goods and services.

Two financial variables

To complete the description of the relationship between aggregate demand and monetary policy, we need to relate both the real exchange rate and credit to the interest rate. This is done in the following simple way:

$$e = -\eta(r - r^*) + z \tag{2}$$

$$q = \tau x - \phi(r - \rho) + w \tag{3}$$

Here z and w are shocks to the real exchange rate and credit, respectively. The former will pick up changes in the risk-premium on holding the domestic currency, but also changes in expectations about future real exchange rates. The latter has a similar interpretation and will be linked to developments of asset prices (like stocks or house prices) and therefore to collateral values. The parameters η and ϕ measure the real exchange rate and the credit reaction to changes in the real interest rate, while parameter τ measures the sensitivity of credit to changes in real economic activity.

Aggregate demand – again

It is useful to develop the reduced-form aggregate demand equation. We do this by combining the three equations above and solving with respect to the output gap. The resulting equation can be written as:

$$x = -\frac{\alpha_1 + \eta\alpha_2 + \phi\chi}{1 - \chi\tau}(r - \bar{r}), \tag{4}$$

where $\bar{r} = \rho + [\alpha_2(\eta(r^* - \rho) + z) + \chi w + v]/(\alpha_1 + \eta\alpha_2 + \phi\chi)$ is the neutral real interest rate, that is the real interest rate, which closes the output gap. This equation has a number of interesting implications for monetary policy and inflation targeting, which we will return to below. Let us already mention the fact that the three parameters in the nominator above relate to the three channels through which monetary policy affects real economic activity in this simple model: the interest rate channel to aggregate demand, the exchange rate channel to aggregate demand and a credit channel to aggregate demand. The denominator, in turn, relates to the so-called financial accelerator. An increase in aggregate demand will increase asset prices and thereby the value of collateral, which in turn will lead to further increases in aggregate demand. The financial accelerator, or financial multiplier, thus measure by how much the effect on demand is amplified.

Inflation
The next key relationship for discussing inflation targeting in an open economy is the so-called Phillips curve. A simple representation is as follows:

$$\pi = \pi^e + \gamma_1 x + \gamma_2 e + u,$$

where π is the rate of inflation and u is an inflation shock. The equation implies that an increase in the level of activity will increase the rate of inflation. The reason is twofold. Firstly, an increase in economic activity will increase the use of labour, which in turn will put an upward pressure on real wages. Secondly, firms typically have decreasing returns to scale in the short run and therefore increased output will increase the marginal cost of production. We see that a weak domestic currency (in real terms) will put an upward pressure on consumer prices. The reason is both that imported consumer goods become more expensive and that the price of imported intermediates increase.

Chart 4.1 Monetary policy transmission mechanisms

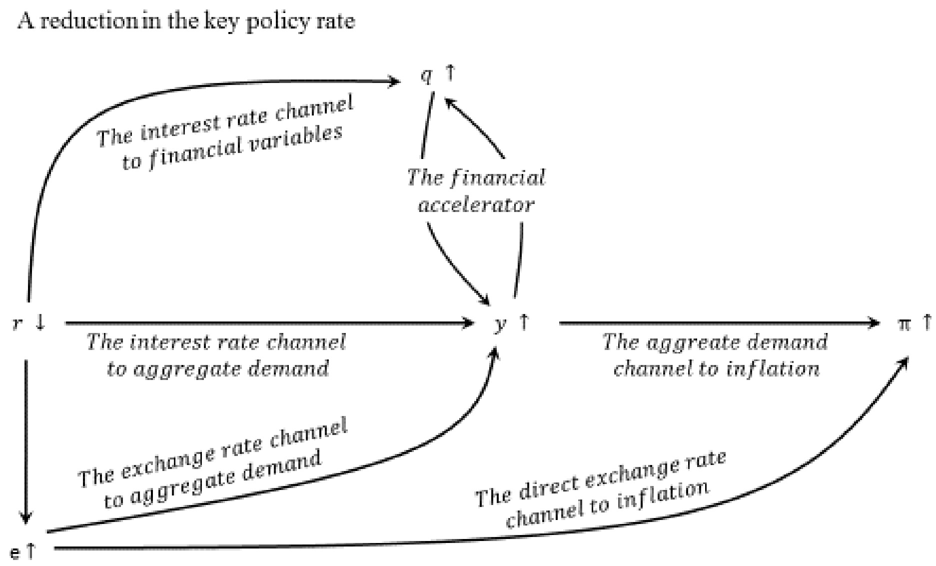


Chart 4.1 shows the monetary policy transmission mechanism of our simple toy model. Monetary policy influence economic activity through the interest rate channel and the exchange rate channel, and inflation through the demand channel and the direct exchange rate channel. In addition, monetary policy affect the accumulation of credit, which amplifies the effect on demand both directly since increases in credit increases demand and indirectly through the financial accelerator. For details about the different channels, see, e.g., Røisland and Sveen (2018).

Monetary policy

To complete the model, we need a description of monetary policy. Most macroeconomic textbooks represent monetary policy by an exogenous interest rate or a simple interest rate rule. A typical example of the latter is the Taylor rule, according to which the nominal interest rate is a simple linear function of the rate of inflation and the output gap. An alternative is to specify central bank preferences by a so-called loss function and assume that policy is set in such a way that the loss is minimized, see, e.g., Svensson (2010). Let the loss function be given by:

$$L = \frac{1}{2}[(\pi - \pi^*)^2 + \lambda x^2 + \omega q^2], \tag{5}$$

where π^* is the inflation target, λ is the relative weight on stabilizing the output gap and ω is the relative weight of stabilizing credit. The loss function above implies that the central bank prefers a balanced development of the inflation gap (inflation minus the inflation target), the output gap and credit. For a simple explanation, see Røisland and Sveen (2018).

Minimizing the loss function subject to transmission mechanism results in an optimality condition of the following form:

$$\pi - \pi^* = -\frac{\lambda}{\Xi}x - -\frac{\omega}{\Theta}q \tag{6}$$

The parameters Ξ and Θ are functions of the other parameters of the model and they measure how easy it is to control the rate of inflation (relative to the output gap and credit, respectively) using policy. One main insight is that the inflation gap, the output gap and excess credit should not have the same sign. The intuition is quite simple. It is not optimal if the three variables are all positive, for in that case the central bank should engineer an increase in the real rate, which will bring down all variables. If there is no excess credit, the rule says that the output gap and the inflation gap should have opposite signs.

The equations above and variations thereof are found in many macroeconomic textbooks. They are obviously too simple to be used for setting interest rates in actual central banks, but they still represent a simple way to illustrate important questions for monetary policy, also during a pandemic. We turn to this below.

