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External Review of Norges Bank Research, 2022

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The evaluation process

Norges Bank (NB) has requested us to evaluate research and the research department at Norges Bank (NBR) along a number of dimensions. In general, the committee has been asked to

1. evaluate the effectiveness of NBR relative to its mission and goals as formulated in the research handbook, individual job descriptions and the research strategy 2020-2022.
2. examine the value-added created by the research department in its professional interactions with staff and management in NB, in contributing to policy preparation and decision making at NB and in its contributions to and interaction with the research community.
3. reflect on whether the ambitions set for NBR are appropriate or reasonably calibrated compared with other relevant central banks.

In 'Strategy for Research at Norges Bank 2020-2022' the mission of NBR (as referenced in item 1 above) is clearly defined in terms of five ways in which NBR can contribute to the objectives of NB:

1. Contributing to bank policy analyses using cutting-edge methods.
2. Providing access to a network of national and international academic experts
3. Producing high-level research of relevance to central bank areas
4. Securing access to a pool of economists with both substantial experience from central bank policymaking and knowledge of economic methods
5. Contributing to NB strategy in general

To carry out our evaluation, the committee was asked to comment specifically on a number of questions within three categories: research output, policy support, and resources and staff. Below we will present our findings within each of these categories. We will comment on strengths and weaknesses and make recommendations where appropriate.

To conduct our review, we undertook a two-day site visit on May 5-6, 2022. During our visit, we spoke with almost all of NBR's current staff, NB's governor and one of its two deputy governors, the directors of monetary policy, financial stability, and markets, and relevant mid-level management and frontline research staff from these departments.

Before the visit, the committee was given extensive information in the form of a self-evaluation report by Kasper Roszbach, CVs of all researchers, samples of presentations made by researchers, extensive statistics on research activity, researcher handbooks from 2016 and 2020, and job descriptions for the different job categories. We also examined some samples of NBR research output and publicly disclosed policy output.

The committee wishes to thank the director and his team for their careful attention to all aspects of our review process and the senior management and staff for their thoughtful and candid engagement in the interviews.

Research output

NBR is a group of twelve research-active PhD economists, currently headed by Kasper Roszbach and the deputy director Knut Are Aastveit. Organizationally, NBR is part of the Monetary Policy group, and Kasper Roszbach reports directly to its head.

The ambition of NBR is to be among the best central bank research groups in the world and to be Norway's leading institution for research on monetary policy and financial stability. NBR does not define explicitly which benchmarks are appropriate for assessing whether NBR achieves these ambitions.

Research output. Quality and quantity

Fortunately, NPR records a number of relevant statistics on several aspects of its research output, and many of these can and should provide useful benchmarks going forward.

A research department in a leading central bank must have researchers who publish in papers in high-quality refereed journals. Publications in such journals document that researchers can apply and develop cutting-edge analysis, and that they can put their own research in relation to existing research. The tough process of getting a paper accepted develops not only analytical skills but also skills in exposition and presentation. In essence, the publication process is a process of sharpening all the tools that a researcher needs to provide efficient policy support.

But which journals are high-quality? Currently, NPR works with a point system for publications, i.e., a system in which the researcher accumulates points from his or her publications. The point system awards the highest number of points (6) to 8 top-tier journals (5 in economics and 3 in finance) that are widely considered to be in a league of their own. Tenure decisions at all leading university and business school departments of economics and finance in the world depend critically on the candidate's success in publishing in these top-tier journals.

To be a leading academic department in monetary policy in Norway would require some success in terms of publishing in these journals. The best central bank research departments also have researchers who have demonstrated the ability to publish in these journals, and central bank research departments in general view such publications as a measure of success.

NBR has had a few publications in top-tier journals over the last three years. This is important because having someone who has broken the barrier increases the likelihood that new researchers will follow suit.

