

Report to Jan Qvigstad, Executive
Director, Norges Bank Monetary
Policy, on the Structure and
Functioning of the Norges Bank
Monetary Policy Wing

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EXECUTIVE SUMMARY

Introduction

This report has been prepared in response to a request by Jan Qvigstad, the Executive Director of the Monetary Policy wing of the Norges Bank (PPO), for advice on the structure and operations of the wing. PPO has made significant improvements in recent years on the economic and policy side, and in the structure and functioning of the wing. The benefits that would result from the implementation of some of the options suggested in this report would be a further advance by the Bank and the wing towards international best practice.

There are many very positive attributes of the current operations of PPO that should be encouraged and strengthened. These include, among other things, staff who are generally of high quality and capable of generating good research and analysis, a close collaborative relationship between economists in the Economics Department (ØKA) and those in the Monetary Policy Department (PA), an emphasis on group work to achieve the desired goals that is stronger than a focus on individual achievement, a desire to base policy recommendations on the best analysis that is available, a very flexible work environment, and no tendency on the part of staff to hoard data or information. But there is room for improvement in a number of areas, many of them interrelated, as the following discussion will indicate.

Departmental structure

Perhaps the most important structural issue facing PPO at present is the organization of the departments involved in the making of policy in an environment in which the monetary policy decision-making process involves a forecast with a published endogenous interest-rate path. There are four principal options that could be considered for the structure of the arrangements for forecasting and model development. The first is to maintain the status quo, with ØKA and PA jointly responsible for the forecast, and the models/analysis group remaining in the ØKA. The second is to maintain the joint responsibility for the forecast, but to move the models/analysis group to PA. The third is to combine the models/analysis group with a new forecasting group to form a separate department within PPO, the Forecasting and Models Development Department (FMD). The fourth is to restructure ØKA and PA on the basis of the time horizon for which they are responsible.

In the third option, the forecasting group could be staffed by rotations from other departments. Staff would normally return to their home department after completing their assignment in the forecasting group. This option would provide the advantage of clear responsibility and continuity for the forecast, while avoiding the disadvantage of a permanent team suffering from an "ivory tower" problem. It would be most helpful for the successful operation of such a structure to situate FMD on the fifth floor, between ØKA and PA.

There are a number of advantages of the proposed arrangement. Putting the forecast group and the models development group in one department would go a long way to

ensuring close contact between the developers of the model used for forecasting and policy analysis and the principal users of that model. Rotation between the two groups in the FMD Department would allow for additional synergies in which each of the rotating staff members would bring his or her perspective to the other group. And rotations from the other policy departments would help the forecasting group to maintain close contact with the specialists in their departments of origin. It would give more staff members the opportunity to work in the forecast for some period of time, thereby enriching their work when they return to their home departments. It would help avoid the burnout arising from spending too much time in the stressful area of forecasting, and the frustration that forecasters feel from not having enough time to do medium-term analysis in the areas of the forecast that they want to pursue in more depth. By removing direct responsibility for the forecast from ØKA and PA, their staff would have more time to do medium-term analysis.

The fourth option would restructure the Economics Department and the Monetary Policy Department on the basis of the time horizon for which they are responsible. The Economics Department would have responsibility for the current economic situation and the near-term outlook (i.e., for nowcasting), while the Monetary Policy Department would be responsible for the medium-term outlook. In this approach, development of new time series techniques for nowcasting would be lodged in the Economics Department while the models development group would be part of the Monetary Policy Department. Each of the departments would thus have an analytical group, which would enable other members of the department to benefit from the more technical apparatus being developed in the department.

Current activities, medium-term analysis, and long-term research

The current set of arrangements raises a number of issues -- (i) the appropriateness of the balance among current analysis, medium-term analysis, and longer-term research, whether there is need for additional resources in PPO, and how such additional resources should be allocated among current activities, medium-term analysis, and longer-term research; (ii) the options for organizing longer-term research; (iii) ways of establishing priorities in longer-term research and medium-term analysis, and improving the relationship between those engaged in longer-term research and those engaged more directly in policy analysis.

The principal conclusions reached are the following. In general, staff in the policy departments do not have sufficient time to do the kind of medium-term analysis that would support and improve the current analysis that they are called upon to provide and that would address the policy issues facing the Bank. Serious consideration should be given to increasing total resources available to PPO and devoting the additional resources to medium-term analysis in the policy departments, as this would provide the greatest value-added. Mechanisms for setting priorities for longer-term research and medium-term analysis should be formalized and involve both top-down and bottom-up input.

In the context of assessing areas in which additional staff is needed, attention should also be given to the international area, which is currently very much under-resourced. In my

view, it would be important to increase the amount of resources -- current analysis, medium-term analysis, and longer-term research -- devoted to international issues and their potential repercussions on the Norwegian economy.

More fully integrating MOA

While considerable progress has been made over the recent period, there are several ways in which MOA might be further integrated into the policy process. The first is a simple question of logistics. Would it be possible for MOA to be situated on the fifth floor? A second possible change would involve improving the technical competence of those MOA staff directly involved in the interpretation of exchange rate and interest rate developments. The Analysis part of MOA has to be able to communicate effectively with macroeconomists in the other departments. Hiring and/or developing staff who understand both financial market and macroeconomic approaches, and use both financial market and macroeconomic terminology, is a major challenge. Third, the combination of attracting good staff to the area and a clear commitment on the part of departmental management to high-quality analysis could lead to an improved perception by other economists regarding the interest, importance, and quality of the work being done in MOA, and an increased willingness to spend some part of their career in that department.

Competencies within PPO

The staff in PPO appear in general to be of high quality and capable of generating good long-term research, medium-term analysis, and current analysis. That said, there are areas in which some improvement is possible. The Norges Bank has had some difficulty in attracting economists with PhDs and has in some cases encouraged existing staff with MA level training to pursue their doctorate, facilitating their ability to do so while they continue to work for the Bank. Consideration should be given to expanding this program if the Bank continues to have difficulty hiring PhDs. Also, in order to upgrade the quality of work being done by staff members without PhDs, it is crucial that they receive on-the-job training in areas (such as econometric techniques) that will allow them to carry out their duties in a relatively sophisticated manner. Improving the technical capacity of young staff entering the Bank could be done either with courses offered in-house by specialists in FA or the policy departments, or by academics brought in to teach such courses, or by sending such staff to local universities to take courses in the areas in which there are gaps in their knowledge.

Consideration could be given to having temporary visitors to the Norges Bank. For example, inviting university professors to spend their sabbatical year at the Norges Bank would be helpful to the staff in the Bank. Also, the Bank or the wing might consider setting up a special adviser position, of the sort used in the Bank of Canada.

Human Resources Issues

Overall, the human resources situation is in reasonably good shape. Some of the recent initiatives, such as the introduction of specialist career tracks and the more flexible wage system, are moves in the right direction. Nonetheless, there is room for further changes that will help PPO achieve its objectives more effectively.

Recruiting/Training and Development

PPO may have to become even more proactive in recruiting than it has been in the past. One possible change in the recruiting process would be to consider Denmark and Sweden as part of the potential employment pool. A systematic evaluation of the success, or lack of success, of each year's recruiting effort, might be helpful in finding ways to improve the recruiting process. One issue that requires consideration is whether PPO should aim at hiring PhD economists in the market or whether it should continue to support employees hired with lower educational levels in obtaining a PhD. In large measure, the Bank's and wing's approach to this question will depend on the nature of the market for PhDs. While PPO is currently doing a good job at providing training to staff, there could be a more systematic evaluation of gaps in competencies and abilities, and Department Directors should meet regularly to discuss such gaps and the need for recruitment or training to fill them.

Mobility

In a well-functioning system, employees would consider mobility as a normal element of a career path. One of the major benefits to the organization of having staff rotate through different departments and different wings is that if a crisis occurs, or if there is an unexpected loss of key staff in a given area, there would be a larger number of people available to deal with the problem. Mobility improves the functioning of departments and broadens the competencies of staff. Mobility across wings for all types of positions would facilitate the breaking down of the remnants of the "silo" mentality across wings, lead to more joint analysis and research, provide a more interesting career for employees, and result in increased cross-fertilization of ideas. While there is significant mobility between ØKA and PA, there is insufficient mobility at present between these two departments and the rest the wing, as well as between the PPO and FST. One way of encouraging increased mobility is to make posting the normal way of filling vacancies. As well, a transparent system for evaluating candidates for a posted position should be put in place. The trainee program is likely to make a very positive contribution to mobility over time.

Performance Assessments and salaries

While the current performance assessment format (a five level ranking) in PPO seems to work well, consideration should be given to adding a performance agreement to the arrangements and tightening the relationship between the results of the performance assessment and the annual salary adjustment to the extent possible.

Orientation, Mentoring, and Coaching

PPO could consider introducing a formal orientation program for new staff members and mentoring arrangements for those staff who would like to have this kind of arrangement. To assist employees who are newly arrived at the Bank, orientation sessions could be held periodically, with presentations by senior officials of the Bank that explain the objectives of the Bank and its wings, how these are met, as well as how areas such as human resources function. Another way of assisting employees, especially those who have recently taken on new levels of responsibility, would be to establish a mentoring scheme in which more seasoned employees have regular meetings with their mentorees to

share their experiences and their understanding of the organization. Consideration could also be given to assigning a mentor or coach to those employees recently promoted to managerial positions to help them deal with some of the new issues facing them for which they have not been fully prepared.

Career Paths

PPO could consider being more explicit about the normal path of upward movement and the more rapid path for the best-performing employees. In dealing with high performers, the management of PPO should ensure that their gaps in training and experience are filled to the extent possible. As well, discussions of their future in the context of the assessment process should be as explicit as possible in order to increase the probability of retaining them. The introduction of the specialist career track is a very innovative and helpful step in clarifying possible career paths at the Bank.

Work Environment

The Bank has well-organized arrangements for dealing with the balance between work and family life. The staff recognize the quality and helpful nature of these arrangements.

Knowledge Transfer

An important goal of knowledge transfer arrangements is to ensure that all memoranda, analyses, decisions, etc. are accessible to future researchers and analysts. The lack of such a system results in a loss of institutional knowledge as long-term employees with corporate memory retire. There appear to be considerable differences across departments in PPO in the quality of the arrangements for document management. All departments in PPO should aim at achieving best practice in this area, and at enabling staff to access documents in departments other than their own. The new Bank-wide initiative that is being developed in Staff and Group Services may have considerable potential in this regard. Unfortunately, the departments in PPO have not been very involved in the development of this new initiative for document management. They should become more involved so that the resulting tool is well-suited to their needs.

Internal Communications

Internal communication of the senior management of central banks with their staff has come to be seen as an important way of contributing to the motivation of the staff, and to ensuring that employees are kept apprised of developments within the Bank. While the Intranet is currently being used by many staff members as a way of getting information about their department, it is clearly underutilized at the present as a way of informing staff about more general PPO and Norges Bank developments. Ways should be found of encouraging staff to focus on Bank wide and wing wide communications, and not just communications from their own department.

Silos

A key potential improvement in breaking down silos would be to increase mobility across the wings in the Norges Bank. Also, task forces made up of representatives of the relevant wings could be helpful in addressing issues that cut across two or three wings and, as a byproduct, strengthen the ties across the wings.

1. INTRODUCTION

This report has been prepared in response to a request by Jan Qvigstad, the Executive Director of the Monetary Policy wing of the Norges Bank, for advice on the structure and operations of the wing. The purpose of the study is to provide suggestions regarding the structure of the wing and the human resources policies of the wing that would improve the functioning of Norges Bank Monetary Policy (PPO). Particular attention has been paid to the organization of resources in PPO, the balance between current activities, on the one hand, and medium-term analysis and longer-term research on the other, and whether PPO staff have the competencies needed for the objectives of PPO to be achieved.

The issues to be examined were set out in detail in a letter to staff circulated in advance of my first visit (see excerpts in Appendix 1). The preparation of the report involved my spending about two weeks at the Norges Bank (May 2 to May 11, 2006 and August 29 to August 31, 2006). The first visit was spent in discussions with the management and staff of PPO, getting their perspective on the various issues raised in the letter. The second visit involved the presentation of this report to the management of PPO.