4.1.2 Central bank communication

"Simple rules are useful because they are simple". This quote came up in the discussion of simple instrument rules versus optimal monetary policy. We think the quote is relevant also for central bank communication and it seems that Norges Bank think so as well. In the past, Norges Bank has often used simple rules of thumb to explain monetary policy. A typical example is the set of criteria for an appropriate interest rate path, which first appeared in the Inflation Report 1/2005. In the beginning there were as many as six criteria, but over time the number of criteria gradually decreased to three – to five criteria in the Monetary Policy Report (MPR) 1/2007, to four criteria in MPR 2/2010, and finally to three criteria in MPR 1/2012.

We find the criteria useful guidelines and helping one understand monetary policy. We also find them helping to avoid over-emphasis on discretionary policy. It is also true that some of the criteria probably were too ambitious, though. An example of this is the second criteria that was used between 2005 and 2007. It reads:

Assuming that inflation expectations are anchored around the target, the inflation gap and the output gap should be in reasonable proportion to each other until they close.1 The inflation gap and the output gap should normally not be positive or negative at the same time further ahead. If both gaps are positive, for example, a path with a higher interest rate would be preferable, as it would bring inflation closer to the target and contribute to more stable output developments.

This is a verbal description of what is typically called a targeting rule–a relationship between targeted variables. It is similar to the optimality condition in our simple toy model above for the case when there is no concern for financial stability. This targeting rule works well in the simple toy model, but for real economies, it can only serve as a rough guide since policy needs to take into account that there are considerable lags in the effect of changes in interest rates. From 2007 Norges Bank instead used the formulation that there should be a reasonable balance in the development of inflation and capacity utilization. We think this formulation captures well the typical trade off faced by the central bank.

In 2010 Norges Bank extended their criteria with an explicit loss function similar to the one in the toy model above. The first version of the loss function was as follows:

$$L = \frac{1}{2}\left[(\pi - \pi^*)^2 + \lambda x^2 + \delta(\Delta i)^2 + \kappa\left(i - i^{simple}\right)^2\right] \qquad (7)$$

where Δi is the quarterly change in the policy rate and i^{simple} is a simple monetary policy rule (e.g., the Taylor rule). Including the loss function was ambitious, but a fantastic for everyone teaching inflation targeting. The first two terms can be found in some textbooks. The third term is a mathematical description of the small and not too frequent steps, which almost became a slogan for Norges bank at some point. Including this term and the last, and then relating it to robustness and financial stability was probably too ambitious and maybe somewhat naïve. This last term was changed some years later and instead of the deviation from a simple rule, the loss function included a deviation from a long-run neutral nominal rate.

One important application of the loss function was to relate the terms to the different criteria and show forecasts based on a subset of the terms. This was most elegantly done when the number of criteria was reduced to three. The Bank then showed the development of the key policy rate, core inflation and the output gap under different assumptions: 1) strict inflation targeting (that is $\lambda = \delta = \kappa = 0$), 2) flexible inflation targeting ($\lambda > 0$ and $\delta = \kappa = 0$), and 3) robust policy ($\lambda, \delta, \kappa > 0$). We think this analysis was useful for understanding the monetary policy trade-offs, but the Bank struggled as financial imbalances started building up. This led to a large discrepancy between the policy rate in the case of "traditional" flexible inflation targeting and the actual policy rate. Moreover, as policy rates gradually decreased at the end of 2014 and onwards, the alternative scenarios for the policy rate started implying negative rates. In the first vintages of this analysis, Norges Bank showed three different scenarios: one related to criterion 1, one related to criteria 1 and 2, and one related to all three criteria. In the first reports in 2015 the first scenario was omitted and later that year they instead discussed what they named the baseline scenario and an alternative scenario. This was related to the first two criteria, but, for some reason, there was an additional assumption that the output gap should be closed at the end of the forecast horizon. In the first three reports in 2016 Norges Bank omitted the alternative scenarios and showed instead the development over time (both past data and forecasts) of the output gap and the rate of inflation (CPI-ATE). We recognize the two variables from our targeting rule from above: in normal circumstances, when financial imbalances are note building up, the output gap and the inflation gap should have opposite signs. In all reports when the Bank showed the two variables together in the same graph, the forecasts showed that both the output gap and the inflation gap were negative for most of the forecast horizons, which indicated that the central bank were pursuing additional goals. In the text, the Bank explained that interest rates were not cut further because financial imbalances were building up. In the last report that year, the Bank also omitted the graph showing the rate of inflation and the output gap in the baseline scenario.

In 2018, when the Government changed the regulation on monetary policy, Norges Bank omitted the criteria for the interest rate path. Instead they included a set of guidelines for monetary policy objectives and trade-offs. We include the guidelines in a box. We think the guidelines explain well possible trade-offs faced by a central bank, but we encourage the Bank to quantify how the "various considerations are weighed against each other". In addition, more work needs to be done, we think, in quantifying financial imbalances. In the simple toy model above, variable q denoted excess credit, but the Bank does not have a single variable that captures its concern for financial instability. Therefore, the trade-off between flexible inflation targeting and financial stability remains unclear.

BOX: Norges Bank's monetary policy objectives and trade-offs

The operational target of monetary policy is annual consumer price inflation of close to 2% over time. Inflation targeting shall be forward-looking and flexible so that it can contribute to high and stable output and employment and to counteracting the build-up of financial imbalances. The various considerations are weighed against each other.

The policy rate is set with a view to stabilising inflation around the target in the medium term. The horizon will depend on the shocks to which the economy is exposed and the effects on the outlook for inflation and for output and employment.

Monetary policy can contribute to stabilising output and employment at around the highest possible level consistent with price stability over time. This level is determined by structural conditions such as the tax and social security system, the system of wage formation and the composition of the labour force.

When shocks occur, a short-term trade-off may arise between reaching the inflation target and supporting high and stable output and employment. Monetary policy should strike a reasonable balance between these considerations.

A flexible inflation-targeting regime where sufficient weight is given to the real economy can prevent downturns from becoming deep and protracted. This can reduce the risk of unemployment becoming entrenched at a high level following an economic downturn.

If there are signs that financial imbalances are building up, the consideration of high and stable output and employment may in some situations suggest keeping the policy rate somewhat higher than would otherwise be the case. To some extent, this can contribute to reducing the risk of sharp economic downturns further ahead. Nevertheless, the regulation and supervision of financial institutions are the primary means of addressing shocks to the financial system.