The point system has three more categories (5 points, 3 points, and 1 point). Five-point journals are typically very strong field journals, whereas some 1 point journals are truly marginal. NBR has produced a significant number of publications in journals that are not the top eight but are in the next category of highly competitive field journals. The average number of points per publication is however still close to 3 which is the third category out of four. This indicates that a significant number of publications belong to the lower point categories. It is too early to tell whether the record high average level of points per publications reached in 2021 (3.6) is the beginning of an improvement in the average quality of journals. It would be positive if this were the case.

The process of getting a paper published in a top journal is exceptionally time consuming, and it contains elements of randomness with respect to refereeing. It is therefore often viewed as a risky strategy, especially in time-limited positions, to go after the best journals. However, the committee believes that the ambition to submit to top journals forces authors to focus even more on relevance and conciseness, and this raises the quality. In the end, this focus also makes publication in the next level of leading field journals more likely and of better quality. To improve the incentives to publish in the very top journals, the committee believes that the number of points awarded in the point system should be increased for the very top journals, for example to 9 points. We suggest maintaining 18 points as the requirement for promotion to senior researcher so that two top-tier publications would be sufficient. There should be some requirement that the 18 points are obtained with at least some high-level journals. We also suggest that NBR considers a correction for the number of co-authors when this number is large (for example 4 or larger).

Overall, the assignment of journals outside of the top tier to these categories differentiates them well. Nevertheless, some journals that are considered top journals in their field, such as the Journal of Accounting Research, have a very low score, which reflects NBR's priority of where researchers should target their input rather than the quality of the journal per se. There are important questions related to financial institutions and financial stability, which are connected to accounting standards and accounting methods, and it is worth considering whether NBR should increase the score in highly competitive field journals which accommodate papers relevant to focus areas of the bank, such as financial stability.

Point systems for academic journals are a highly contentious issue among researchers, and it is rare that two researchers would agree on every classification. Despite this lack of uniform views of quality, the point system should be maintained because it increases transparency, and the committee views the current system as a significant improvement over the old system.

Many publications are within macroeconomics and monetary policy, and there is also some emphasis on econometric analysis. There are very few, if any, publications related to financial markets in the sense that they pertain to the areas of interest to the Markets department at NB. This is an indication of the very little collaboration between the NBR and Markets. We will have more to say on this below.

Citations may depend on the specific area of research, and they can never stand alone in assessing quality. Still, high citation counts are often a sign that the cited paper has delivered in terms of relevance and importance. Similarly, a paper that lacks citations often does so for a reason. The citation count at NBR is top heavy in that it is dominated by the top two-three researchers, who in terms of citations are comparable to high-level central bank researchers. This is in part a reflection of the staff's youth. One could consider also recording the count per research active years to compensate for experience. Another important metric that we recommend using is the number of SSRN downloads, which in our opinion is a better metric than RePEc. The number of downloads can be a strong signal that academics and practitioners have found the publication useful, and the figure delivers an indicative signal years before actual publication. The same is true for Google Scholar citations.

Having papers accepted at major conferences and invitations to present at other central banks and at universities are also important signals of quality and relevance. There has been a decrease in recent years of presentations at Norwegian institutions, and the level of presentations abroad also still has not reached the peak level from 5 years ago, even if it increased in 2021. However, the number of presentations in itself does not carry enough information. The 2020 Research Handbook defines conferences that are particularly important for NBR to have papers accepted at either because of their strong relevance or because of their selectivity. NBR could consider adding acceptance to FIRS conferences, and to upgrade the highly competitive EFA conference to Level 1. While there is no

guarantee that papers accepted at prestigious conferences get accepted into the best journals, there is definitely a correlation, and it is therefore a more forward looking-measure than accepted papers. Measuring the levels of conference acceptance is therefore useful and informative. One could consider also an acknowledgement of serving as discussant.

NBR researchers do publish regularly, and some in very strong journals. It is a useful goal to aim for a higher point average, and to not be afraid to target the best journals. An extra award to top publications will provide a better incentive.