In my first visit to Norway in May, I met (both in meetings and at lunches) with almost all the managers of PPO, and a large number of senior and junior staff members in the wing. I also met with the Governor and the Deputy Governor, the Executive Director of the wing, and one manager from the Financial Stability wing.

I would like to express my thanks to all the officials of PPO whom I met in the course of preparing this report for their time, their willingness to discuss the various issues addressed in this report, and their openness. This openness greatly facilitated my understanding of the problem areas at the Bank and the possible solutions to those problems. I also wish to explicitly mention and thank Tore Anders Husebø and Bente Mathisen for organizing my visits and meetings with great efficiency.

While the focus of the interviews and discussions that I had with members of management and staff was on their perception of the problems that exist in the way that PPO is currently functioning and possible solutions that would eliminate or mitigate these problems, there was a clearly-expressed view by the staff that there had been significant improvements over time in a number of areas in the wing's operations. And there was strong support for continuing the momentum towards improvement in the functioning of PPO.

2. SOME BACKGROUND CONSIDERATIONS

There are many very positive attributes of the current operations of PPO that should be encouraged and strengthened. These include, among other things, staff who are generally of high quality and capable of generating good research and analysis, a close collaborative relationship between economists in the Economics Department and those in

the Monetary Policy Department, an emphasis on group work to achieve the desired goals that is stronger than a focus on individual achievement, a desire to base policy recommendations on the best analysis that is available, a very flexible work environment, and no tendency on the part of staff to hoard data or information. But there is room for improvement in a number of areas, as the following examples will indicate. Compared to some other central banks, there is insufficient mobility across departments and wings. Certain parts of the PPO are under-resourced, while others are not sufficiently integrated into the monetary policy decision-making process. The organization of the forecast process deserves to be reconsidered now that the interest-rate path has been endogenized. And there is room for improvement in the way that research and analysis are being conducted. Also, areas such as mentoring, knowledge transfer and relating salaries more closely to performance are capable of improvement. Note there are interrelationships among many of the areas discussed in this report.

In most cases, the approach to the areas covered in the report is to begin with a short summary of the views of the staff regarding the issue under consideration, followed by the diagnosis of the problem and a listing of the options for dealing with the problem. I would emphasize, however, that even where there appear to be particular advantages to one of the options under consideration, the ultimate decision by the management of PPO has to be based on their collective view of the issues, in the context of the culture of the Norges Bank. Later in this section, I set out a series of criteria that can be used in deciding among the options for structural change.

The organization of the report is as follows. The next four sections (3 to 6) deal with a number of structural issues – (i) how best to structure the Economics Department, the Monetary Policy Department, and the Models Development group in the context of the forecasting and policy environment in PPO; (ii) the balance between current activities, on the one hand, and medium-term analysis and longer-term research, on the other, and ways of improving the research environment in PPO;¹ (iii) how to integrate the Market Operations Department more fully into the forecasting and interest rate setting processes; and (iv) whether PPO has the competencies needed to achieve its objectives. Sections 7 to 13 examine a number of human resource issues -- recruiting; training and development; mobility across departments and wings; the link between performance assessment and salaries; orientation, mentoring and coaching; career paths; and work environment. Section 14 deals with other areas such as knowledge transfer, internal communications, and whether the wing arrangement by which the Norges Bank is structured gives rise to an excessively silo-like environment. Section 15 provides some concluding remarks.

As a matter of terminology, I use the term policy departments to include the Economics Department, the Monetary Policy Department, and the Market Operations and Analysis

¹ The specific questions to be addressed under this heading include whether there is need for additional resources for research and analysis in PPO, how such additional resources should be allocated, options for organizing longer-term research; and ways of establishing priorities in research and analysis and improving the relationship between longer-term research and policy analysis.

Department of PPO. Also, I use the term Market Operations Department as a shorthand for the Market Operations and Analysis Department throughout the report.

What are the criteria that one might use in assessing the structure of PPO and in deciding upon changes? The overriding consideration is which arrangement is best suited to fulfilling the objectives of PPO. There are also three other important elements that enter into decisions of this sort. The first involves examining the synergies arising from grouping various elements together in a department along with the need for coordination across departments. The second relates to the appropriate size of departments and groups, given the need for managers to maintain effective control over the operations of their unit. And the third relates to the human resource implications of different organizational arrangements, particularly the implications for staff mobility and career paths. In the context of examining the various structural issues from this perspective, it can sometimes be useful to look at the way such issues are addressed in other central banks.

3. THE DEPARTMENTAL STRUCTURE, THE FORECASTING PROCESS, AND THE DEVELOPMENT OF MODELS USED IN THE FORECASTING PROCESS

Perhaps the most important structural issue facing PPO at present is the organization of the departments involved in the making of policy. In particular, in an environment in which the framework underlying monetary policy involves a forecast with an endogenous interest-rate path that is subsequently published, what departmental arrangement is likely to be most efficient? The current arrangement, with Economics and Monetary Policy Departments jointly responsible for the forecast, and a Models/Analysis group within the Economics Department responsible for models development, has worked reasonably well, in large part because of the tradition of cooperation and collaboration in PPO departments. However, it may not be the best way of structuring the wing going forward.²

3.1 Summary of comments by staff members

In commenting on the current situation, staff members noted that the directors of the Economics Department and the Monetary Policy Department work well together, and that the current structure would not function as well if there were a personality clash between the directors. The cooperation and collaboration across the two departments was viewed as being very good, with the preparation of the forecast being more integrated than had earlier had been the case and without turf problems. The forecast is a joint effort of the two departments, and debate is fostered by having both groups responsible for it. While the forecast process was viewed as somewhat cumbersome, the reference group works reasonably well. There was some discussion of the need for more clarity of

² The question of how Market Operations can be better integrated into the forecasting and policymaking framework is discussed in section 5 of this report.

responsibilities, particularly in the area of the exchange rate and the interest rate. Some staff members viewed the Economics Department as being too large to manage, with particular emphasis on the size of conjunctural analysis group. A number of people were concerned about the staff having insufficient time to do analysis, and the difficulty of managing and following up projects.

In discussions of potential structures for PPO, there were a variety of views expressed. Some felt that the status quo worked reasonably well, that it was important for Economics and Monetary Policy to be separate departments because of their overall size and in order to have checks and balances. Having a single department rather than two departments would be too hard to manage, not efficient, and could run the risk that assumptions would be adjusted to get the desired interest rate results in the forecast. On the other hand, having two separate departments was viewed as awkward because of their joint responsibility for the forecast. Some argued that the division of responsibilities between the two departments has not been clear or efficient since the endogenization of the interest rate in the forecast.

A number of alternative approaches were suggested for structuring the departments in PPO. One possibility was to reorganize the Economics and Monetary Policy departments on the basis of responsibility for the near term, on the one hand, and the medium term and long term, on the other hand. In discussing the positioning of the models/analysis group, there were a number of views expressed. One was that the models/analysis group should be in the Economics Department because the model describes the working of the economy and because it is used for forecasting. However, it was noted that the Economics Department needs to train more of its specialists to understand the model. A second possibility was to move the models/analysis group to the Monetary Policy Department because the crucial use of the model is to generate alternative simulations. A third possibility was to put the models/analysis group between the two departments, although there was some uncertainty about how to do this, and to locate it physically on the fifth floor. Finally, it was suggested that the forecast team should involve staff rotation, with members of the forecast group sitting together.

3.2 Diagnosis

As can be seen from this summary of comments by staff members, there are some elements of the current arrangements that are considered problematic. The change to a framework in which the policy interest rate has been made endogenous in the forecast process has magnified these problems. First, while the joint responsibility of the Economics Department and the Monetary Policy Department for the forecast has worked reasonably well, the success of the operation has depended on the ability of the two directors to work well together. It would be preferable to have an arrangement in which the structure itself made a contribution to the successful functioning of the forecasting and policy recommendation arrangements. Second, given the important role of the models/analysis group in developing the forecasting model and in assisting forecasters in the use of the model, there is a question of where the models/analysis group should be housed and which department is best able to use the forecasting model. This will be a

particularly important issue if and when NEMO becomes the primary forecasting model. Third, the technical expertise of the Monetary Policy Department seems to be greater than that of the Economics Department. In this section of the report, I will deal with the first and second of these problems. The third will be discussed in section 6 on the competencies of the PPO staff.

What are the possible options that should be considered for the structure of the arrangements for forecasting and model development? There are four principal options. The first is to maintain the status quo, with the Economics Department and the Monetary Policy Department jointly responsible for the forecast and the models/analysis group remaining in the Economics Department. The second is to maintain the joint responsibility for the forecast, but to move the models/analysis group to the Monetary Policy Department. The third is to combine the models/analysis group with a new forecasting group (with staff members perhaps drawn on a rotation basis from the other departments) to form a separate department within PPO, the Forecasting and Models Development Department. This new department would work closely with both the Economics Department and the Monetary Policy Department, as well as with the Market Operations Department. In this option, a steering committee composed of the directors of the Economics Department, the Monetary Policy Department, the Forecasting and Models Development Department, and the Market Operations Department could have overall responsibility for the preparation of the forecast. The fourth is to restructure the Economics Department and the Monetary Policy Department on the basis of the time horizon for which they are responsible. Thus the "nowcasting" part of the forecast would be the responsibility of the Economics Department and the rest of the forecast would be the responsibility of the Monetary Policy Department. Development of new time series techniques for nowcasting would be lodged in the Economics Department while the models development group would be part of the Monetary Policy Department.

Because the advantages and disadvantages of the first option (maintaining the status quo) are well known, and because the advantages and disadvantages of the second option (moving the models/analysis group to the Monetary Policy Department) are the mirror image of those for the first option, I will discuss the first two options very briefly and spend more time on the third and fourth options, which would involve more substantial changes to the current structure.

3.3 Options for possible structural arrangements

Before discussing the various options in more detail, I would like to discuss briefly the forecasting arrangements in some other central banks. There is no single structure that prevails across even best-practice central banks. A lot depends on the history of the institution, its culture, and perhaps the staff that was available at the time that the structure was set in place.

In the Bank of Canada, the Research Department (equivalent to the Economics Department in the Norges Bank) is largely responsible for the domestic forecast while the International Department is responsible for the forecast of the US economy and the rest

of the world. Model development for the Canadian economy is done in the Special Studies (or long-term research) unit of the Research Department. In the Reserve Bank of New Zealand, the Economics Department is composed of four groups -- economic issues, forecasting, modeling, and policy. The Reserve Bank of Australia has two departments in its Economics Group -- the Economic Analysis Department and the Economic Research Department. The Economic Analysis Department includes, among other units, Forecasting, Advice on Monetary Policy, and Statements on Monetary Policy. Most modeling and long-term research is done in the Economic Research Department. At the Bank of England, the domestic and international forecasts are the responsibility of the Monetary Policy Department in the Monetary Policy wing. The construction of the new Bank of England Quarterly Model was done over a period of two years in an ad hoc group in the Conjunctural Analysis and Projections Division. This dedicated group included both practical forecasters and more research-oriented economists. After the model was completed, the group was disbanded and the modelers moved to other areas of the Bank. At the Riksbank, both modeling and forecasting are separate units in the Monetary Policy Department (which is equivalent to the combination of the Economics Department and the Monetary Policy Department at the Norges Bank).

Thus, at some central banks, there is a single department that combines the responsibilities of the Economics Department and the Monetary Policy Department of the Norges Bank and typically both forecasting and modeling are done in this department. However, in the Reserve Bank of Australia, forecasting is done in one department and modeling in another department within the Economics Group. The history of PPO, in which the development of the forecast model was transferred from the Research Department to the models/analysis group in the Economics Department, is important in understanding why the current arrangements are in place and why they differ from those in some other central banks. The challenge in PPO is to develop an efficient set of arrangements for modeling and forecasting, given the existence of separate Economics and Monetary Policy departments.