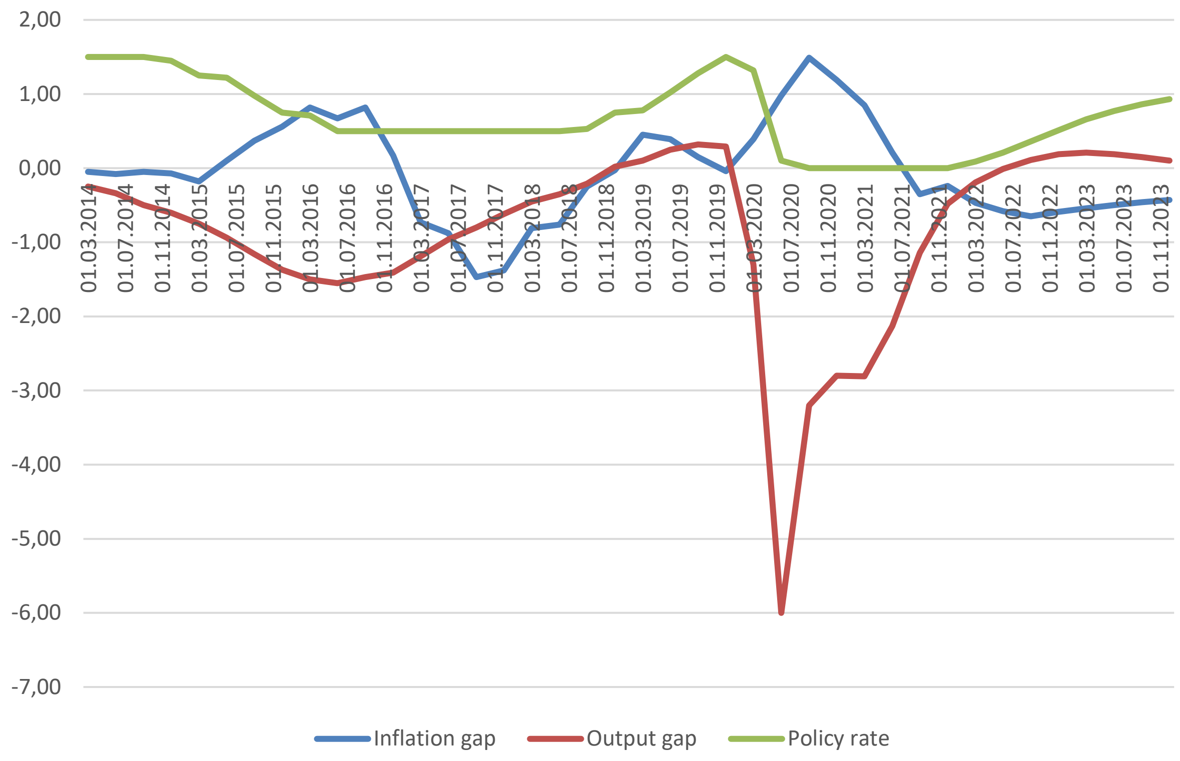
The conduct of monetary policy takes account of uncertainty regarding the functioning of the economy. Uncertainty surrounding the effects of monetary policy normally suggests a cautious approach to interest rate setting. This can reduce the risk that monetary policy will have unintended consequences. The policy rate will normally be changed gradually so that the effects of interest rate changes and other new information about economic developments can be assessed.

In situations where the risk of particularly adverse outcomes is pronounced, or if there is no longer confidence that inflation will remain low and stable, it may in some cases be appropriate to react more strongly in interest rate setting than normal.

4.1.3 Optimal policy during a pandemic

Our toy model implies that optimal policy is a trade-off between bringing the rate of inflation close to the inflation target, closing the output gap and avoiding excess credit. When the economy is hit by an economic disturbance that reduces the rate of inflation, say, the central bank should engineer an increase in the output gap, which will reduce the rate of inflation. At the same time, the central bank should have an eye on financial stability (here represented by excess credit). In this, way there is balanced development of different target variables. In reality, the central bank can only influence these variables with a considerable lag, however. This must be taken into account when evaluating policy. The policy rule from our toy model can still serve as a simple rule of thumb. Let us therefore consider the recent development of the output gap and the inflation gap. This is done in chart 4.2.

Chart 4.2 Output- and inflation gap, 2013-2023



Source: Norges Bank

The chart gives the development – actual data and forecasts – of the output gap and the inflation gap from the first quarter of 2013 up until the last quarter of 2023. In addition, we have plotted the policy rate for the same period. Up until the end of 2016, the inflation gap was positive or converging to zero. During the same period, the output gap was mostly negative. Moreover, the size of the two gaps were of similar magnitude. If we view the data through the lens of our toy model, policy, thus, seems balanced and data seems to suggest that our scaling parameter, λ/Ξ, is roughly one and financial stability seems to have been less of a concern during that period. From 2017 to mid 2018, both the inflation gap and the output gap were negative and despite of this, Norges Bank kept policy rates constant. The trade-off faced by Norges Bank during this period was the following. The development of the output gap and the rate of inflation called for more expansionary policy, but financial imbalances had been building up, which in isolation called for higher policy rates. Our simple toy model (when extended to allow for financial stability concerns) thus seem to suggest that policy was adequate during this period too.

Then, at the end of 2018, Norges Bank started lifting policy rates as both the output gap and the rate of inflation came closer to target. On the first policy meeting of the monetary policy committee on January 23, 2020, the committee decided to keep the rate unchanged. The policy was at 1.5 per cent.

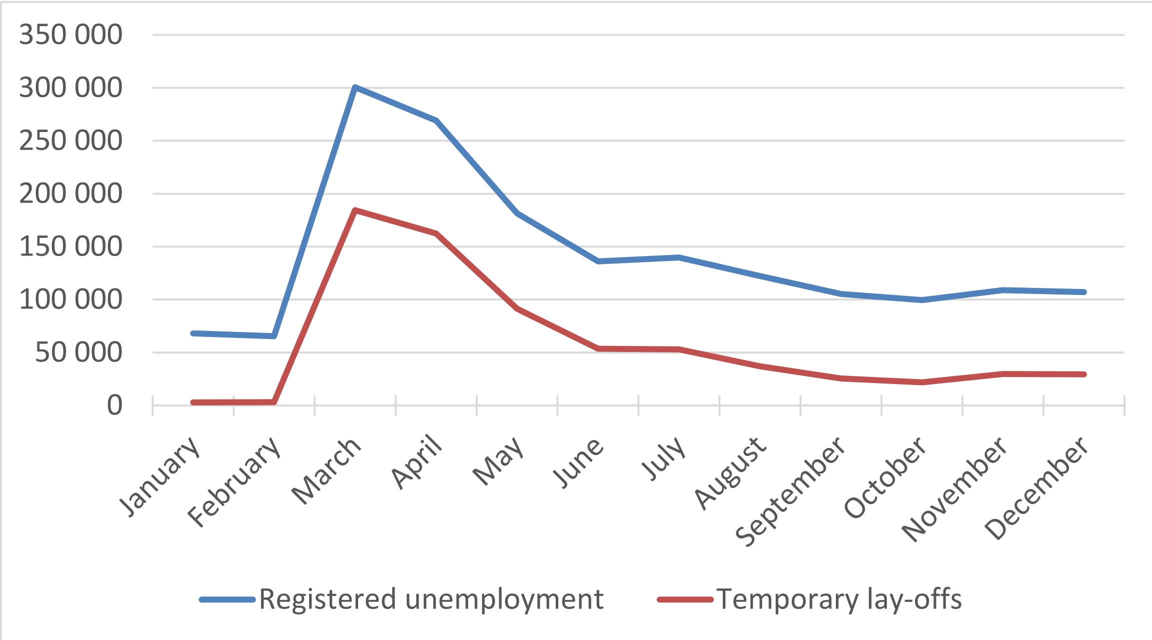
On March 12, 2020 Norway closed down and thereafter Norges Bank decided to cut policy rates. The monetary policy committee first cut rates by 50 basis points to one per cent on March 13 and with another 75 basis points seven days later. Finally, on May 7, the committee decided to set policy rates to zero. It is worth mentioning that this is the lowest policy rate in Norway in the history of inflation targeting. In comparison, during the financial crisis in 2007/8, Norges Bank did not reduce policy rates below 0.5 per cent. The reason for this cut was the unprecedented slowdown in economic activity, which led to a drop in the output gap from about 0.3 at the end of 2019 to -6 per cent in the second quarter of 2020.