Other measures of research activity

Maintaining continuous interaction with the global research community is critical for staying current on new methodologies and pressing issues and for developing collaboration with researchers from academic institutions and other central banks. There are several ways in which NBR shows a very strong level of activity in this area.

NBR runs a world class seminar series. The quality of the speakers and the high number of annual seminars indicate a keen interest from NBR in talking to and learning from leading researchers. It also carries a strong signal that so many speakers wish to present at Norges Bank.

NBR has also been successful in helping attract leading researchers as visitors for short courses or other policy-focused interaction. NBR has either directly arranged these visits or has been instrumental in selecting researchers. Selecting the right visitors requires knowledge of who is at the research frontier in different areas and knowing whether they are able to disseminate their knowledge effectively. Getting the best visitors requires that NBR has the academic quality to attract them. We heard several examples of cases where the research director through his knowledge and extensive network played a crucial role in selecting and approaching visitors.

The network of the research director and the deputy director also played a crucial role in finding ‘test referees’ for papers, i.e., hiring experienced academics, typically from abroad, to write a referee report on a paper before the paper is submitted. Several NBR researchers spoke highly of this opportunity. Another noteworthy initiative is paying for two participants every year to attend the NBER’s summer institute. Such initiatives contribute to a supportive research environment, particularly for junior researchers.

Norges Bank is very active in organizing and co-organizing conferences. Topics are highly relevant and the list of speakers impressive.

In all non-publication related activities, NBR maintains an impressive level of activity.

Policy support

Support to monetary policy, financial stability and markets

Our interviews revealed three distinct perspectives on interactions with NBR among the NB policy staff. We present them here from the least to the most positive.

“NBR can’t help us.”

From the most negative perspective, NBR researchers cannot contribute to policy support. Those with this perspective believe that their daily tasks and responsibilities require much on-the-job experience. These policy staff are skeptical about NBR researchers’ abilities to understand their business lines

sufficiently well to contribute to their improvement. These staff also frequently commented that their time was too scarce to involve NBR researchers in their work.

“NBR does good work, but we have too little time for them.”

The majority of NB policy management and staff take a middle perspective. They believe that NBR can usefully contribute to their policy tasks by developing analytical tools. They recognize the importance of NBR in the development of analytical tools in the past and the relevance of those tools to their daily policy work. Prominent historical examples can be seen in the development of NEMO. However, these policy staff believe that they have little time for collaboration with NBR on the development of new tools or in the maintenance of existing tools and models. In a few extreme cases, policy staff recognize that they would not be able to operate routinely any newly-acquired tools. These cases require ongoing involvement of NBR staff with a specific policy task or process. While policy management would like more engagement with NBR staff on tool creation, they are also unwilling to commit substantial staff time to the long-term development and the exposition of these tools in written research output.

“We work very well with NBR.”

The most positive perspective comes from the minority of the policy staff who are most engaged with NBR. They report high satisfaction from collaborating on policy-relevant projects with NBR researchers. This group is mainly composed of relatively skilled staff that enjoy policy-relevant research and want their work validated with an external publication. NBR researchers experience with processing and analyzing data is often also the key contributing factor.

Building analytic capacity across NB’s policy areas over the long run

Our interviews with NB policy-support staff and management revealed that NB’s ability to build analytical capacity over the long run may be jeopardized by the prioritization of short-term goals. This is particularly evident in the departments with shorter work cycles such as Monetary Policy.

Our interviews with policy staff and NBR staff convinced us that staff from both sides have the skills and the desire to collaborate productively. However, NB policy staff, who are already under strong pressure to keep up with the monetary policy report cycle, have little time to devote to improvement of their or the bank’s analytic capabilities. Indeed, those in management positions uniformly stated that they were unwilling to release more than a nominal amount of a staff member’s time to bring a collaboration with NBR to fruition as a written product.