3.3.1 Status quo, with models/analysis in the Economics Department

There are advantages and disadvantages to continuing with the status quo in which the models/analysis group remains in the Economics Department, and the Economics Department and the Monetary Policy Department share responsibility for the forecast. As noted earlier, it has worked reasonably well in the past. Another advantage is that it would allow the economists working on model development to work closely with specialists who are involved with the forecast of the economic situation and the workings of the economy. Offsetting this is the risk that the Monetary Policy Department and the Market Operations Department will be insufficiently linked to the model development process if the models/analysis group remains in the Economics Department. Another disadvantage of this structure is the lack of clarity associated with the joint responsibility for the two departments for the forecast. Also, there is the question of who will run the model in the forecast mode.³ The latter question will become particularly important if

³ At present, staff members in both the Economics Department and the Monetary Policy Department run the model during the forecast process.

NEMO becomes the primary forecasting tool because of its complexity, since understanding how it works and how to use it will be much more time intensive than in the case of model 1A. If it is decided to continue with the status quo, arrangements would have to be made to avoid the risk that the model developers would not be sufficiently close to the forecasters using the model and the converse risk that the developers would be so involved in the forecast process that they do not have sufficient time to do medium-term analysis.

3.3.2 Models/analysis in the Monetary Policy Department

The advantages and disadvantages of having the models/analysis group in the Monetary Policy Department are the mirror image of those just discussed for having the group in the Economics Department. The main advantage would be that the model developers would be able to work closely with specialists in monetary policy. This would be helpful in advancing the work on reaction functions and optimal policy. It might also be helpful for some elements of the work on the specification of the transmission mechanism. Also, since the staff in the Monetary Policy Department are somewhat more proficient technically than the staff in the Economics Department, they may find it easier to understand and use NEMO as a forecasting tool. Among the disadvantages of the structure are that it would distance the specialists of the Economics Department somewhat from the model underlying the forecast, which would be problematic from the perspective of the short-term forecast. And having the models/analysis group in the Monetary Policy Department would increase the risk that the Economics Department and the Market Operations Department would be insufficiently linked to the model development process. It would also not resolve the issue of the joint responsibility of the two departments for the forecasting process.

3.3.3 Models/analysis in a separate department together with forecasting group

One possible structure that deserves serious consideration would involve the creation of a new department in PPO that would combine the models/analysis group with a separate forecast group. The forecast group would be composed of staff members from the Economics, Monetary Policy, and Market Operations Departments (and perhaps also from the Research Department) on a rotating basis. For purposes of this report, I will call the proposed new department in PPO the Forecasting and Models Development Department (FMD).

There are two possible models (as well as combinations of these models) for the group in FMD responsible for forecasting -- a permanent forecast team and a temporary forecast team. In a permanent forecast team, the group responsible for the forecast remains together for some indefinite period. In a temporary forecast team, staff from various departments are brought together for the period of time in which the forecast is being produced.⁴ The organizational structure that would probably work best for the forecasting group would combine elements of a permanent forecast team and a temporary

⁴ Appendix 2, based on work done for an IMF mission, sets out the advantages and disadvantages of the two models.

forecast team. It would involve rotations to the forecast group from the other policy departments in PPO, with staff temporarily assigned for a given time period (say two to three years) on a rotating basis from their home departments. (There might also be rotation from the Research Department, perhaps for a shorter period of time.) The option with rotations provides the advantage of clear responsibility and continuity for the forecast, while avoiding the disadvantage of a permanent team suffering from an "ivory tower" problem. Staff would normally return to their home department after they had completed their assignment in the forecasting group. The temporary rotation arrangements would help to avoid burnout among the forecasters, a common problem in those central banks in which the staff responsible for forecasting spend more than two or three years in the forecast group. It would be most helpful for the successful operation of such a structure to situate FMD on the fifth floor, between the Economics Department and the Monetary Policy Department.

To oversee the forecast, consideration could be given to establishing a steering committee similar to the Reference Group that is currently used as part of the forecasting arrangements. This would help clarify the responsibilities for the forecast. The Steering Committee could be composed of the directors of the four policy departments in PPO (Economics, Monetary Policy, Market Operations, and FMD). Other key participants in the forecast process could attend some or all of its meetings. Its primary responsibilities would be to deal with major issues at the beginning of the forecast process, oversee the ongoing forecast process if necessary, and to resolve major conceptual and practical issues that arose in the course of the forecast process and that could not be resolved by the staff.⁵

The forecasting group would be expected to interact closely with the other departments in PPO as well as with the model development group in their own department. By working closely with staff from their departments of origin, they would benefit from the expertise of specialists in the various areas. But the responsibility for the forecast would rest with FMD, subject to the ultimate responsibility of the Steering Committee. Having the forecasters in the same department as the model developers should enrich the relationship between the two groups, enabling them to feed off each other's experience. And there might also be rotation within FMD between the forecast group and the models development group, enabling the former to do medium-term analysis from time to time with the benefit of their forecast experience, and the latter to enrich their understanding of the process by doing hands-on forecasting from time to time.

The forecasting group could be made responsible not only for the forecast itself but also possibly for the drafting of the Inflation Report. Alternatively, especially if the task of drafting was considered excessively onerous for the group that was doing the forecasting, a drafting group composed of staff from the various departments, including FMD, could be assigned the task of drafting the Inflation Report. If the Bank decided to hire a

⁵ While normally the four directors would be able to reach agreement on the major issues that are faced during the forecast process, in case of fundamental disagreement among them the Executive Director of PPO would have to resolve the issue.

speechwriter, as discussed below in section 4.3, this person could also help with the drafting of the Inflation Report.

There are a number of advantages of the proposed arrangement. The first set of advantages comes from putting the forecast group and the models development group in one department. It would go a long way to ensuring close contact between the developers of the model used for forecasting and policy analysis and the principal users of that model. Thus, problems and gaps that became apparent to the forecast group during the forecast process could receive prompt attention from the model developers. And the models development group could draw the attention of the forecasters to the gaps, weaknesses and problem areas in the model that they are aware of. Being in the same department with the model developers would help the forecasters to learn the intricacies of the model. This would be especially important if and when NEMO became the primary model in the forecast process. Also, rotation between the two groups in the FMD Department would allow for additional synergies in which each of the rotating staff members would bring his or her perspective to the other group. Second, rotations from the other policy departments would help the forecasting group to maintain close contact with the specialists in their departments of origin. Third, it would give more staff members the opportunity to work in the forecast for some period of time, thereby enriching their work when they returned to their home departments. Fourth, it would help avoid the burnout arising from spending too much time in the stressful area of forecasting, and the frustration that forecasters feel from not having enough time to do medium-term analysis in the areas of the forecast that they want to pursue in more depth. Fifth, by removing direct responsibility for the forecast (which is very time-consuming) from the Economics and Monetary Policy departments, their staff would have more time to do medium-term and longer-term analysis. Sixth, by formalizing the role of the Steering Committee, there would be clearer accountability as to who is responsible for the forecast.

There are also disadvantages to the proposed structure. Probably the most important of these is the risk that the other policy departments in PPO might feel excluded from the forecasting and interest rate setting process. There are, however, a number of factors offsetting this risk. One could be the role of the Steering Committee, if it were given overall responsibility for the functioning of the forecast process. Also, the views of the specialists in the Economics Department would continue to be an essential element in the short-term forecast. And the specialists in the Monetary Policy and Market Operations Departments would continue to play an important role in the interpretation of interest rate and exchange rate movements. Finally, if many of the key meetings in the forecast process were open to staff from the various policy departments, feelings of exclusion from the process would be less likely to develop. Another potential disadvantage would be the loss of the intellectual spillover from the models development group to the other staff in the Economics Department as a result of the move of the models development group to FMD.

In this structure, the Economics Department and the Monetary Policy Department would have more time to do medium-term analysis in the various areas of their responsibilities.

In the case of the Economics Department, this would improve the quality of the current analysis that they would continue to do and that would feed into the forecasting process. And it would allow the staff to spend more time interpreting the incoming data and relating it to their understanding of the functioning of the sector for which they are responsible. Also, the increased and improved empirical work that they would do in their areas of responsibility would serve as a crosscheck to the related equations in the forecasting model and permit better calibration of the equations in the forecasting model. In the case of the Monetary Policy Department, more time can be spent studying areas such as optimal policy, reaction functions, appropriate policy horizons, treatment of asset price bubbles, potential use of price level targeting, and the like. In addition, consideration could be given to increased study of the role that financial variables play in the transmission process and how they might be integrated into the forecasting and interest rate setting process. Furthermore, as will be discussed in some detail in section 4.3, more attention needs to be devoted to the international area and the new arrangements (along with the proposed addition of resources to PPO to be discussed in that section) would allow the policy departments to do more current analysis and medium-term analysis on the international economy and issues developing in that area.

How does this proposal satisfy the criteria set out earlier for assessing various structures? In my view, it would result in a better forecasting process, thereby potentially improving the functioning of monetary policy at the Norges Bank. It would exploit the available synergies by putting forecasting and models development in the same department. By using rotations from the other policy departments to fill the positions in the forecast group, it would result in close linkages between the forecast group and the other policy departments, and thereby would likely not lose too much in the way of the synergies that would otherwise have prevailed between the policy departments and the forecasting area. It would improve mobility by using rotations from other departments and from the models development group in FMD to fill forecasting positions. As well, by giving more staff members the opportunity to spend some time in the forecasting and/or models development group, it would likely enhance career paths in the Norges Bank. By shifting the models/analysis group from the Economics Department to the new FMD Department and by moving some staff members from each of the Economics Department, the Monetary Policy Department and the Market Operations Department to the forecasting group in the FMD Department, it would make the policy departments more manageable in size. This would be particularly true of the Economics Department, which is probably too large and too complex at present.

3.3.4 Restructuring departments on the basis of time horizon

Another option that deserves serious consideration involves restructuring the Economics Department and the Monetary Policy Department on the basis of the time horizon for which they are responsible. The Economics Department would have responsibility for the current economic situation and the near-term outlook (i.e., for nowcasting), while the Monetary Policy Department would be responsible for the medium-term outlook. In this approach, the models development group would reside in the Monetary Policy Department while analytical techniques for nowcasting would be developed in the

Economics Department. The latter could include various types of time series analysis, such as ARIMA models, Kalman filters, dynamic factor models, VARs, SVARs and BVARs.

There are a number of aspects of this approach that deserve comment. First, each of the departments would have an analytical group, which would enable other members of the department to benefit from the more technical apparatus being developed in the department. Moreover, there would be intellectual spillovers in each department to the rest of the staff from those doing the more high-powered technical work. And the developers of the new models and new tools would be in close contact with the users of the models and tools. Second, while the structure itself would not free up extra time for more medium-term analysis by staff, the combination of having a technical group in each department and an increase in staff positions devoted to coaching and medium-term analysis (as will be discussed in the next section) should result in the sectoral specialists doing more medium-term analysis in the various areas of their responsibility. This would allow the development of equations that would serve as a crosscheck to the model, as well as the construction of more "satellite models" that could take account of areas such as financial developments that are not included in the main forecasting model. Third, the current division of the forecast into two parts would be maintained. This would have the benefit of allowing the specialists in each area of the two departments to feed their insights and analysis into the forecast. At the same time, it would require continuation of the same degree of cooperation, coordination, and consultation among the policy departments that currently underpins the forecast. Whether the Reference Group as currently constituted should be continued, or a more formal steering committee (as discussed in subsection 3.3.3) should be set up, or whether explicit responsibility for the forecast should reside with the director of one of the departments (probably the Monetary Policy Department) would require careful consideration.

In terms of the criteria discussed earlier for assessing departmental structures, I would note the following. This proposal would potentially result in a better forecasting process, in particular because of the improvement in the nowcasting part of the process as result of the new tools that would be developed and used in the Economics Department. There would be synergies between the developers of tools and models, on the one hand, and their users, on the other, because of close contact between the two groups in each of the departments. While the Economics Department would remain large, shifting the model development group to the Monetary Policy Department would tend to equalize the size of the two groups to some extent (even after taking account of the addition of the small group developing new tools to the Economics Department). One might also anticipate some mobility between the models development group and the group developing the analytic tools for nowcasting.