At first glance, the monetary policy thus seemed adequate, also during the early phase of the pandemic. This conclusion rests on the data, though, and, in particular, on the estimates of output gap. And estimating the output gap is not an easy task. Firstly, there are important lags in the data for actual GDP, and, secondly, potential GDP must be estimated. Let us therefore have a look at the data. In the second quarter of 2020, Norges Bank estimated the output gap to be -6 per cent. In the same quarter, actual (nominal) GDP fell about 9 per cent. A rough estimate of potential GDP would therefore indicate that it fell by about 3-4 per cent in the second quarter in 2020. Is that at all reasonable?

A popular way of explaining the difference between actual and potential GDP is that the former is a measure of what was actually produced, while the latter is a measure of what could have been produced. Is it really reasonable to assume that the economy could have avoided two thirds of the fall in production? We don't think so. A more reasonable description, we think, is that a significant fraction of the reduction in production was a result of deliberate policy to fight the pandemic. The aim of this policy was to reduce human activity, mobility, and interaction, and as an unavoidable consequence, economic activity fell dramatically, but so did the potential. Finding out exactly how much potential output fell is beyond the scope of this report, but we will try to give some indications and we encourage Norges Bank to re-compute their estimates.

The output gap is a measure of production capacity that is not utilised in the economy. Another commonly used measure is unemployment (or the unemployment gap, that is the gap between actual unemployment and structural unemployment). Chart 4.3 shows the development over time of the (registered) rate of unemployment and temporary lay-offs.

Chart 4.3 Unemployment during Covid-19



Source: NAV

During the ongoing pandemic, we have seen a sharp increase in temporary lay-offs and, in fact, a considerable fraction of the variation in total unemployment has been due to changes in temporary lay-offs. There is, of course, no guarantee that workers that are temporarily laid off can return to their job after the pandemic. But it is not reasonable to assume that they constitute resources that could have been put into production. These are temporary laid off workers from the service industry, they are baristas and workers in bars and hotels, they are hairdressers and employees at shopping centres. We therefore think of the sharp increase in temporary lay-offs as an indication of a sharp reduction in production capacity. This, in turn, indicates that the drop in the output gap was substantially less than estimated by Norges Bank.

The evaluation of the monetary policy above took the development of the rate of inflation and the output gap as given. If there are reasons to question the recent estimates of the output gap, a natural question is if policy was still adequate. We think it was. Firstly, central banks around the world reduced policy rates, which will tend to reduce neutral real rates. Secondly, asset prices plummeted during the initial phase of the pandemic as financial markets struggled with the sharp increase in uncertainty. This will lower collateral values and put downward pressure on investment and consumption demand. Thirdly, there was probably also a negative shock to demand as households would hold back on spending due to increased precautionary saving. All in all, we therefore think the reduction in key policy rates was warranted. In addition, there was a significant increase in money market premia, in particular in the early phase. If Norges Bank had not reduced policy rates, the drop in economic activity could have been unnecessarily large. In addition, the drop in interest rates will take some of the burden away from indebted households and firms, which can be important going out of the pandemic. This might be particularly important for small and medium sized enterprises, since it is often argued that those firms depend on bank financing to a larger extent than big firms.

4.2 The countercyclical capital buffer

Every quarter, the Ministry of Finance decides the level of the countercyclical capital buffer (CCyB). They do so, based on the advice from Norges Bank. In addition, and importantly, Norges Bank prepares analysis for the decision. The objective of the CCyB is to "bolster banks' resilience and to lessen the amplifying effects of bank lending during downturns". The idea is that banks should build up a buffer in good times, which can be released in bad times in order to dampen the reduction in lending activity when the value of firms' risk adjusted asset fall in value.

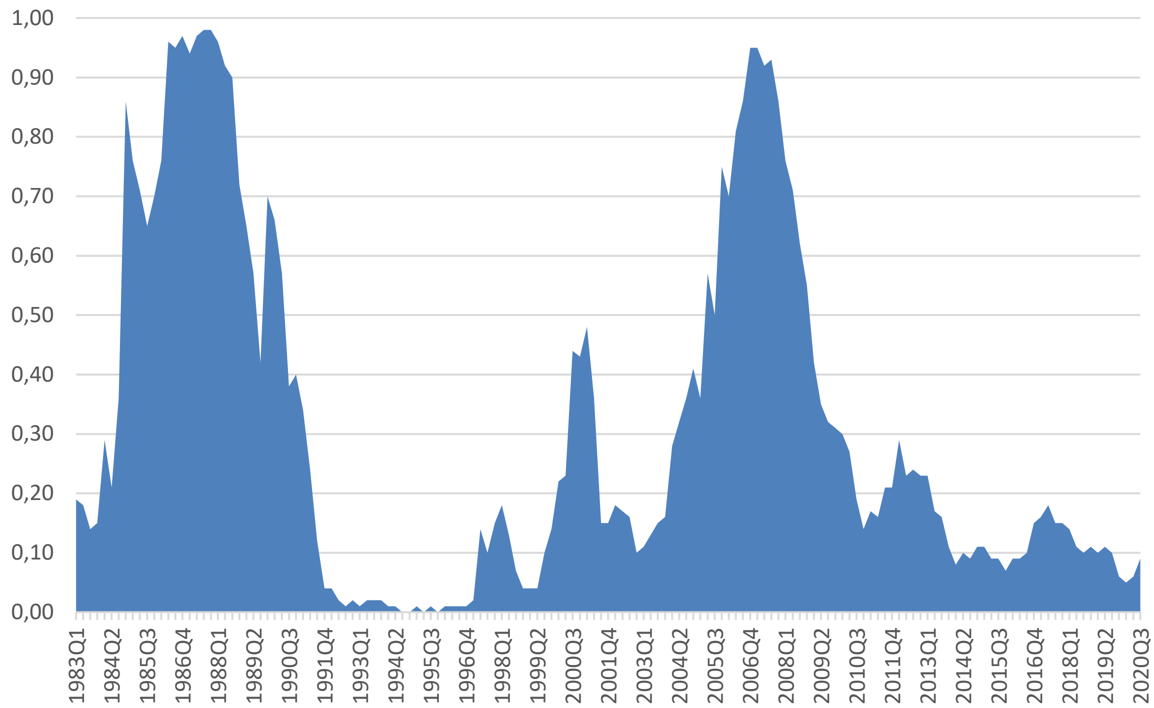
4.2.1 Criteria for the advice on the countercyclical buffer