To be successful, a challenge to the short-term focus of NB’s policy culture must come from the very top of NB management. Towards this end, we recommend inviting NBR to make regular contributions to long-term policy analysis. This can be accomplished through direct briefings to the governor, her deputy governors, and the bank’s board. The more that members of top bank management visibly value such long-term contributions to their own policy-making capabilities, the more other departments will allocate time towards the development of the bank’s analytical abilities.

Interaction between NBR and the policy units

The strong working relationships between NBR’s director and deputy director with the directors of MP and FS facilitate a top down approach to managing collaboration between NBR and the rest of NB. Nevertheless, personal relationships between NBR and NB staff members also drive productive collaborations from the bottom-up. The ease of creating cross-department interpersonal contacts is indeed a valuable strategic benefit of being small. With that in mind, we believe that NBR and NB

management should encourage and appreciate organically occurring NBR/NB collaborations with a less immediate importance for day-to-day business. A direct way of showing appreciation and signaling the importance of such work is by having senior management request input (presentation, notes) on more long-term strategic issues from researchers.

Such organic collaboration could be stimulated by a few simple initiatives: First, we recommend moving MP and NBR into neighboring office spaces. The existing relationships between MP and NBR staff currently provide the most fertile ground for further organic growth, but the offices are on separate floors. Such distance matters enormously. Second, implement a strategy of “creative destruction” as far as bubbles are concerned. Creating bubbles from the bottom up is preferable, and it is important that members of bubbles are responsible for their bubbles’ health. But not all bubbles work well. A simple process by which members of a bubble periodically assess and report on the degree of interaction with and relevance for the bank could be implemented. This will allow bubbles that have become isolated to be replaced by new bubbles as the questions facing the bank evolve. Third, there needs to be a systematic dissemination of events taking place in the bank (seminars, workshops, guests, informal presentations) perhaps in the form of a webpage. All events should be announced also in English.

NBR and the economic skill set – general consideration

Only a handful of small industrialized countries – including Norway and Sweden – conduct independent monetary and financial policy while maintaining a floating currency. In these countries, the central bank faces the full range of economic issues relevant to a central bank in a large economy, but the scale of operation does not permit research coverage across all relevant areas of frontier economic research. Therefore, the decision in a small central bank between developing in-house research expertise versus consulting with external experts becomes strategic. There are roughly three options: The bank can decide to have significant in-house research expertise with several researchers working in an area, to have expertise at the level where someone from research knows who the experts are and can interact with them, and finally have limited or no research expertise in an area.

Currently, NBR staff focus on applied econometrics in general, and they particularly excel at macroeconometrics. Having strong econometrics skills is important, because central bank research is strongly data driven, and strong econometricians can contribute to data analysis across a wide range of fields. Having in-house expertise in monetary policy is also essential, and this is prioritized by NBR. As we will comment on below, we see financial markets as an area in which NBR should have more in-house expertise, whereas labor economics might be an area in the middle category where the optimal allocation is a researcher with enough expertise to facilitate contacts and collaboration with external experts.

Interaction with the markets group

NB management specifically asked us to evaluate the effectiveness of policy support from NBR to the Markets department. With the exception of a very useful referral to external academics for expertise on central bank digital currency, this support is virtually absent. We view the near total absence of academic interaction with the Markets department as a substantial strategic weakness for NB, because market disruptions or even crises can strike quickly, and bringing out-of-house expertise to advise NB’s top management at short notice may be infeasible. Also, an internal critical eye on trading functions

that comes from outside of the trading organization itself can be useful for adding a critical view on the bank's trading functions and practices.

Members of the Markets department clearly indicated that their time is currently too scarce to spend on interactions with NBR. This is despite the fact, that several of the members in the Markets group have experience with research from previous research appointments, and a few that we spoke to have strong publication records. The most recent top journal publications in financial markets resulted from fruitful collaboration with external academics. The problem, as we see it, is that for a collaboration to be successful, a member from the research department involved in a collaboration with Markets must invest considerable time in understanding the institutional setup in financial markets. Understanding FX trading, fixed income, and derivatives markets, for example, involves a considerable investment of time. With such an investment, combined with strong asset pricing and financial econometrics skills, a researcher could bring value to the Markets group. This value would justify the investment in time spent on getting the collaboration to work also from the Markets group's perspective. Such collaboration can only succeed if the researcher comes with substantial prior knowledge of finance.