4. CURRENT ACTIVITIES, MEDIUM-TERM PROJECTS IN THE POLICY DEPARTMENTS, AND LONG-TERM RESEARCH IN THE RESEARCH DEPARTMENT

4.1 Background and diagnosis

The term "current activities or "current analysis" covers the work done in the policy departments in assessing the ongoing developments in aggregate demand, aggregate supply and inflation in the Norwegian economy, international economic developments, and international and domestic financial developments (most notably, movements in interest rates and the exchange rate). This work provides the basis for the analysis of the current situation in the Norwegian economy (such as the amount of excess demand or slack) as well as the short-term (one or two quarter) ahead projection that feeds into the forecast. In PPO, a distinction is made between medium-term "analysis" and longer-term "research". Research refers to those studies (almost all of which are done in the Research Department) that are intended for publication in a peer-reviewed journal. Medium-term analysis refers to all other analytic and empirical studies that are done in the Bank and that are not intended for publication.⁶ The term "projects" is used for these medium-term studies done in the policy departments, often with the assistance of the Research Department.

The current mandate for staff in the Research Department is to spend approximately half their time doing longer-term research intended for publication and approximately half their time providing assistance to the policy departments on projects developed by those departments. The Research Department has two units -- the Macroeconomic and Monetary Policy group devoted to PPO, and the Bank and Financial group that is mainly devoted to the Financial Stability wing of Norges Bank and the Governor's Staff, Investment Strategy. The user departments receiving assistance from the Macroeconomic and Monetary Policy group (MPG) of the Research Department are the Economics Department, the Monetary Policy Department, and to a lesser extent the Market Operations and Analysis Department. The main user departments receiving assistance from the Bank and Financial group (BFG) of the Research Department are the Financial Markets Department of the Financial Stability wing and the Governor's Staff, Investment Strategy.

Under the current arrangements, current analysis is done in the three policy departments, medium-term analysis and projects are done in the same departments, and longer-term research is mainly done in the Research Department. This set of arrangements raises a number of issues -- (i) the appropriateness of the balance among current analysis, medium-term analysis, and longer-term research, whether there is need for additional resources in PPO and how such additional resources should be allocated among current activities, medium-term analysis, and longer-term research; (ii) the options for organizing longer-term research; (iii) ways of establishing priorities in longer-term research and medium-term analysis, and improving the relationship between those engaged in longer-term research and those engaged more directly in policy analysis. The next subsection summarizes the comments of staff members on these issues, and the subsequent subsections address them in detail.

⁶ Some of them are made public in the Staff Memos series on the Norges Bank web site.

The principal conclusions reached are the following. In general, staff in the policy departments do not have sufficient time at present to do the kind of medium-term analysis that would support and improve the current analysis that they are called upon to provide and that would address the policy issues facing the Norges Bank. Serious consideration should be given to increasing total resources available to PPO and devoting the additional resources to medium-term analysis in the policy departments, as this would provide the greatest value-added. Mechanisms for setting priorities for longer-term research and medium-term analysis should be formalized and involve both top-down and bottom-up input.

4.2 Summary of comments by staff members

Staff members in the policy departments felt that too much of their time was devoted to current analysis and that they did not have sufficient time to do medium-term analysis. They felt that projects were treated as a residual after the current analysis was done, and that more empirical work by specialists would be useful. There was concern that not all managers have sufficient research experience to guide medium-term analysis and that the policy departments receive only limited help from the Research Department. The opinion was expressed that there should be more exchange of resources between the Research Department and the policy departments.

Staff members in the Research Department noted the importance of achieving a balance between involvement in policy issues and the need to be shielded from excessive pressures of short-term work. In their view, the medium-term analysis in the policy areas in which they are involved is largely driven by demands from the policy departments. There were perceived to be economies of scope from having a single Research Department. The relevance of research is defined fairly broadly, but there is little or no international work done in the Research Department. In the hiring process for the Research Department, it is made clear to candidates that research activity is done in areas of interest to the Norges Bank.

While there is an annual setting of research priorities in PPO, staff were either unaware of the priorities or felt that there was a lack of focus on a common research agenda. The Financial Stability wing expressed interest in having more research done in its area, with the researchers possibly situated in its own wing

Among the possible future improvements mentioned by staff were joint research by senior researchers and junior economists, increased relevance of research, having a larger number of quality people to lead research and analysis, and establishing channels that would allow policy departments to present interesting but not publishable work to senior management.

4.3 Balance among current analysis, medium-term analysis, and longer-term research, and need for additional resources

Assessing the balance among current analysis, medium-term analysis, and longer-term research, and judging the need for additional resources, involves considering the contribution that each makes to the efficient functioning of PPO and how extra resources would best be used to improve the operation of the wing. My assessment of the current arrangements is that the most important need is for increased resources to be devoted to medium-term analysis in the policy departments, both to improve the quality of the economic analysis provided to the Governor, the Executive Board, and the Executive Director of PPO, and to allow PPO to address policy issues more effectively. Put another way, it seems to me that there would be more value-added from increased medium-term analysis in the policy departments than from extra resources to long-term research in the Research Department.

The new positions would largely be in the form of "staff positions" or "advisors" rather than "line positions." Their role would be to provide advice to departmental and wing management, to do medium-term analysis as well as oversee and advise on the medium-term analysis being done in the department by line staff, and to be available at short notice to carry out quality analyses of pressing policy problems. In this latter role, they would provide the flexibility needed to cope with unexpected challenges that arise from time to time, while the ongoing work of PPO continues without disruption.

In this context, there are a number of elements that would contribute to increased quantity and improved quality of medium-term analysis in the policy departments. First, even staff who primarily work on current analysis should do some medium-term analysis to buttress the quality of their current analysis. Second, if, as is suggested, increased resources are devoted to medium-term analysis in the policy departments, the additional staff can also coach current analysis staff as they engage in medium-term analysis. Third, introducing the departmental structure discussed as the third option in section 3.3, in which there is a separate forecasting group associated with the models development group in a separate department in the Monetary Policy wing, would also be helpful in this regard. Since members of the Economics Department and the Monetary Policy Department would be less involved in the forecasting and interest rate setting process (except when they were assigned to the Forecasting/Models Development Department), they should have somewhat more time to devote to projects. Moreover, with somewhat less pressure from day-to-day work, the more senior and the more well-trained members of the policy departments would not only be able to spend more time doing medium-term analysis, they would also have more time to help the more junior and less well-trained people in the department.

If extra resources to do medium-term analysis are added to the Economics Department, consideration should be given as to whether the new staff positions should be housed in a small "special studies" unit in the Department, or spread throughout the different groups in the Department.

With more time and resources to do medium-term analysis, it will be easier for staff in the policy departments to address gaps in understanding. For example, perceived weaknesses in understanding developments in consumption expenditures would lead to

increased attention to ways of improving the specification of the consumption function in the main model underlying the forecast. Moreover, specialists in the Economics Department should be trying to develop equations that could act as a crosscheck to the expenditure equations in the forecasting model, provide information for improved calibration of the forecasting model, as well as helping to understand and explain the reasons for puzzling movements in the data. (Applying research and equations developed in other countries and published in journals such as the Brookings Papers to Norwegian data is one obvious path to improving the understanding of sectors of the Norwegian economy.) Similarly, specialists in the Monetary Policy department should be working on reaction functions and optimal policy, among other things.

Implicit in this recommendation is the assumption that the economists in the policy departments have sufficient analytic and technical ability to do the kind of analysis that is required. There are three elements that would help to ensure such an outcome. The first, to be discussed further below in section 6 on competencies and section 8 on training and development, would involve recruiting more highly trained individuals, where possible, and providing more training (inside and outside the Norges Bank) to those who initially do not have the capacity to do such research and analysis. The second is the extra coaching to current analysis staff that would be provided by the proposed additional staff doing medium-term analysis. A third possibility for improving the quality of staff could be the movement of experienced long-term researchers from the Research Department into the policy departments (on a rotation basis or as part of a restructuring in which each Department has its own research staff) or more efficient use of the 50% time allocated by Research Department staff to work with policy departments.

If the Bank employed a speechwriter to work on the speeches of the Governor and Deputy Governor, it would free up some of the time of those economists who currently write drafts of the speeches. Of course, economists would still have to work with the speechwriter on the content of the speeches, but this would be less demanding than having to write the drafts themselves.

In the context of assessing areas in which additional staff is needed, attention should be given to an area that currently is very much under-resourced, namely the international area. In my view, it would be important to increase the amount of resources -- current analysis, medium-term analysis, and longer-term research -- devoted to international issues. Norway is a small open economy and is therefore significantly affected by developments outside the country. Most importantly, the growth in Norway's trading partners (both industrialized economies and emerging markets) and developments in commodity prices have important implications for the Norwegian economy. In some central banks, there is an International Department that focuses solely on international issues. In other central banks, particularly those that have separate Monetary Stability and Financial Stability wings, international issues are addressed in both wings, and the challenge is to ensure communication and collaboration between the international groups in the two wings. As the Norges Bank is structured in the latter way, one would expect separate international groups in the two wings, as indeed is the case. Staff devoted to the international area in PPO (who are housed in the Economics Department) are responsible

for IMF issues, the international economic forecast, and the commodity price forecast. The size of the staff that is devoted to these issues (spread to some extent between the international economy group and the conjunctural analysis group in the Economics Department) is insufficient for the scope of the issues that have to be addressed, given the importance of the international economy to Norway. For example, much of the forecast of the growth prospects of Norway's trading partners comes from Consensus Economics in the various countries. However, there is no mechanism to ensure consistency across the Consensus Economics forecasts. Thus, it may be that the forecast for US growth implicit in the Consensus Economics forecast for the growth of the Euro area is different from the Consensus Economics forecast for the growth of the US economy. It would be better to start with a consistent forecast for the various parts of the world economy, such as the IMF forecast or the OECD forecast, and have the Norges Bank staff update it using more recent information, including Consensus Economics forecasts, while also taking account of the interaction between economies. This would require more staff to be allocated to providing input into the international forecast than at present.

There are also international research issues that require attention. For example, how the current imbalances in the international economy are likely to resolve themselves could have important implications for the future path of the Norwegian economy. But no research on international issues is done in the Research Department, and the international economy group in the Economics Department does not have the time to examine such issues. I am not proposing that the Norges Bank do a great deal of original research on international economy. Rather, by following the debates on international issues in academic and international fora and developing their own views on such issues, Norges Bank staff could provide considerable value added to the understanding within the Bank of the implications of international developments.

4.4 Options for organizing longer-term research

There are three principal options to be considered regarding the issue of how to organize longer-term research in the Norges Bank.⁷ The first would be for all longer-term research to be done in a separate department and for that department to be responsible for longer-term research in all areas of the Bank -- domestic macroeconomics and monetary policy, financial analysis and financial stability, international, and financial markets. The second would be for each policy department in PPO to have a separate longer-term research group attached to it. As is the case in other areas, the choice between these two options hinges on their ability to achieve the objectives of the Norges Bank, synergies, staff mobility, and the size of groups. And, as the experience of other central banks has shown, both structures can yield high quality longer-term research. The third option would be to continue to centralize longer-term research, but for each wing to have its own long-term research department.

⁷ In some central banks, staff doing longer-term research are fully integrated into the policy departments, i.e., not structured as a separate group within the policy departments. In my view, this option is problematic because longer-term researchers might not be sufficiently protected from excessive involvement in shorter-term and day-to-day issues. Nonetheless, this is the structure used in a number of the departments in the Bank of England.

In comparing the first two options from the perspective of synergies, the question is whether it is better for all long-term researchers to be in one department and thereby benefit from the knowledge of their colleagues in that department, or it is better that they be attached to the policy or "user" departments and thereby be closer to the issues that are of concern to the users of the research. Clearly, there are advantages and disadvantages to each of the options. The main risk of having a single Research Department is that it becomes overly removed from the issues of particular concern to policy-makers and from the policy-making, forecasting, and current analysis areas. The main risks of having a research group in each policy department are that these groups will not benefit sufficiently from the expertise of their research counterparts in the other departments and that they will be drawn excessively into meeting short-term demands, to the detriment of their longer-term research.

Analytically, one can ask whether greater efficiencies accrue from putting together those who are providing similar inputs into a process or those who are involved in providing a particular output. In the case of research, one can think of the long-term researchers as providing a particular input across all areas of the Bank and focus on the synergies of having those providing this type of input working closely together, or one can think of various research groups working together with their "practitioner" counterparts to provide a particular output, such as monetary policy advice or financial stability advice.