To understand their assessment, the bank used to provide a set of three criteria, where they focused on four main indicators: 1) the ratio of total credit to (mainland) GDP, 2) the ratio of house prices to household disposable income, 3) real commercial property prices and 4) wholesale funding ratios for Norwegian credit institutions. In addition, the report provided a "*buffer guide*" and model-based estimates of crisis probabilities. The so-called "buffer guide" or the reference buffer rate was provided due to the EU Capital Requirement Directive (CRD IV), which required that such reference rate was calculated quarterly (see, e.g., Monetary Policy Report 4/17, page 58). In their first report in 2018, Norges Bank omitted the buffer and since then it has not been included in the quarterly reports. The NBW welcomes this change, since the buffer guide clearly did not represent the views of Norges Bank. The buffer guide has continuously indicated a zero countercyclical buffer since 2013 (see data from the European Systemic Risk Board). In this period Norway has gradually increased the buffer from its initial level of 1 percent (applicable in June 2015, but decided in December 2013), to 2.5 percent, which was applicable from December 2019, but initially decided in December 2018.

In the same report as the buffer guide was omitted, the bank also omitted the chart showing model-based estimates of crisis probabilities. In the meanwhile, heat-map for monitoring systemic risk had been included in the reports, which conveys similar information, but at a more disaggregated level. The heat-map was first included in MPR in 3/17 and is a colourful presentation of risk in different in three different areas – risk appetite, the non-financial sector and the financial sector. Another innovation was shown in MPR 1/19, namely the composite indicator of systemic stress (CISS), but this chart was omitted already in the next report. Let us note that these charts – the buffer guide, the model-estimates of crisis probabilities and the CISS – are updated regularly by Norges Bank, and their most recent vintage can be found on the bank's home page. However, since they are not included in the reports, we suspect that they are not closely followed by neither market participant nor by Norges Bank. Moreover, we have only been able to find the last vintage of those charts.

A common feature the omitted indices mentioned above, is that there is no clear relationship between their development and the advice on the buffer. In chart 4.4 we have reproduced the last vintage of the model-estimates of crisis probability. The chart shows that there is a strong increase in the probability both before the banking crisis in the early 1990's and the financial crisis in 2007/8. Thereafter, the crisis probability has been quite modest and it is hard to see why this would justify bringing the buffer to its maximum level. The heat-map tell a similar story. It indicates that financial imbalances were building up in the periods preceding both the banking crisis and the financial crisis, but there are little evidence of serious financial imbalances building up in the period that the buffer were steady increased to reach its maximum value. We do not claim that the advices to increase the buffer have been erroneous, but are still puzzles by the fact that none of these general indices seem to suggest that financial imbalances were building up.

Chart 4.4 Crisis probability



Source: Norges Bank

4.2.2 New framework for the advice

At the end of 2019, the three criteria were omitted, and Norges Bank introduces a new framework for the advice on the countercyclical buffer. First, the framework establish a set of six principles for the advice, and, second, it divides the assessment into three main areas: financial imbalances, access to credit and bank's capacity to absorb losses. The NBW welcomes the clarification given in the new framework. We think it is useful to divide the assessment into three key areas. This makes it easier to follow the assessment and helps making the analysis consistent over time. Norges Bank lists important indicators related to both financial imbalances and access to credit, which we find useful. We would nevertheless encourage Norges Bank to develop a smaller set of key indicators. The new framework is explained in

Norges Bank Papers 4/2019, which also contains an appendix with indicators. There are 16 different charts related to financial imbalances, including the two composite indicators – the heat map and model-based estimate of crisis probability. There are somewhat fewer indicators related to access to credit, but there are still eight different charts. We would also encourage Norges Bank to develop their analysis further. At the moment, the analysis mainly consists of comparing indicators to their historical average and comparing with their developments before the banking crisis and the financial crisis. In addition, the bank develops some gap measures, but they are all based on pure empirical measures of trends.

It is important to mention that stress testing is an important part of the decision basis for the buffer. Norges Bank both consider the resilience of individual banks, but also analyses possible feedback effects between the financial system and the real economy. We think this work is interesting. For example, in the financial stability report in 2020, the bank develops an illustrative exercise to show possible trade-offs in capital buffer policy. The question is whether or not to start increasing the buffer requirement in 2021. The analysis shows that increasing the buffer will lead to a more robust banking sector, but a slower economic recovery. We encourage Norges Bank to do more such analysis and to include them in the monetary policy reports with assessment of financial stability.

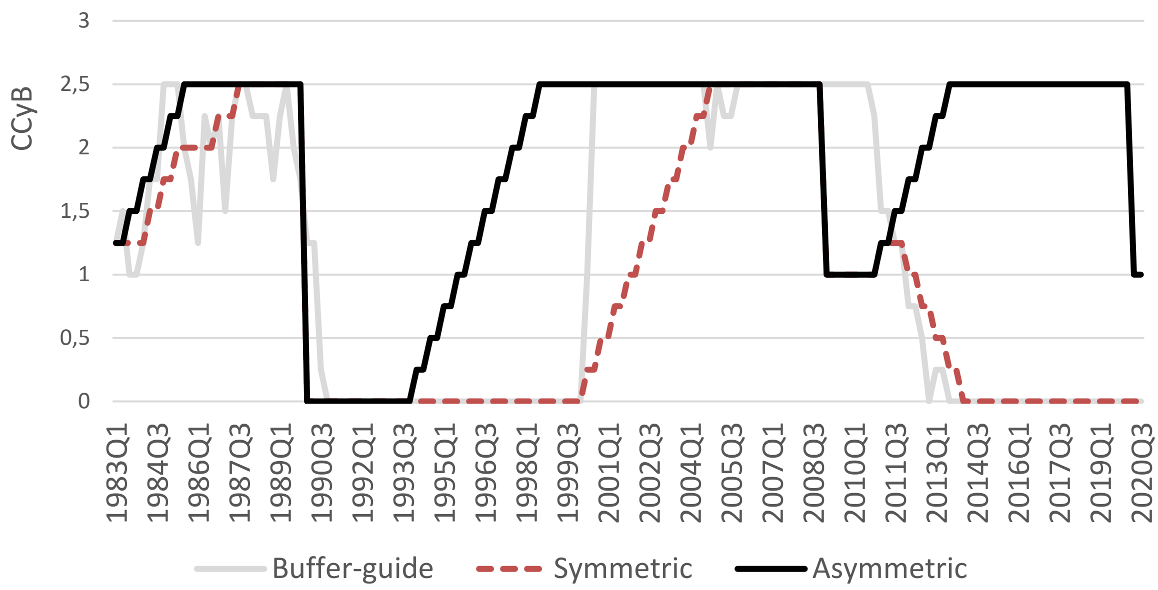
4.2.3 Strategies for the countercyclical buffer