NBR has one member (currently on leave) with substantial expertise in asset pricing. In light of the breadth of Norway's financial market activities, we recommend hiring **two** NBR researchers whose research covers asset pricing or financial econometrics. To facilitate the interaction with markets, it is important that they come with a research background in, for example, fixed income markets, foreign exchange, derivatives markets, or market microstructure. Since these researchers' policy tasks would be tilted towards interactions with the Markets department, it is essential that they enter with enough knowledge to benefit from a secondment in Markets. The opportunities to interact with financial market practitioners in both the NB and the sovereign wealth fund should make these positions attractive.

Monetary and labor economics

Monetary theorists perform two policy support roles at most central banks, they improve policy makers' understanding of the possibilities and limits of their current monetary policy framework, and they advise them during the periodic modifications of that framework. For example, monetary theorists (including one of this report's authors) briefed FOMC participants on the efficacy of unconventional monetary policy during the Fed's 2019 monetary policy framework review.

We have identified three staff members with sustained research accomplishments in monetary theory among the NB policy staff and two NBR staff members with some research on bank-relevant monetary theory. This coverage seems adequate, but more NBR interactions with monetary theorists in Europe and in North America is important. The goal should be that internal researchers develop expertise at a level where they become relevant discussion partners for NB top management on monetary policy frameworks' relative strengths and weaknesses. Towards this end, we recommend forming a monetary policy framework "bubble," composed of these five researchers. The bubble would be tasked with both the outward-facing and inward-facing tasks required for appropriately diffusing and applying research on monetary policy frameworks.

The output-inflation tradeoff embodied within the Phillips curve makes labor market functioning a central topic for all central banks. Even at an inflation-targeting central bank without a mandate to achieve maximum sustainable employment, labor market developments influence the channels through which monetary policy actions change inflation. Currently, NBR has no labor economists, even if the group publishes periodically in this field. Since developing labor market conditions rarely demand overnight responses from the central bank, labor economics is an example of an area in which NBR

should consider having someone who is able to follow and ideally collaborate with researchers in Europe's excellent academic labor economics community. This requires hiring one full time labor economist in NBR, whose policy duties are tilted towards this outward-facing task. Access to Norwegian micro data is essential for attracting a researcher with interest in labor, and for making external researchers interested in a collaboration.

Inside dissemination of relevant advances in economics and finance

NB policy researchers appreciate the short courses given by NBR staff. These effectively communicate the skills that NBR staff can provide to the broader bank.

The available written information on the quantity and relevance of different types of dissemination activities by NBR leaves the committee with an overall positive impression of their quality, quantity, and relevance. Nevertheless, there are areas like payment systems, clearing and settlement issues, financial markets in general where NBR currently has less to offer and must rely on external experts for dissemination.

Resources and staff

Composition and mission

The Research unit is composed by 12 researches: The Director, the deputy director, 1 principal economist, 4 senior researchers, and 5 researchers. The mission of the research unit is threefold: i) undirected research; ii) directed research and iii) research dissemination. Members of the research unit are expected to spend 50% of their time on their undirected research and 50% on directed research. Research dissemination is seen as an integral part of the two. The time allocation is formally inserted in the contract and does not depend on the seniority of the research unit member. All researchers interviewed appreciate the involvement in policy support especially when it has synergies for their research output and, importantly, they do not consider the contractually specified percentages for directed and undirected research as being an obstacle to their research development.

The Research unit is located within the Monetary Policy department, but it is meant to serve all the three departments (Monetary Policy, Financial Stability and Markets).