From the perspective of increased mobility within the Bank, an argument for having separate research groups in the various departments is that it would increase the likelihood of economists moving from research groups into the current analysis, forecasting and policy analysis areas after some period of time specializing in longer-term research. That is, working more closely with current analysis, forecasting and policy analysis areas would increase the likelihood that economists in the research groups would eventually become interested in moving into these other areas as part of a career path. Thus, research groups could be treated as the entry point for well-trained economists who would subsequently transfer into other areas of importance to the Bank. This type of outcome has not been uncommon in the past in PPO, but it might become more common in an environment in which there is a research group in each of the policy departments. However, if there is difficulty in attracting good researchers to the Norges Bank, it may be that arrangements by which most researchers are expected to eventually move into the policy departments would result in fewer such researchers being attracted to the Norges Bank in the first place. It is also possible that having arrangements in place by which good researchers can move back and forth between research departments and policy departments would enhance the attractiveness of the Norges Bank as a place to work

Another factor entering into the judgment as to whether there should be a single Research Department in PPO or the Norges Bank as a whole, or a separate long-term research group in each department, is the size of the resulting groups. If there were a long-term research group in each policy department, would each of these groups have a critical mass or would they be so small as to be isolated and unable to develop synergies? The

concern is that if they did not have critical mass, there would be insufficient synergies within the group to support its functioning as a separate unit. The possibility that the research groups in the various departments would be too small is one of the main arguments in favor of having a single Research Department for the whole Bank or, at least, for the whole monetary policy wing. Alternatively, one could raise the question as to whether the different research groups in the policy departments could arrange to have sufficient interaction so as to maintain the synergies that currently accrue from all long-term researchers being housed in one department. In considering these matters, one should take into account the fact that a number of staff currently in the policy departments do serious medium-term analysis and are capable of doing long-term research, and that this would contribute to the research synergies within each department.

One potential advantage of having separate longer-term research groups in each of the policy departments is that areas that do not currently get much attention from the Research Department, such as international analysis, would be more likely to be the subject of research.

In addressing these issues, consideration should also be given to the third option -- splitting the Research Department into two departments, one in each wing. The Research Department in PPO would be composed of the group that is currently in MPG. The Research Department in the Financial Stability wing would be composed of the group that is currently in BFG. For purposes of administration, it would include both those researchers working in the financial stability area and those working in the investment strategy area. The principal advantage of having two departments is that the Financial Stability wing would have more direct responsibility for those researchers working in its area. A disadvantage of moving in this direction is a possible loss of synergies from splitting the two groups. This could be offset, at least in part, if the two groups maintained close contact with each other. Another cost of splitting the groups might be increased costs of administration.

Regardless of which of the three options is chosen by the central bank, efforts must be devoted to ensuring communication across different departments and different areas. Thus, in the case of a single Research Department, there must be strong incentives for it to work closely with the policy departments. In PPO, these incentives relate to the 50% of the time of Research Department staff that is spent in advising and working on projects and the corresponding evaluation that results from this part of their work. Correspondingly, in the case of separate research groups in each of the policy departments, it is important that they be able to communicate effectively with each other (for example, by inviting the long-term researchers in other departments to workshops in each department and by engaging in a certain amount of joint research across departments). Also, there should be considerable mobility across research groups in the various policy departments. One of the advantages of such an arrangement is that the Bank would develop a larger number of economists with expertise in various areas who would be available as backup to help out in case of a crisis in a certain area, even though they no longer worked in that area. Thus, for example, having a number of researchers

who had worked in the area of financial stability could prove very helpful in case of a financial crisis.

4.5 Establishing priorities in longer-term research and medium-term analysis, and improving the relationship between longer-term research and policy analysis

It is assumed in this subsection of the report that PPO continues with a stand-alone Research Department, and maintains the current framework of 50% publication, 50% advice on projects to policy departments. The Research Department would continue to have responsibility for links to outside researchers (including organizing Norges Bank conferences) and the relationship with academics who spend the equivalent of one day a week at the Bank, and the focus on production of publishable articles would continue to serve as a quality check on the research done in the Department.

This subsection of the report examines the way in which priorities can be established for longer-term research and medium-term analysis, and proposes some changes that might improve the relationship between longer-term research and medium-term policy analysis.

PPO should consider formalizing and tightening up the process of deciding upon research topics and setting priorities. While there is some degree of prioritization at present, the fact that even members of the Research Department are either not aware or do not take account of the list set out in the intranet suggests that the process is not very effective. There are two broad principles that need to be established in selecting research topics and setting priorities. First, to what extent should research be focused on monetary and macroeconomic issues of direct interest to the Bank as opposed to broader economic issues? Second, assuming that the Norges Bank continues to treat the publication of research as a direct objective (involving the desire for this type of evaluation of the quality of the research done in the Bank as opposed to a direct assessment by outside academics, for example), how much of the resources devoted to the combination of long-term research and medium-term analysis should be used in this way? In my view, the focus of longer-term research should be largely on macro and monetary issues of direct interest to the Bank and to the wing. And, as argued earlier, any expansion of the resources devoted to research and analysis should focus less on the objective of published research and more on the medium-term analysis done in the policy departments. Some of this could be done with the assistance of the 50% share of the time that Research Department staff members devote to projects.

Research priorities for PPO should result from a combination of top-down and bottom-up approaches, with the former focusing on the issues of particular importance to the senior management of the Bank and of the wing, and the latter reflecting the views of the researchers with respect to areas of research that are both important and feasible. In developing the top-down views in advance of his meeting with the Director of the Research Department at the beginning of the year to discuss topics and priorities for longer-term research, the Executive Director of PPO should discuss the challenges facing the Bank with the Governor, Deputy Governor, and the directors of all the departments in PPO.

The result of this melding of top-down and bottom-up approaches should be a research plan that lays out the topics to be covered during the year and their priorities. Also, attention should be paid to the need for the research plan to cover all areas of interest to the Bank. At present, as noted earlier, there is insufficient attention paid to international issues that might impact importantly on the Norwegian economy. Throughout the year, priorities would be adjusted to the extent necessary to meet unexpected developments. Also, a process should be established by which ongoing research is assessed periodically (once or twice) during the year to ensure progress is being made consistent with the research plan, and a final assessment should be made at the end of the year to assess the conformity of outcomes with the plan.

The 50% advice part of the work of the Research Department could also be formalized more than at present, and there may be different ways of carrying out this part of the Department's responsibilities. The current process is working moderately well (although it is not viewed as entirely satisfactory by staff in the policy departments), but could be improved in a number of directions. As is currently the case, the Head of Research would meet the directors or assistant directors of the policy departments to discuss the projects and issues that are to be the subject of the joint effort. Towards the end of the year, the recipient policy departments would provide formal written assessments to the Research Department on the performance of the Research Department staff members with whom their staff have worked over the year. Moreover, there would be periodic meetings during the year between the Head of Research in MPG and the assistant directors of the groups to which the Research Department is providing assistance to discuss the progress of the projects.

Alternative approaches could also be considered for future work. For example, rather than simply providing advice, the researcher from the Research Department might do joint work with the policy department staff member. One of the important benefits from moving in this direction is that it would enable economists in the recipient policy departments to develop their technical skills. (Obviously, this would require the latter to have the technical competence to carry out the work and for them to be somewhat shielded from the pressures of day-to-day work in order to carry out the medium-term analysis to which they are committed.) Another possibility would be for Research Department staff members to spend time in the recipient departments to enable them to better understand the problems facing the recipient departments and to help them to better frame the project topics. Increased links could also be developed between long-term researchers in the Research Department and model developers

5. MORE FULLY INTEGRATING THE MARKET OPERATIONS DEPARTMENT INTO THE FORECASTING AND INTEREST RATE SETTING PROCESS

5.1 Summary of comments by staff members

While the interaction of the Market Operations Department with the other departments in the wing is better than in the past, there is still room for improvement. The Department would like to be even more integrated with the other departments in the forecasting and interest rate setting process than it is at present. It would also like more involvement with the models/analysis group. The perception is that there is too much in the way of operations and not enough in the way of analysis in the Department. The Department needs staff with a background in both macroeconomics and finance to translate market developments for the macroeconomists in the other departments. There is more movement of staff from Market Operations into other departments than the reverse and it is difficult to recruit staff for the Market Operations Department.

5.2 Comments and suggestions

From the perspective of both the Market Operations Department and the other departments in PPO, there is a desire for Market Operations to be more effectively integrated into the forecasting and interest rate setting process. It is widely recognized that considerable progress has been made over the recent period, with Market Operations staff becoming more involved in the interpretation of exchange rate and interest rate developments. That said, the issue is what additional steps can be taken to make the contribution of the Market Operations Department to the policy process more useful and more effective.

There are several ways in which Market Operations might be more closely integrated into the policy process. The first is a simple question of logistics. Would it be possible for the Market Operations Department to be situated on the fifth floor along with the Economics Department, the Monetary Policy Department, and the Forecasting and Models Development Department (if it is decided to create such a department)? Obviously, for this to happen, the Research Department would have to move to the fourth floor to take up the area vacated by the Market Operations Department. In my view, the gain in synergies from the increased interaction of Market Operations with the other departments involved in the policy process would outweigh the loss in synergies from moving the Research Department to another floor. The four departments that would be housed on the fifth floor following such a reorganization would benefit from day-to-day interaction on issues pertaining to current economic developments, as well as the upcoming forecasts and policy decisions. In contrast, the Research Department's interaction with the other departments in PPO is less continuous. While half of the time of Research Department staff involves projects with the policy departments, the discussions will typically be more discrete, rather than the informal chats of staff accidentally meeting each other in the halls. What needs to be assessed to see if such a suggestion is feasible is whether there is sufficient room on the floor for the Market Operations Department if the Research Department moves to the fourth floor, whether there are security issues from having the trading room on the fifth floor, and whether there are security issues from having the Research Department (with its frequent visitors) on the same floor as Norges Bank Investment Management.

A second possible change would involve increasing the technical competence of the Market Operations staff who are directly involved in the interpretation of exchange rate and interest rate developments. The comparative advantage of the Market Operations staff involved in these areas is their ability to make use of the market information that their colleagues involved in trading and exchanging information with market sources are able to gather. At the same time, they have to be able to integrate this information with more broadly macro-based information and to interact with their colleagues in the other policy departments in a language and interpretation that is largely macroeconomic. Hiring and/or developing staff that have the ability to understand both financial market and macroeconomic approaches, and to use both financial market and macroeconomic terminology, is a major challenge. Ultimately, the ability to exploit the synergies that are available from putting economists and market operators in a Market Operations and Analysis Department that focuses on both operations and analysis requires the two groups to be able to communicate effectively with each other. But the Analysis part of the Department must also be able to communicate with the macroeconomists in the other departments who are responsible for current analysis, policy analysis, and forecasting. In this context, it should be noted that a number of central banks are now using very sophisticated techniques to draw inferences from market data. The technical competence needed by the staff doing such work is much higher than was the case in the past.

Hiring staff with the dual competencies in financial markets and macroeconomics is likely to be difficult, and retaining them in circumstances in which private financial firms pay higher salaries than the central bank is likely to be even more difficult. Central banks have typically reconciled themselves to losing such staff after a relatively short period of time in their employ. And the cost is exacerbated by the time that has to be spent by senior staff in training young staff. An alternative approach would be to train macroeconomists in the other policy departments, who seem to have decided to make their career in the Norges Bank, in financial economics. This might involve sending them back to University for one or two years to study financial economics, and/or to have them spend six months or a year in the financial markets group at a foreign central bank. The latter type of rotation is already being done, with junior staff in Market Operations spending time in the Markets Department at the Bank of England.

The responsibility for interpretation of interest rate and exchange rate developments, and other financial sector developments (such as movement of interest rate spreads) will likely continue to be effectively shared among the various departments. Enhancing the role of the economists doing such analysis in the Market Operations Department will only result from an improvement in the quality of their analysis and interpretation, which in turn brings us back to the issue of competencies in such staff. There is a potential virtuous circle that can arise in Market Operations. Suppose there were an improvement in the quality of staff in the Department and an increase in the credibility of their analyses among the economists in the other departments in PPO. This could lead to an improved perception by other economists regarding the interest, importance, and quality of the work being done in the Market Operations Department, and an increased willingness to spend some part of their career in that department. Indeed, there are many fascinating issues and challenges in the financial markets area, which should make work in this area

attractive to good economists. The challenge is to reconfigure the department in such a way that this potential attraction is actualized. The combination of attracting some good staff to the area and a clear commitment on the part of departmental management to high-quality analysis might initiate such a virtuous circle.