It is tempting to describe Norges Bank's advice on the buffer using the following three criteria:

1. Increase the buffer gradually (there are always some indicators suggesting that financial imbalances are building up).
2. If the buffer is already at 2.5%, keep it there.
3. Reduce the buffer only in very rare circumstances. The reduction should be modest, since it takes time to build it up again.

We acknowledge that this description is not appropriate. We are somewhat puzzled, though, by the fact that we find so little mentioning of gradual releases of the buffer – in earlier policy monetary policy reports or in documentation of the new framework. In MPR 3/2020, for example, the statement from Norges Bank's Monetary Policy and Financial Stability Committee is that "[it] has unanimously decided to advice the Ministry of Finance to keep the buffer requirement unchanged at 1%. The Committee does not expect to advice the Ministry to *increase* [our highlight] the buffer again until 2021 Q1 at the earliest." What about decreases in the buffer if financial imbalances continue to fall? In the last reports before the pandemic, the bank indicated that there were signs that financial imbalances were receding.

Chart 4.5 Countercyclical buffer, two strategies



Source: Norges Bank and own calculations

In chart 4.5 we illustrate the outcome of two very different strategies for the countercyclical buffer. Both strategies are compared to the buffer guide, which is the light-grey solid line in the chart. The buffer guide is a simple function of the credit-to-GDP gap. The reference rate is a linear function of the gap as long as the gap is between two and 10 percent, while it stays at the maximum rate when the gap is 10 percent or higher. Moreover, the reference rate will be at zero whenever the gap is two percent or less. The strategy denoted asymmetric fits with the criteria stated above. The buffer stays at 2.5%, the maximum level, for long time periods. In periods of crisis, the authorities release the buffer – partly or fully, and thereafter the buffer requirement increases until the buffer again reaches 2.5%. The requirement will start increasing when the economy has recovered from the recession.

The other strategy is more symmetric. The buffer requirement gradually increases when there are signs that financial imbalances are building up, but the buffer is reduced when the risks to financial stability recede. And in case of a crisis, the buffer is partly or fully released. The latter strategy will then be more aligned with the buffer guide.

We do not know what's the best strategy for the buffer, but we encourage Norges Bank to analyse costs and benefits with different strategies.

4.3 NBW view

The NBW believe that the guidelines for monetary policy objectives and trade-offs are helpful for understanding monetary policy, but we encourage Norges Bank to quantify how the different consideration are weighed against each other. The trade-off between flexible inflation targeting and financial stability remains unclear.

We believe that the drop in the output gap during the initial phase of the pandemic was substantially lower than estimated by Norges Bank. We encourage Norges Bank to reconsider the estimate of the output gap during this period. It is worth emphasizing that we still think the substantial cut in policy rates was warranted.

The NBW welcomes the clarification given in the new framework for advice on the countercyclical buffer. We encourage Norges Bank to develop their analysis further. Currently, the analysis mainly consists of comparing indicators to their historical average and comparing with their developments before the banking crisis and the financial crisis. An important exception is the so-called stress test, which is presented in the report on financial stability. We encourage Norges Bank to add this analysis to the monetary policy reports.

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Appendix : Summaries of Norges Bank Watch Reports

Members of each committee are in parenthesis.

NBW 2000 (Hamilton, Thøgersen, M. Andreassen and H.M. Andreassen)

- The group states that there is uncertainty around the monetary policy regime. According to the group, Norges Bank has on own initiative begun to pursue the same inflation target as the ECB, which is a shift of monetary policy away from direct exchange rate control.
- The group recommends to introduce a flexible inflation target on 2 percent ±1 percentage point. The use of policy instruments should be aimed at reaching the target 2 years forward in time. In addition, it should be considered to introduce an "additional pillar" in the regulation that requires the bank to take into account factors such as asset bubbles (e.g. housing market) or excessive exchange rate fluctuations.
- The division of labor in economic policy should be changed such that fiscal and monetary policy together shall contribute to stabilize the economy.

NBW 2001 (H.M. Andreassen, De Grauwe, Solheim and Thøgersen)

- The group believes that Norges Bank should closely monitor developments in debt and asset prices. However, asset prices should not in itself be a target for monetary policy. The central bank should use a "lean against the wind" strategy.
- The communication with the public and participants in the financial markets is good.
- Members of the Executive Board should be appointed based on professional qualifications.
- The minutes from the meetings of the Executive Board should be published.

NBW 2002 (Svensson, Houg, Solheim and Steigum)

- The group recommends an institutional reform with a new law for Norges Bank which specifies a mandate for price stability, secures Norges Bank's operational independence, and clarifies what Norges Bank can be held accountable for.
- The reference to stability in the exchange rate should be removed from the guidelines for monetary policy.
- The candidates for the Executive Board should be experts on monetary policy or similar areas (e.g. macroeconomics and financial markets). The arrangement where the political parties appoint members to the executive board should cease to exist.
- The minutes from the meetings of the Executive Board should be published.
- The Ministry of Finance should include an evaluation of Norges Bank's exercise of monetary policy in the annual credit reports.
- Hearings about monetary policy in the Storting should be conducted regularly.
- A conference about monetary policy should be held annually or semiannually. This should be financed by Norges Bank, but organized by an independent actor (e.g. an academic institution).

NBW 2003 (Ekeli, Haug, Berg and Steigum)

- Norges Bank should base a more flexible horizon for achieving the inflation target.
- Norges Bank should replace the current "bias-sentences", with a formulation related to the likely direction of the next key policy rate change.

- The Executive Board should consider holding meetings more frequently, e.g. every fourth week.
- In the inflation prognoses, Norges Bank should base a development in the key policy rate based on the banks best estimate, instead of today's assumption of unchanged rate.