The size of the group is comparable with that of similar central banks (e.g., that of Sveriges Riksbank). Yet, the current composition appears to be tilted more towards the junior side relative to the peer group. This is also the result of the outflow in the mid-2010s of several senior researchers, who left for academic positions in Oslo and elsewhere. We will return to the issues of retaining senior researchers below.

Recruiting

Researchers are usually hired at the junior level in the international job market. The three departments are invited to participate in the recruiting of the researchers and can express their opinion on the candidates. Some policy staff member reports that this mechanism works well, with their opinion influencing the final decisions. The limited interaction between the Markets group and NBR also

manifested itself in this aspect with the Market's group expressing that they have limited influence and the NBR pointing to limited involvement from the Markets group.

Despite the competition involved in the hiring process, the unit has managed to attract high quality researchers of foreign nationality and from international PhD programs. Some of the newly hired members have been PhD interns in the unit and this suggests that candidates who are already acquainted with Norges Bank and its staff may be more likely future hires. The successful hires are a testimony to the attractiveness of the NBR unit, which compensates for the location away from larger European financial centers.

Career paths and retention

According to the 2020 Research Handbook 'Temporary secondments between NBR and the policy departments are encouraged. Newly hired research economists should do a three month secondment in a policy unit during their first years at the Bank.' Secondments are an excellent tool to integrate new researchers into NB more broadly and to give a sense of the day-to-day operation of NB. Not all researchers seemed aware of, or had fulfilled, this requirement, even if written in the Research Handbook. It is worth considering the repeated use of secondments, because it will allow researchers to expand their appreciation of the bank's operations, and to become acquainted with staff in other areas or staff that have joined the bank since the first secondment. For a collaboration between NBR and the Markets group to become active, repeated secondments of researchers with background a financial economics (bond markets, FX, derivatives, market microstructure) will be essential.

The more senior members, except the director, have made their career internally, that is, they have progressed inside the bank on the basis of the criteria set up in the career path. In the recruiting phase, junior researchers are initially offered 3+1 years, and are then confirmed permanently.

The outflow of senior researchers in the 2010's has led to the creation of the position "principal economist" in order to provide a more attractive career path. As described in the Research Handbook, the promotion to such a position foresees, among other things, that the candidate has a "professor-level scientific competence" as certified by an acknowledged Norwegian university or, alternatively, by the Norges Bank's Research Council on the basis of a number of criteria. These encompass six different areas, ranging from quantitative and qualitative requirements on the scientific output, to independence and contribution, visibility and pedagogical skills and dissemination.

While being certainly useful to set expectations and provide guidance, as well as to facilitate the hiring of senior researchers from universities, it would be advisable to adapt these criteria to better reflect the specific qualities and experience required of a principal research economist at a central bank. To this end, we propose conducting a benchmark exercise on promotion criteria in similar central banks to align career progression in the Norges Bank to that of peer institutions. The use of external letters in the promotion process is also advisable to better ensure the adoption and use of international standards.

Providing attractive promotion opportunities is important, but it is also important to focus on job content. The outflow in the 2010s was caused by the little participation of the researchers in the policy making process. Furthermore, NBR's current junior members frequently cited involvement in policy support as an attractive feature of their position. Nevertheless, researchers' actual involvement in policy appears to be rather informal and individual specific, as well as conditional on the positive dynamics and cooperation between the head of research and the heads of the policy departments. An

increasing involvement of researchers in policy work, including directly briefing decision makers, would be more in line with practice in other central banks and would likely contribute to retaining more senior researchers in NB. Going forward, it is worth reflecting on whether senior researchers should spend a larger fraction of directed research with policy work closer to decision makers.