6. COMPETENCIES WITHIN PPO

6.1 Summary of comments by staff members

The view was expressed that there were not enough staff in PPO at present with the ability to lead research and analysis and that more were needed. Also, more senior people with a strong theoretical base were needed, especially with the development of NEMO. Concern was expressed about the quality of the sectoral experts, and the need for different skills in the Market Operations Department was noted. Some staff members pointed out that the Monetary Policy Department challenged the judgments and analysis of the Economics Department more than the Economics Department challenged the judgment and analysis of the Monetary Policy Department.

6.2 Comments and suggestions

In some of the discussion of the situation in PPO in previous sections of this report, I have touched on the competencies in various parts of the staff. In this section, I would like to comment more generally about competencies of the staff in PPO and what might be done to improve the situation.

Let me begin by noting that the staff in PPO appear in general to be of high quality and capable of generating good long-term research, medium-term analysis, and current analysis. That said, there are areas in which some improvement is possible.

The Norges Bank has had some difficulty in attracting economists with PhDs and has in some cases encouraged existing staff with MA level training to pursue their doctorate, and has facilitated their ability to do so while continuing to work for the Norges Bank. Consideration should be given to expanding this program. At the same time, not all of those pursuing their PhD should expect to spend the rest of their career in the Research Department. Some of them should be encouraged to move to or return to the policy departments and to engage in model development, medium-term analysis, forecasting, and possibly even current analysis for some period of time. This would have a number of positive results. First, it would directly increase the quality of work coming from the policy departments, both medium-term analysis and short-term responses to policy issues of immediate concern. Second, it would allow more coaching by technically proficient economists of the younger economists and those with less technical backgrounds, thereby potentially improving the quality of their work. Third, it would help improve the interactions between the policy departments and the Research Department, by enabling the discourse between them to take place at a higher level. Fourth, in the case of the Market Operations Department, having a couple of more technically proficient

economists on their staff would make the department a more attractive place to work and lead to staff in the other departments of PPO considering a short-term or long-term movement to the Department.

Undoubtedly, the Norges Bank will continue to hire students with MAs. Many of these staff members will be involved in current analysis and forecasting. In order to upgrade the quality of work being done by such staff members, it is crucial that they receive on-the-job training in areas, such as econometric techniques, that will allow them to carry out their duties in a relatively sophisticated manner. As noted earlier, specialists in the various areas of the Norwegian economy should be doing analyses that may not be original but rather make use of approaches being applied in other countries to the same area of study. For example, the specialist in long-term fixed investment should be following the academic and central bank literature on investment expenditures and applying new approaches and techniques to Norwegian data. They may or may not work as well in Norway as in the country to which they were originally applied, but in any case, a continuing emphasis on replicating econometric equations and approaches that are found in the literature would be very likely to result over time in an improved understanding of the area under study. This would both enhance the interpretation of ongoing developments in Norway and potentially improve the calibration of the equations in the principal forecasting model, such as NEMO. It might also lead to more fruitful collaboration between the policy departments and the Research Department. Improving the technical capacity of young staff entering the Bank could be done either with courses offered in-house by specialists in the Research Department or in the policy departments, or by academics brought in to teach such courses, or by sending such staff to local universities to take courses in the areas in which there are gaps in their knowledge.

Consideration could be given to having temporary visitors to the Norges Bank. For example, inviting university professors who are considering what to do on their upcoming sabbatical year to spend it at the Norges Bank, either in the Research Department or as an adviser in one of the policy departments, would be helpful to the staff in the Bank. Furthermore, there is always the possibility that after a year in the Bank, both the academic and the Bank might find it to their mutual advantage to turn this temporary visit into a permanent move.

More generally, the Bank or the wing might consider setting up a special adviser position, of the sort used in the Bank of Canada. The Bank of Canada created the position of Special Adviser to bring additional perspectives to monetary policy discussions and to give university and private sector professionals in economics and finance first-hand knowledge of the institution. The Special Adviser, who is appointed for a period of one year, sits on the Monetary Policy Review Committee, a body that is composed of members of the Governing Council, Department chiefs, and advisers. He or she also typically works on research projects with members of staff. From the perspective of the Bank of Canada, the creation of such a position has been an unqualified success. In addition to the expertise that Special Advisers brings to the discussions of monetary policy, the assistance that they give to staff, and the increased understanding of policy

that they bring to their classroom after leaving the Bank, there is always the possibility (not as yet realized) that a Special Adviser might become a full-time member of Bank staff, if an appropriate position opened up.

7. HUMAN RESOURCES ISSUES -- INTRODUCTORY REMARKS

A large number of issues fall under the heading of human resources. These include such matters as recruiting, orientation arrangements upon arrival, a career path for professionals, performance evaluation, compensation arrangements, training and development, mobility, mentoring and coaching, succession planning, and others. A good integrated set of human resources arrangements would facilitate the efficiency with which the PPO functions, enhance the satisfaction of the staff with their jobs, improve the ability of PPO to retain staff, and help to align the behavior of staff with the needs of the PPO. If there were increased mobility across the wings of Norges Bank, consistency of human resources practice across the wings of Norges Bank would become more important.

These various objectives are of course closely related. Fundamentally, the human resources framework should use incentives of various sorts to achieve the wing's objectives. In this context, it should be emphasized that in today's world, transparency of the human resources arrangements is expected by staff and is an essential element in achieving the desired results. In sum, the arrangements put in place should be considered holistically, and cover the entire spectrum of employee relationship with the Bank, from initial hiring, through salary and overall compensation, progression and promotion at a rate determined by performance, training and development, to termination for non-performance (where necessary). The arrangements should also be closely linked where appropriate. For example, the performance evaluations should be clearly and transparently related to the annual salary adjustments.

It is also the case that the contribution of employees to the organization, as well as their job satisfaction, is related to their understanding of how their work fits into the overall organization, and their "empowerment" in the sense of the ability to make decisions appropriate to their level in the organization. The understanding by employees of institutional priorities and how their work contributes to these priorities can be facilitated by orientation upon entry to the organization and possibly by the effective use of a medium-term plan as an organizing and communicating device in the context of a system of delegation and accountability for all staff.

Overall, the human resources situation in PPO is in reasonably good shape. Some of the recent initiatives, such as the introduction of specialist career tracks and the more flexible wage system, are moves in the right direction. Nonetheless, there is room for further changes that will help PPO achieve its objectives more effectively. In the next six sections, I will examine some of the concerns of staff in the various human resources areas and possible changes to improve the situation.

7.1 Human resources policies in central banks

Unfortunately, there is not much literature to draw on regarding the human resources practices of central banks. A notable exception is the article "Managing human resources -- a central bank perspective," Reserve Bank of New Zealand Bulletin, March 1992, pp. 34-42, which sets out very clearly and in considerable detail the approach taken to human resource matters by the Reserve Bank of New Zealand. In this subsection, I describe briefly some of the arrangements for human resources at the Reserve Bank. While their arrangements are broadly similar to those in place at the Bank of Canada, there are some differences in detail and emphasis, for example on such matters as performance pay and the templates used for performance evaluation.

One thing that is particularly noteworthy in the RBNZ article is the frequent use of the term *transparency* in describing their human resources practices. It is evident that, in line with the increased transparency throughout the RBNZ, it was felt important to apply the same approach to human resources. The article also notes that a fairer and more transparent process for setting staff remuneration is an important element in enhancing staff motivation. The RBNZ also emphasizes formal job grading, the use of individual employment contracts (contrary to the approach at the Bank of Canada), a flatter management structure, increased delegation of responsibility, and a movement away from long-term career staff to skilled and experienced professionals who spend between two and ten years at the Bank. At the RBNZ, the senior management team is responsible for the Bank's human resources strategies and practices; line managers are accountable for managing their staff; and the human resources function provides strategic advice to line managers and operates on an advisory basis for operational issues.

Among the points made in the RBNZ article to which I would like to draw attention are the following. In the recruitment process, the economics departments of the Bank take the initiative to make contact with university graduates well in advance of the actual selection of candidates. In developing the job evaluation system, the Bank's goal was to develop a relatively simple system relevant to the nature of its functions and needs, and to link it to career path information, remuneration, performance appraisal, recruitment selection criteria, and training and development. It was also to be used as part of discussions of human resource capabilities in the Bank, particularly in the context of succession planning. With these objectives in mind, the Bank adopted a broad-banded job evaluation system. While the Bank recognized that, for many positions it will never be able to pay market rates, it believes that staff are motivated by a wide range of factors, of which remuneration is only one. These include a stimulating intellectual environment, a sense of involvement by staff in their work, a feeling that they contribute to the Bank's outputs, opportunities for training and development, and flexible working practices. The RBNZ does not use performance-related compensation. The Bank provides training to individual employees where this is considered beneficial to their career path in the Bank, the needs of the job at hand, and the Bank's priorities. Development needs are now viewed by the staff as a positive aspect of their career, rather than as a negative commentary on their performance.

8. RECRUITING/TRAINING AND DEVELOPMENT

While there have been references to training and development in earlier sections, this section of the report brings together these issues in a more systematic way.

8.1 Summary of comments by staff members

The view was expressed that PPO's approach to these issues is not systematic and that there was a need for a more systematic approach to dealing with the gaps in skills among the staff. Among the other points noted were that the main problem is retention rather than recruitment, that managers do not have sufficient tools to deal with the problems in this area, that more staff with econometrics training and the capacity to employ advanced techniques were needed, that some of the MAs were smart but insufficiently trained, that there were no internal management courses to prepare potential managers, and that there were few midcareer hires. On the other hand, the Bank provides a lot of opportunity for external work and study leave.

8.2 Evaluation of current arrangements and possible changes

Some time ago, central banks around the world were seen as excellent places to work, and they did not have to make great efforts to induce economists and other professionals to want to work for them. Furthermore, until the 1970s (or later in some cases), central banks did not see the need to hire PhD economists. Hence, central banks did not always view themselves as competing with other employers to recruit the most highly qualified staff.

In the last few years, the environment in most countries has changed, with central banks trying to hire highly qualified economists, many with PhDs, and greater competition for such resources from universities, the private sector, international financial institutions (such as the IMF and the World Bank), as well as central banks in other countries. In consequence, recruiting has had to become more proactive in order to attract the desired quality of staff. Moreover, at least in industrialized countries where the demographics indicate a shortfall in the coming few years in the supply of qualified personnel of all types relative to the demand, the situation will become worse. This imbalance could especially impact central banks in smaller countries, as some of the larger country central banks make increased effort to hire economists from other countries who are receiving PhDs in their countries and at home. (The Bank of England, for example, is already an important competitor to other central banks in hiring foreign nationals. And the Reserve Bank of New Zealand considers economists from the entire world as potential employees.) This globalization of recruiting could work to the detriment of countries such as Norway, whose citizens typically speak very good English and hence are able to compete for jobs in English-speaking countries, while very few foreign nationals can speak or understand Norwegian.

PPO may have to become even more proactive in recruiting than it has been in the past. This would have a number of components. There may need to be more visits to universities in which PPO staff interview candidates and explain the types of work and the kinds of careers that are available at the central bank. This effort would be facilitated by maintaining ongoing contacts with professors regarding their evaluation of the top students in their classes. Maintenance of a list of Norwegian students studying abroad for an economics PhD and development of a mechanism whereby members of the Research Department staff or researchers in the policy departments periodically telephone or e-mail them to maintain a relationship might be helpful in attracting them to the Bank when they complete their studies.

Considering Denmark and Sweden as part of the potential employment pool would also be a possible helpful step in the recruiting process. Since these are the only two countries whose people speak languages that are mutually understandable with Norwegian, they should be considered as part of the pool from which PPO draws its staff as a matter of course.