NBW 2004 (Bjørnland, Ekeli, Geraats, and Leitemo)

- Norges Bank should publish inflation reports four times a year.
- Unilateral focus on the growth in CPI-ATE may have given an overreaction in the key policy rate decisions.
- Norges Bank should publish its preferred reference path for the key policy rate.
- The practice of having monthly meetings with the Ministry of Finance should be abolished. The Ministry should be informed immediately after the Executive Boards' monetary policy meeting.
- The minutes from the meetings of the Executive Board should be published.

NBW 2005 (Holden, Dørum, and Isachsen)

- The practice of monthly meetings with the Ministry of Finance may reduce the external members of the Executive Board's ability to influence. In the report, the group discusses whether the external members should have own research assistants and more funds to work with monetary policy.
- The right of instruction should not be removed. The threshold to using it is high, and it is appropriate that it exists in the case of an unforeseen situation that requires prompt actions.
- The decision to leave the two-year horizon in July 2004, in favor of a more flexible horizon of 1-3 years, was sensible.
- The publication of the Executive Board's strategy report in the inflation reports have further improved Norges Bank's communication with the market.
- The group believes that Norges Bank is toning down the fact that monetary policy, according to regulations, is intended to stabilize the exchange rate.

NBW 2006 (Holden and Dørum)

- The regulations provide sufficient flexibility .
- There is a higher risk associated with raising the key policy rate too little too late, than raising it too much too early.
- The group approves Norges Bank's decision to produce its own key policy rate forecast, with effect from the Inflation Report 3/05.

NBW 2007 (Goodfriend, Mork, and Söderström)

- A new consumer price index should be made as a control parameter for Norges Bank's use of instruments. It must contain goods and services with sticky prices.
- Norges Bank should be more explicit in how they reach the forecast for the exchange rate developments.
- Norges Bank should publish minutes and voting from the Executive Board meetings.
- The external members of the Executive Board should have increased access to speak in public.

- The reference to the exchange rate should be removed from the regulations of monetary policy.
- The operational target for price increase should be reduced. 2 percent inflation targets have become the de facto international standard. The real appreciation argument is weaker because a good deal of the systematic fiscal expansion is likely to have taken place by the present time.
- The submission of confidentiality and the right of instruction should be removed.

NBW 2008 (Juel, Molnar, and Røed)

- Norges Bank should clarify how other asset prices than the Norwegian currency are taken into account in the key policy rate decision.
- Norges Bank should prioritize efforts to identify developments in the neutral real interest rate in Norway.
- The group is skeptical to the fact that Norges Bank put so much weight on the output gap in the assessments and communication of monetary policy.
- Norges Bank should consider publishing adjusted forecasts in connection with the monetary policy meetings where the bank does not submit a new monetary policy report.
- Norges Bank should develop better models for prognosis based on empirical criteria.

NBW 2009 (Bergman, Juel, and Steigum)

- The reports from the regional network should be published immediately as they present themselves.
- In situations with high uncertainty about the economic development, uncertainty should be reflected in the alternative scenarios presented in the 51 monetary policy reports. When Norges Bank's assessments change significantly in the short term, it should be communicated outwards as soon as possible.
- Norges Bank's flexible inflation targeting implies that the bank should take into account asset prices to the extent that such prices provide additional information about future developments in inflation and capacity utilization.
- CPIXE is not an optimal indicator for underlying inflation, and should not be used as a main indicator when exercising monetary policy.

NBW 2010 (Bjørnland, Clarida, Holvik, and Steigum)

- Norges Bank should continue to publish three monetary policy reports each year, but can consider to publish updated estimates on some main sizes in connection with monetary policy meetings where reports are not published.
- Minutes from the Executive Board meetings should be published. These should include which topics that are discussed, but not explicit information regarding who said what or how the members have voted.
- Members of the Executive Board should be able to express their opinions on the monetary policy in public debates.
- The group notes that in the autumn of 2009, Norges Bank highlighted developments in real estate prices as a specific factor in the press releases on key policy rate decisions, but does not consider it to be the case that developments in house prices or other asset prices are included among Norges Bank's target sizes.

- The group is critical to Norges Bank's indicator for the underlying inflation, CPIXE. The group believes that this indicator should not be used as a main indicator in the exercising of monetary policy and that CPI-ATE still should be used as an operational target.

NBW 2011 (Bjørnland and Wilhelmsen)

- Norges Bank should clarify to what extent the consideration for financial stability affects the monetary policy decisions.
- Minutes from the Executive Board meetings should be published. These should include the topics that are discussed, but not explicit information regarding who said what or how the members have voted.
- Norges Bank should continue to publish three monetary policy reports each year, but can consider to publish updated estimates on some main sizes in connection with monetary policy meetings where reports are not published. Given the current schedule for publishing reports, such an update should be done at the yearly meeting in December.
- The group is critical to Norges Bank's indicator for the underlying inflation, CPIXE. The group believes that this indicator should not be used as a main indicator in the exercising of monetary policy and that CPI-ATE still should be used as an operational target.

NBW 2012 (Torvik, Vredin, and Wilhelmsen)

- It is unclear whether financial stability is emphasized only to the extent that it affects the outlook on inflation and production in the future, or whether financial stability is an independent goal in the monetary policy. This should be clarified both in the banks official mandate and through clearer communication by the bank.
- Regardless of whether financial stability is an independent goal or not, Norges Bank should be clearer on how, for example, the size of risk premium affects the bank's economic forecasts and key policy rate decisions.
- Norges Bank, and not The Financial Supervisory Authority of Norway (Finanstilsynet), should be responsible for the macro-surveillance of the financial sector.
- The group argues for a greater degree of independence for Norges Bank from political authorities, and is critical to the obligation to refer and the right of instruction. The group points out that it is the Government that appoints both the central bank governor, the central bank deputy governor and the members of the Executive Board.
- The responsibility for the Executive Board is large, and not consistent with the external members being engaged on part-time basis.
- The group wants a more public debate about discussions in the Executive Board.

NBW 2013 (Boye and Sveen)

- The group questions the decision to reduce the key policy rate by 0.25 percentage points in March 2012, and the communication in connection with the decision.
- The group believes that Norges Bank should publish estimates of banks' lending rates, and not just the key policy rate.
- The right of instruction and the obligation to refer should be abolished.
- The working opportunities of the external members of the Executive Board should be strengthened.

- CPIXE has numerous weaknesses, and CPI-ATE should be used as a main indicator for underlying inflation.