Administrative support

While being a small group, the Research unit at Norges Bank appears to have numerous connections and possibilities of interacting with external academic researchers both in Norway and internationally. These are fostered by a series of initiatives ranging from regular research seminars to short-term visitor programs and larger research conferences. All researchers recognize and greatly appreciate the financial resources they have available for these activities in house as well as for conference participation and other events such as visits to and of coauthors. Other resources such as access to research assistance have also improved over the years and appear to satisfy researchers' expectations. It is important that the bank provide strong support for researchers who take on the task of organizing seminars, conferences, research visits, etc. The most efficient division of labor is one in which the researcher focuses on the academic content of an initiative, and an administrative support person with large routine in handling all the administrative work (web page maintenance, room reservations, refunds, hotels, reimbursements, reminder mails , etc.) focuses on that. It is our impression that the administrative support is insufficient to ensure this division of labor.

Capitalizing on data access

The access to comprehensive microdata in Scandinavian countries combined with data collected by NB itself provide excellent conditions for studying a wide range of issues relevant to central bank policies. The Strategy for Research at NB 2020-22 lists two priorities in regards to data:

- Establishing an efficient and safe bank-wide governance structure for its infrastructure for storing and analyzing microdata for research and policy analysis.
- NBR will support PPO, FST and MI in exploiting the full potential of using microdata, other new data sources and related new analytical methods for macroeconomic and financial stability analysis.

Establishing the infrastructure is ongoing and coordinating with other data collecting entities is a complicated task. It is an important focus, since the combination of data from Statistics Norway and NB can inform policy and produce research that sheds light on important issues.

NBR has contributed to several projects that illustrate the power of microdata, including projects on using card data for macroeconomic forecasting purposes, analyzing the effects of loan-to-value constraints, and analyzing the effects of monetary policy on household consumption. NBR has also delivered key expertise on textual analysis – an area in rapid development and of increasing relevance because of social media.

Continued focus on these strategic objectives is key. Access to interesting data is a huge asset in recruiting efforts, and for establishing collaboration with external researchers. Access that requires minimal data cleaning greatly improves the efficiency in terms of generating relevant policy analyses and interesting research.

Staff composition and diversity

The Research unit shows a substantial competence in the areas of macro and econometrics, while lacking knowledge in finance and markets. The limited size of the group prevents the possibility of covering the various areas more equally. Notwithstanding this, it is advisable to reflect on the current composition and try to enlarge the competences especially in areas where Norges Bank has comparative advantages over competing central banks. Such areas include markets and micro data.

The group features a good degree of diversity in terms of internationalization but not in terms of gender. Out of the current 12 members, only one is female (with another one being on leave at BI). NBR management is aware of the issue and has designed some specific measures meant to ameliorate it. For example, we understand that there is permission to offer a qualified female researcher a fixed position. It is important that this opportunity is not foregone because of a narrowly defined preferred research profile. Also, while such a measure is welcome, it may not be sufficient. Improving gender diversity requires a strong and continued institutional commitment. Given the scarcity of highly qualified female economists, the hiring process should not rely exclusively on the selection of the best candidate and in the preferred field of expertise. Rather, it may require that during a recruiting in which one position is being filled and the best qualified candidate happens to be male, NBR should create a second position for an available qualified female candidate.

The research director

The research director Kasper Roszbach is heavily involved in the organization and daily operation of NBR, and commenting on how he leads NBR is a natural part of this evaluation.

In general, the committee has the impression that the director displays strong and clear leadership of the group. He has very good relations to policy directors, including the leader of Monetary Policy to whom he refers, and a harmonious and efficient collaboration with his deputy director Knut Are Aastveit. He emphasizes transparency in how researchers are evaluated for promotion and in connection with directed research projects. He has a focus on increasing execution efficiency by setting up clear project goals and processes which lead to either tangible output or termination. His revision of the point system for academic publications is a clear improvement over the previous version.

In several interviews, people in the organization told us how the director had been instrumental in pointing them to the right external people to perform some task for NB or NBR. Examples included pointing to the relevant external experts to invite in to talk about an emerging topic (such as digital currencies and payment systems), and along with his deputy instituting the system of finding 'test' referees for research papers. NB and NBR benefit greatly from the director's exceptionally strong network.