More generally, providing a clearer explanation of the career path in central banks (to be discussed in section 12) to prospective employees would increase the likelihood of attracting them to the Bank. Arranging for candidates to meet their counterparts who have been working in the Bank for a year or two (either individually or in a group), so that the latter can share their experiences with the candidates, may be another way of enhancing the value of the meetings with the candidates in the Bank. In addition, one might consider an increased effort to "sell" the Bank when candidates come into the Bank for interviews. For example, one might consider organizing a meeting with a senior staff member for those candidates who appear to be best qualified, in which the senior staff member discusses the advantages of working in the central bank.

A systematic evaluation of the success, or lack of success, of each year's recruiting effort, might be helpful in finding ways to improve the process. Thus, it would be useful to have follow-up interviews with those candidates who had rejected offers from the Bank to find out why they had chosen not to accept the offer (for example, starting salary, working conditions, nature of job offered, better offers from other employers, etc.), and with those candidates who had accepted offers from the Bank to find out what had induced them to accept the offer. In response to the information gained from the interviews, the recruiting process can be improved over time.

Recruiting need not be just at the entry level. Especially where there are gaps in the skills and competencies of the existing staff, or where vacancies occur and there is no-one in the existing staff who is competent to fill them, or where there are excellent resources available externally who will be able to contribute to the functioning of PPO, external recruiting at mid-career level can be very helpful. Managers in PPO could maintain a list of Norwegian/Scandinavian economists who might be attracted to the central bank at some point in the future when an appropriate position opened up. The list should include Norwegian/Scandinavian academics, Norwegian/Scandinavian economists working in

international organizations and foreign central banks, and Norwegian/Scandinavian economists working in the domestic or international private sector.

In considering mid-career hires, consideration should be given to the possibility that academics could be brought into PPO for a year during their sabbaticals, thereby allowing both PPO and the potential candidate to see whether there is a good fit between their needs, interests, and capacities.

One issue that requires consideration over time is whether the PPO should aim at hiring PhD economists in the market or whether it should continue to support employees hired with lower educational levels in obtaining a PhD. In large measure, the Bank's and wing's approach to this question will depend on the nature of the market for PhDs in Norway (and the rest of Scandinavia, if it were treated as part of the pool). If PPO is able to hire enough good economists with PhDs to meet its needs, then the argument for the support and subsidization of its current employees in obtaining PhDs is very much weakened. However, in addressing this issue, consideration must be given to the possibility that many of the best non-PhD economists who apply to work at the Bank base their decision in large part on the opportunity that they foresee to earn a PhD in the future by working at the Bank.

On the other hand, if the Bank finds it difficult to recruit PhD economists at either the entry level or the mid-career level, then the argument for a development program in which the Bank supports its employees in obtaining a PhD becomes much more compelling. Even in the latter case, however, support by the Bank should be tied to the Bank's own evaluation of the employee's potential. One might also consider taking into account the likelihood that a given employee would remain in the Bank for a longer period of time than is contractually required in return for the support provided by the Bank. Among the factors that would enter into such a judgment would be how well the research interests of the employee mesh with those of the central bank. This would be consistent with the view expressed by some PPO staff during interviews that the Bank should focus its recruiting efforts on hiring economists who are interested in central banking and related areas, such as macroeconomics, financial studies, and international studies.

In sum, this is an empirical issue, in which the availability of PhD economists to the Bank without subsidization is the crucial element.

PPO currently does a considerable amount of training, and the possibility of internal or external training is recognized and welcomed by the staff. How much training there should be depends on what type of work that the staff are expected to do. If all economists were expected to do some medium-term analysis, more training would be needed to bring those who had not received sufficient formal training, for example in econometrics, up to the level required to carry out their responsibilities. If, on the other hand, economists in current analysis were not expected to be involved in medium-term projects, there would be less need for them to receive this kind of training.

Those economists who have both the capacity and inclination to do more serious research and analysis should receive priority in the selection process for further training. And joint work by members of the Research Department and economists in the Policy Departments could play an important role in improving the capacity of the latter to do deeper analysis. Similarly, the earlier suggestions that staff be given more time to do medium-term analysis, that there be more staff positions, and that those filling these positions do more coaching, would all contribute to the coaching and training of staff.

Most central banks appoint or promote economists to managerial positions whether or not they are particularly suited to be managers. The introduction of the specialist career track recognizes that some highly skilled economists will not be good managers, and/or that their comparative advantage lies in doing economics rather than managing staff. For those economists who are aiming for or have received managerial positions, there are various types of training that could be helpful (rather than appointing them as managers and not helping them carry out their new responsibilities). Courses on managerial theory and practice could be offered to those staff who are likely to be competing in the near future for managerial positions. And once someone has been promoted into such a position, a combination of courses and coaching by more experienced managers can be useful in improving their skills and in helping them deal with the problems that managers have to face from time to time.

PPO is currently doing a good job at providing training to staff. There is nonetheless the need for more systematic evaluation of gaps in competencies and abilities, and Department Directors should meet regularly to discuss such gaps and the need for recruitment or training to fill them. While this could be somewhat more formalized than at present, one should avoid an overly bureaucratic arrangement.

9. MOBILITY

9.1 Summary of comments by staff members

While there is a lot of rotation between the Monetary Policy Department and the Economics Department, there is not as much rotation with the Research Department, and it is harder to get movement into the Market Operations Department than out of it. Also, there is limited mobility with the Financial Stability wing, and there is more movement to PPO from Financial Stability than vice versa. Although mobility is encouraged in PPO, more rotation is needed both internally and to temporary assignments outside the Bank. There is rotation for a year at the employee's initiative, but this is entirely voluntary and more planning would be helpful. The trainee program is viewed as being useful from the perspective of mobility. The staff do not apply for vacancies posted on the Internet.

9.2 Evaluation of current arrangements and possible changes

While there is significant mobility between the Economics Department and the Monetary Policy Department, there is insufficient mobility at present between these two

departments and the rest of the wing, as well as between the Monetary Policy wing and the Financial Stability wing. It would be very helpful to increase mobility within PPO and across wings, both to improve the functioning of departments and to broaden the competencies of staff. Mobility across wings for all types of positions would facilitate the breaking down of the remnants of the "silo" mentality across wings, lead to more joint analysis and research, provide a more interesting career for employees, and result in increased cross-fertilization of ideas. It would also offer more opportunities for staff to develop their skills, and provide a larger group to apply to posted positions from which managers can make their selection.

An increased focus by the Bank on staff mobility will lead employees to recognize the advantages of periodic movements from a career perspective and from a skills development perspective. In a well-functioning system, employees would consider mobility as a normal element of a career path. And the fall performance assessment form of managers should include a section on their willingness to encourage the mobility of their staff. This is not to suggest a system of rigid compulsory rotation at given intervals. Rather, a committee of senior managers could regularly discuss which employees are ready for a change and would benefit from a transfer, and would suggest to those employees that the time has come to consider a move within the department or to another department, and/or that they should apply more actively to posters. One of the major benefits to the organization of having staff rotate through different departments and different wings is that if a crisis occurs in a particular area, or if there is an unexpected loss of key staff in a given area, there would be a larger number of people available to deal with it, since some of those who have trained in this area and are now working elsewhere can be pulled back temporarily to help out.

One way of encouraging increased mobility across departments and across wings is to make posting the normal way of filling vacancies. That is, PPO should consider posting for almost all positions, and individuals in all departments who are currently working in positions at levels just below the posted level should be allowed to apply to a poster. A transparent system for evaluating candidates for a posted position should be put in place. It may involve a combination of interviews, evaluation of past performance, and the assessment of the current supervisor. Depending on the level, there may be a formal board comprising managers from different departments (to ensure fairness as well as to give the appearance of fairness). In this way, the process by which promotions are made would be reasonably transparent.

Exceptions to posting can be made in certain circumstances, for example when two economists switch jobs across departments in order to gain skills, and the movements are lateral and do not involve promotions. On almost no account should a promotion be permitted without posting, except perhaps at very high levels of the organization. Even then it might be useful to ask employees working at levels just below that of the vacant position for their career interests, so that everyone's interests can be taken into account in making decisions at this level. At times, such an approach can result in a statement of interest in a particular position by employees whom one had not even considered for that particular position.

The trainee program is also likely to make a very positive contribution to mobility in the future. In the course of their two years in the program, trainees spend time in three departments before deciding on the department in which they will begin their regular career. This gives them some understanding of the responsibilities of the different departments and the interesting positions that might potentially become available in those departments. In addition to causing some staff to choose a department initially that they might otherwise not have considered (such as Market Operations), it increases the likelihood of their moving across departments at a later stage of their career.

10. PERFORMANCE ASSESSMENTS AND SALARIES

10.1 Summary of comments by staff members

There are typically two assessments each year, one in the fall that is related to the employee's achievements over the year (on a scale of 1 to 5), and one in the spring that is related to broader issues, such as training and development and the employee's future career path. The former is a one-way conversation while the latter is a two-way conversation. Among the points noted by staff were that there is not enough feedback from managers, that the wage differential between the good and the less good performers is not very large, that there is an insufficiently direct link between the performance assessment and the salary decision, that although the flexible wage system works well the sum available to reward performance is limited, and that the annual 360 degree evaluation for managers is working well.

10.2 Evaluation of current arrangements and possible changes

There are three elements to a fully articulated evaluation/compensation scheme -- a performance agreement between supervisor and employee at the beginning of the year; one or more evaluations during the year; and an end-of-the-year link between evaluation and compensation adjustments. Not all central banks include all three elements in their evaluation and compensation arrangements. In PPO at present, there is no performance agreement at the beginning of the year; there are typically two evaluations or assessments during the year, of which the latter is related to the annual salary adjustment; and the link between evaluation and salary adjustment is not very tight.

While the current performance assessment format (a five level ranking) is fine, PPO should consider adding a performance agreement to the arrangements and tightening the relationship between the results of the performance assessment and the annual salary adjustment to the extent possible. In the rest of this section, I set out some details of the kinds of arrangements that are in place at the Bank of Canada and some other central banks.

10.2.1 Performance agreements and performance evaluations

At the beginning of the year, each employee and his/her manager agree upon the expectations for the coming year for both outputs and inputs -- that is, what the employee is expected to do in the way of ongoing duties and the analysis/research output, and the training and development that the employee is expected to undertake over the year. The employee and the manager both sign this performance agreement. During the year, the employee and the manager have regular, informal discussions of the employee's performance. At the end of the year, there is a formal assessment of the employee's performance, with a ranking in one of a number of categories. At the Bank of Canada, a reviewing officer, who is one level higher than the person preparing the assessment, has to approve the ranking.

In the performance evaluation of those employees with managerial and supervisory responsibilities, the evaluation should relate to all elements of their responsibilities. This would include such matters as the quantity and quality of the output of their group, how well they coach their employees, how successful they have been in effecting the training and development of their employees, the extent to which they encourage the mobility of their staff, how the research output of the group meshed with the priorities of the Bank, and whatever else is considered important. Through the inclusion of those matters that are considered important by the Bank, the evaluation process will result in the alignment of the performance of managers with the Bank's goals.

10.2.2 Linking evaluations and compensation

It is important to link the results of evaluations with compensation outcomes. That is, there should be a considerable differentiation between the salary adjustments of those employees who are working hard, making an important contribution to the work of their group, and producing high-quality output (and therefore receiving high grades on their assessments), and those employees who are working less hard, making less of a contribution to the work of their group, and whose output is not high-quality (and therefore are receiving lower grades on their assessments). The difference in salary adjustment would not only be a reward for past good performance, it would also be an incentive for future good performance.

Some central banks, such as the Bank of Canada, use a scheme of re-earnable performance payments (sometimes called bonuses) as part of their compensation framework, while others, such as the Reserve Bank of New Zealand, do not. Such payments allow a central bank to reward exceptional performance in a given year by employees who are at the ceiling of their salary scale, and hence who cannot move up within the salary scale without a promotion. In any case, re-earnable performance payments should not be an overly large part of the compensation package. If they were too large, they could lead to excessive competition among staff, and the scheme may act against group efforts and projects because of the concern that such a reward might not be forthcoming to groups. In the case of the Norges Bank, with its group culture, a scheme with overly large payments might have deleterious effects on the incentives of the group.