NBW 2014 (Mork, Boye, and Dargallo)

- The group believes the key policy rate decisions in 2013 were correct. The decisions were largely as expected in the market.
- Norges Bank should publish the advice on the level of counter-cyclical capital buffer while giving the advice to the Ministry of Finance.
- The group is skeptical to the fact that Norges Bank's loss function from 2012 includes a link for the smoothening of interest rates and deviations from normal interest rates. With new instruments for financial stability (including counter-cyclical capital buffers), Norges Bank should return to a loss function where only deviations from potential production and the inflation targets are included.
- A monetary policy committee with responsibility for monetary policy and financial stability should be established.
- Candidates from other Scandinavian countries should be considered for the Executive Board.
- The communication of the bank can give the impression of excessive precision.
- The key policy rate path should be supplemented with so-called “forward guidance”, such as the Federal Reserve and Bank of England.
- Norges Bank should make sure that the trust in the inflation target is not impaired, cf. inflation expectations two years ahead appeared to have decreased.
- Norges Bank should be under the Storting.
- The obligation to make a statement should cease.
- The reference to stability in the NOK should be taken out of the mandate.
- Norges Bank should publish minutes from the meetings of the Executive Board.
- External board members should be given the opportunity to express their personal views in public.

NBW 2015 (Lommerud and Aamdal)

- Norges Bank's routines for communication around key policy rate decisions are good.
- The group questioned the key policy rate cut of 0.25 percentage points in December 2014. According to the group, one could have chosen to postpone the rate reduction, and rather wait and see the economic development. At the same time, the group emphasized that they did not consider that Norges Bank had made a mistake, and that in this case there were arguments both for and against a key policy rate reduction.
- About the system for deciding on countercyclical capital buffer the group stated that “Generally speaking, we applaud the system.” At the same time, the group pointed out that the system is relatively new and has not yet been tested in times of crisis.
- When the key policy rate is very low, and there has been a sharp rise in house prices, doubts in monetary policy should be inclined not to further reduce the key rate.
- Norges Bank should publish minutes from the monetary policy meetings shortly after the meeting has been held, where any dissent and important points that were presented in the discussion are presented.
- Norges Bank has provided thorough information on the mechanism that they now have to buy instead of sell NOK in the market in connection with the provisions for the

Government Pension Fund Global. Nevertheless, there may be some market players who misunderstand and perceive the transactions as part of the monetary policy. The group writes that they are aware that Norges Bank has limited opportunities to inform about calculations that lie behind the size of the monthly purchases. However, the group believes that the bank can point out which factors that contribute to changes in the size of the purchases, publish scheduled changes to the buffer portfolio, and publish a benchmark for monthly purchases.

NBW 2016 (Bruce, Gottfries, and Lommerud)

- A more clearly formulated monetary policy mandate can help make it more predictable. It should be stated more clearly how structural shocks and temporary disturbances are to be dealt with in monetary policy. Theoretically, there are good reasons for why monetary policy should aim at stabilizing domestic inflation, but the forward-looking inflation target should nevertheless be linked to consumer prices as of present. However, the conduct of monetary policy should be such that aggregate inflation for a period may deviate from the inflation target when the economy is hit by structural shocks and temporary disruptions.
- The group think one should discuss the present level of the inflation target at 2.5 percent. It is not clear that a small country to have an inflation target that differs from that of her neighbors.
- The group believes that the way Norges Bank incorporates the consideration that monetary policy should be robust in its alternative scenarios for the key policy rate path is too discretionary. Here, the mandate for monetary policy should be changed so that it becomes more clear whether, and in what way, monetary policy is to contribute to financial stability and a robust economic development.
- Although it may sometimes make sense to implement key policy rate changes gradually, there are no good reasons for this now, since the key policy rate is now kept so high that the output gap is not closed during the bank's forecast period (which runs until the end of 2018).
- In the medium term, the inflation target should be exercised flexibly. But for the credibility of the inflation target it is important to aim at reaching the goal in the end.
- Information on whether the bank considered another decision at a monetary policy meeting should be published in writing and not only be expressed orally at the press conference.
- At meetings where no monetary policy report is published, Norges Bank should be clearer about whether new information since the previous report draws in the direction of higher or lower key policy rates ahead.

NBW 2017 (Bruce and Sveen)

- Norges Bank should have financial stability as a separate goal, and should further develop an understanding of the relationship between the key policy rate and the probability of financial imbalances.
- Uncertainty about the impact of monetary policy when key policy rates approach a lower limit should speak for a stronger, and not more cautious, response from the central bank.

NBW 2018 (Sveen and Strøm Fjære)

- The group is in favor of the introduction of 8 key policy rate meetings, but calls for press conferences on the monetary policy meetings where a monetary policy report is not published.
- The group believes that the overall objective of monetary policy must be price stability, while the consideration for financial stability should be equated with the consideration for high production and employment.
- The group emphasize the possibility for Norges Bank to use the exchange rate as an instrument in special cases.
- The authors are also positive to the proposal for the establishment of a committee on financial stability and monetary policy, but questions that internals in Norges Bank will be in the majority.
- The group also expresses skepticism about the proposal that Norges Bank should set the level of the countercyclical capital buffer.

NBW 2019 (Knudsen, Wulfsberg)

- The group highlights that the first key policy rate hike in seven years was well prepared and implemented.
- The authors argue that in relation to the lowering of the inflation target from 2.5 to 2.0, there were some communicational challenges and unnecessary uncertainty in media.
- The group continues to ask for more complete minutes from the board, as well more analysis and press conferences at the "in-between" meetings.
- The group argues that lowering the new inflation target reduces the scope for monetary policy and increase the cost of recessions.
- The group welcomes the target of high employment.
- The authors reiterate previous NBW advise to Norges Bank to state how much the consideration of financial imbalances impacts the key policy interest rate.

NBW 2019 (Knudsen, Doppelhofer)

- The group highlights that the increases in the key policy rate at the meetings in March and June were well prepared and implemented. The guidance before the meeting in September was, however, ambiguous.
- The group reiterates previous advice to Norges Bank of having press conference at all policy rate meetings and add more analysis at the in-between meetings.
- In Monetary Policy Reports, Norges Bank provides insight in factors behind changes in the policy rate forecast. Overall the group applauds this, including the separate information box in the Monetary Policy Report, but still asks for more insight in the judgment element for policy rate forecast changes.
- The authors encourage Norges Bank to explore improvements of the output gap indicator, as well as elaborating on the uncertainty of the indicator due to different approaches. Furthermore, they encourage Norges Bank to explore effects of depreciation and volatility further, and communicate how they affect monetary policy.

- The group encourages Norges Bank to develop a framework for setting the current and future policy rate, which is consistently reflecting possible nonlinearities and asymmetric risks in the economy.
- The group also suggests simplifying the process for macro-prudential policy, by making Norges Bank operationally independent and responsible for setting the level of the countercyclical capital buffers, while being given an explicit mandate by the government. The group notes the coordination of macro-prudential policies between the Ministry of Finance, Norges Bank and Finanstilsynet, but encourages further discussion about the division of responsibilities, for example the determination of all capital buffers. More generally, the group encourages a debate of whether Norges Bank should be responsible for all aspects of financial stability, including lending practices and lender of last resort.