The director has a clearly articulated strategy for what the role of NBR is within NB, and he executes the strategy faithfully and with huge effort. He does appear content with research staff being in a supportive role rather than bringing the researchers closer to where decisions are being made. We have argued above, that bringing researchers closer to decision makers will benefit NBR and NB. A first step is having them brief policy makers at the highest levels. Implementing this change requires the active support of senior management, but once decided it will be an important challenge for NBR's management to show that the model can work leading (as they do in general) by example. It might also require a rethinking of the research group's submersion within the Monetary Policy department.

We had the impression that a substantial amount of administrative work is put in the management team's hands. It is imperative that as much of the director's and the deputy director's time as possible is

used for those functions that only they can perform. Therefore, all aspects of visits, appointments, events, staff management etc. that can be handled by administrative staff should be given to them as early in the process as possible. When the NBR uses its network to invite guests and organize events, they should make the initial contact, but once a visitor has agreed to come, it is delegated to an appointed administrative person to organize all practical aspects – including sending the right reminders.

Summary and main recommendations

Overall, the committee is convinced, that NBR's staff enables NB's management and policy staff to operate at a higher level. They do this because they master state-of-the art analytical methods, because they know and contribute to the frontier of central bank-relevant economic and financial research, and because they can draw upon a network of academics worldwide. This network allows the bank to bring in leading academic experts to inform the bank of new developments in areas where the local expertise is lacking, or can be increased by seeking inspiration from leading academics. The superior network of the Research Director is an invaluable asset in this context.

We conclude by listing our main recommendations and providing in each case a short rationale.

Research output

- 1. Maintain the journal point system, but increase reward for the top journals.**
The ability to publish, at least occasionally, in top journals is an important quality stamp. Striving for the top increases publication quality even when ending up at a lower level.
- 2. Measure progress with conference presentation, conference discussions and downloads.**
Keep track of conference acceptances according to levels specified in the research handbook. Discussions should also count. Measure SSRN downloads.

Policy support and interaction

- 3. Senior researchers should be involved in briefing decision makers.**
This is important for retention, as the more senior researchers are less likely to find continuing satisfaction in a purely supporting, technical role. In the long run, it could also improve decision-making.
- 4. Co-locate the NBR and the monetary policy unit.**
Geographic proximity – i.e., being on the same floor –further stimulate bottom-up collaboration. Although we suggest co-locating with MP, this should not remove the focus on increasing interaction with other units as well.
- 5. Devise strategy for stimulating contact and collaboration between research and the markets group.**
This involves hiring researchers with expertise and interest in markets and capitalizing on the proximity to traders and analysts with superior institutional knowledge.
- 6. Make NBR attractive to economists by capitalizing on great data and closeness to actual market operations.**
NBR should continue its focus on making unique data access in areas such as labor economics and household finance a tool for attracting researchers. Similarly, closeness to market

operations and fund management should be used as an attraction for asset pricing and macro finance researchers with interest in bond-, currency- and derivatives markets.

7. Streamline the process of bubble creation and replacement.

Bubbles are a useful vehicle for fostering collaboration, but a process of “creative destruction” should make bubble participants reflect on relevance and degree of successful interaction.

Resources, organization and staff

8. Reflect on whether NBR should remain under MP.

The current organization could impede long-term development of relevant expertise and a more balanced interaction with all policy areas. This change would also shorten the distance to top-level management and therefore support the involvement of senior researchers in briefing decision makers.

9. Create ad hoc positions for qualified female candidates.

Creating ad hoc positions enables NBR to act outside the regular job market cycle or if a strong female candidate happens to be dominated by an even stronger male candidate who is given an offer.

10. Define specific central-bank relevant criteria for the position as principal economist.

Currently, the system is designed to be transparent and to make the transition from university easy, but it would be beneficial to also emphasize skills and experience that are relevant for a senior candidate’s ability to contribute directly to policy work.