Finally, although compensation (salaries and fringe benefits) is clearly the most important form of reward, there can be other kinds of reward related to the recognition of noteworthy contributions to PPO, which would be viewed as valuable by the employees being recognized. For example, participation in seminars and workshops abroad would be highly valued by the staff. A special award with a small pecuniary benefit (such as a dinner at a fine restaurant or a gift certificate that can be used at a bookstore, for example) can be made to each member of a group that has completed a particularly difficult assignment or one that was done under unusually pressing circumstances. Similarly, lunch with the Governor and/or members of the Executive Board for employees who are responsible for a particularly noteworthy achievement would be appreciated by those employees as a sign that their contribution has been recognized at the most senior levels of the Bank.

Another element worth noting in the context of possible constraints on salary adjustments is the importance of developing a more rapid promotion path for the very best employees and making it clear to them that they are highly regarded. This could possibly be of some assistance in dealing with retention problems with respect to the best staff in PPO.

11. ORIENTATION, MENTORING, AND COACHING

11.1 Summary of comments by staff members

While there is no formal orientation process, there is a lot of information on the intranet. There is no real mentoring process, except for trainees. But, in practice, some supervisors act as mentors. Coaching is good overall, and better in the Monetary Policy Department than in the Economics Department, probably because the former has more senior advisers and PhDs than the latter. Some managers are unable to coach effectively because they have responsibility for too many people. The situation is better now than earlier because more senior staff is available.

11.2 Possible changes to arrangements

PPO could consider introducing a formal orientation program for new staff members and mentoring arrangements for those staff who would like to have this kind of arrangement.

To assist employees who are newly arrived at the Bank, orientation sessions could be held periodically, with presentations by senior officials of the Bank that explain the objectives of the Bank and its wings, how these are met, as well as how areas such as human resources function. Such an orientation would help give employees an understanding of the broad framework within which they will be working.

Another way of assisting employees, especially those who have recently taken on new levels of responsibility would be to establish a mentoring scheme in which more seasoned employees have regular (perhaps luncheon) meetings with their mentorees to share their experiences and their understanding of the organization. This kind of

mentoring would help employees understand better the culture of the institution and the various informal arrangements that play a role in the operation of any organization. Consideration could also be given to assigning a mentor or coach to those employees recently promoted to managerial positions to help them deal with some of the new issues facing them for which they have not been fully prepared. The coach can come from within the organization or from an outside entity.

12. CAREER PATHS

12.1 Summary of comments by staff members

There is a difference of views among staff as to whether there is a clear understanding of career paths. Career paths are fairly loose, not formalized, and not standardized across departments or across wings. The specialist career track has been well received by staff. It is also relevant for the Research Department but possibly with a different form of evaluation from that in other departments. There has been a great improvement in this area over the last few years, but more qualified leaders are still needed.

12.2 Comments on current arrangements

Some central banks give their staff a clear indication as to how many years it would normally take the average employee to be promoted into different positions.⁸ As well, it is made clear how many years it would typically take the best-performing employees ("the high fliers") to achieve the same promotion to higher positions. While PPO staff seem to have some indication (although not a very explicit one) as to the former, understanding of the latter type of progression does not seem to be widespread.

PPO could consider being more explicit about what is a normal path of upward movement and what is likely to be the more rapid path for the best-performing employees. In dealing with high performers, the management of PPO should ensure that their gaps in training and experience are filled to the extent possible. As well, as noted earlier, discussions of their future in the context of the performance assessment process should be as explicit as possible in order to increase the probability of retaining them.

The introduction of the specialist career track is a very innovative and helpful step in clarifying the possible careers at the Norges Bank and the PPO staff are very positive about this innovation. It allows the best economists in PPO to continue their upward progression without necessarily becoming managers. This recognizes the reality that not all economists will become good managers, and that the contribution of the best economists requires recognition and compensation. The specialist career track approach could also be structured to allow some economists to move back and forth between the research stream and the management stream. This would make management positions

⁸ See Appendix 3 for a discussion of career paths at the Bank of Canada.

more attractive to those economists who would like to spend some time as a manager but who are not yet ready to give up their role as a researcher completely.

The arrangements instituted by PPO to ensure that only the very best economists can move into these new positions are excellent. The involvement of all department directors in deciding on candidates for the Senior Adviser position and the evaluation by an external committee for the Research Director position ensure that the decisions to appoint individuals to these positions will be completely objective and fully reflect their competencies.

Dealing with weak performers is always difficult for managers. Because of the difficulty in releasing permanent employees, there should be a willingness not to extend the one-year probationary contract where there are concerns about the long-term prospects of new employees. Also, as is currently the case, managers should communicate to weak performers in their performance assessments that their work is not satisfactory and that this will be reflected in their salary adjustments unless the situation improves.

13. WORK ENVIRONMENT

13.1 Summary of comments by staff members

The arrangements are very good for staff members with children, and the wing tries hard to accommodate individual situations. Managers take paternity leave, thereby providing a good example, and they are careful not to organize meetings late in the day. The staff have more control over their life than in the private sector. Some staff expressed the view that the flexibility for those with small children was possible only because some employees without small children take on an extra burden.

13.2 Comments

There is little to comment on here. The Norges Bank has very well organized arrangements for dealing with the balance between work and family life. The staff recognize the quality and helpful nature of these arrangements.

14. OTHER AREAS

There are three other areas that I would like to discuss in the remainder of this report -- knowledge transfer (involving document handling and retrieval systems), internal communications, and the problem of silos across the wings of Norges Bank.

14.1 Knowledge Transfer

14.1.1 Summary of comments by staff members

Some departments, such as the Research Department and the international group (through the IMF intranet), have good document handling and retrieval systems. However concern was expressed in other departments about the ability of staff to search for and find older papers and documents. There is less ability to access documents across departments than within departments. In some cases, documents may exist on electronic systems but the search engine is not powerful enough to allow them to be easily retrieved. PPO seems to have little involvement in the project currently under way in Staff and Group Services for a document handling/retrieval system for the whole Bank.

14.1.2 Comments and suggestions

An important goal of knowledge transfer arrangements is to ensure that all memoranda, analyses, decisions, etc. are kept in an electronic form that will make them accessible to future researchers and future analysts who are working in the same area. More specifically, the system used in the central bank should have a search engine that makes it easy for analysts wanting to do research on a particular topic to access the list of papers written on that subject and gives them the ability to download those that appear relevant to their study. The lack of such a system results in a loss of institutional knowledge as long-term employees with corporate memory retire. Younger staff would not know about earlier work and earlier analyses, including the reasons why certain approaches were taken and why certain decisions were made. There would therefore be a considerable risk that they would have to "reinvent the wheel", rather than being able to draw on the earlier work as a basis for their own analyses.

There are a number of elements in knowledge transfer. They all involve techniques for effectively managing knowledge and information. Some are based on leveraging technology and some on improving the interpersonal sharing of knowledge and information. The latter would include mentoring programs, bringing together groups of employees to share experiences and to assist each other in solving problems, post mortems on projects, various kinds of networking, and other similar types of arrangements in which employees help each other. The culture of PPO is very positive with respect to these kinds of arrangements for working together to solve problems.

In recent years, the leveraging of technology has become a very important element in facilitating the transfer of knowledge and information, in particular by the use of centralized document repositories. These enable employees to easily find and build on the work and thinking of others. Such repositories are especially important for organizations where knowledge is the primary product, as is the case for central banks. While electronic document management systems have been used since the early 1990s, enterprise content management systems are beginning to supplant traditional document management systems because of their ability to store and provide access to graphics, audio, video, blocks of text, and other forms of content, as well as documents. Records management functions are often integrated or built into document and content management systems.

It appears that there are considerable differences across departments in PPO in the quality of the arrangements for document management. All departments in PPO should aim at achieving best practice in this area, and at enabling staff to access documents in departments other than their own. The new Bank-wide initiative that is being developed in Staff and Group Services may have considerable potential in this regard. Unfortunately, the departments in PPO have not been very involved in the development of this new initiative for document management. They should become more involved so that the resulting tool is well-suited to their needs.

In a related matter, responsibility for handling databases was given to the Economics Department in June of this year. It was important to give responsibility for these matters to a specific group since, otherwise, there would be the risk that the quality of the databases, the ease of access to them, and the ability to use them effectively would not be maximized. It is my understanding that the databases related to the forecasts are being well-managed. It is important that PPO have a databank of staff forecasts, and perhaps also a databank of forecasts by outside bodies. A time series of such forecasts would enable staff to assess the accuracy of the forecasts periodically. For example, if at some time in the future there were more than one forecast prepared by the staff, based in part on different sources of information, a subsequent analysis of the accuracy of the various forecasts would enable the Governor and members of the Executive Board to adjust the weights that they put on the various forecasts to reflect their relative accuracy. Similarly, if members of the Executive Board pay attention to the forecasts of the Norwegian economy by economists working outside the Bank, an ex post evaluation of the accuracy of these forecasts (on the basis of the data held in the databank) would help in deciding on the weight that should be put on such forecasts. Also, if one wished to determine the emphasis that one should place on the most recent data, there are various techniques available to examine the volatility of the preliminary estimates of the various series and their ability to predict the final estimates as well as to predict the broader trends in the economy. A database that allows researchers to do this kind of analysis could prove very useful over time as a way of improving the current analysis and forecasting of PPO.

With the movement of the Statistics Departments from the Norges Bank to Statistics Norway, it is important to develop expertise in accessing and interpreting the databases of Statistics Norway. The responsibility for this task has also been given to the Economics Department.

14.2 Internal Communications

14.2.1 Summary of comments by staff members

There is a lot of information on the intranet. Although more and more people are using the intranet as a source of information, most focus only on their own department. And there is less communication across wings than in the past.

14.2.2 Comments and suggestions

The role of communications in central banks has taken on increased importance in recent years. To a considerable extent, this has been the result of the emphasis on transparency in the context of inflation targeting. In addition, the accountability of an independent central bank to the public and to a legislative body requires increased communication by the central bank. Many central banks have created or expanded their communications departments, which have become increasingly responsible for improving the ways in which the central bank communicates with the public, with the media, and with financial markets. Also, internal communication of the senior management of central banks with their staffs has come to be seen as an important way of contributing to the motivation of the staff, and to ensuring that employees are kept apprised of developments within the Bank.

At the Bank of Canada, the Communications Department has responsibility for such matters as providing advice on speeches, media training, publications, the web site, media relations, translation, graphics, and helping to organize conferences. The Department also helps to monitor media coverage to identify potential issues that may require the Bank's attention. I would recommend that the new Communications Director at the Norges Bank integrate the new Communications Department fully into the ongoing operations of the Bank. This would have several benefits. First, the expertise of the Department would help in achieving better communications for the Bank. Second, if given some strategic responsibility for the timing and audiences of speeches by Governor and Deputy Governor, the Communications Department could ensure that the Bank gets out its key messages in a more continuous, more systematic, and more efficient way. Third, if the Communications Department contained specialized resources in areas such as editing, translation and graphics, it would allow the economists who have been responsible for such activities until now to focus more on their primary tasks.

The Communications Department could also be given responsibility for internal communications. It is important that staff learn about important Bank announcements and issues from the Bank itself, rather than from the media. This would be very helpful in maintaining staff confidence and respect. Internal communications can also make a useful contribution to the understanding by the staff of decisions by the Bank in monetary policy and other areas for which the Bank is responsible, and of developments in internal management, for example in the area of human resources policy. This increased understanding would give employees a feeling of greater involvement in the Bank's activities. It would also enhance their ability to explain the Bank's policies to their relatives and friends. The explanation by the Bank of changes in its internal policies and the resulting increase in understanding on the part of staff can increase the level of trust in senior management by employees, and in this way can improve the functioning of the organization. It would also encourage a sense of engagement among the staff.

While the Intranet is currently being used by many staff members as a way of getting information about their department, it is clearly underutilized at the present as a way of informing staff about more general PPO and Norges Bank developments. It would be a useful step forward if the intranet became the primary instrument for internal communications to staff. And ways should be found of encouraging staff to focus on

Bank wide and wing wide communications, and not just communications from their own department. For example, at the Bank of Canada, an intranet based news service called Info Bytes notifies staff of important new information about the Bank. Also, there are notices in the elevators at the Bank of Canada of useful information about the institution that can be found on the intranet.

14.3 Silos

14.3.1 Summary of comments by staff members

The Norges Bank is structured in the form of three companies with relatively little in common. There is very limited sharing of information between Investment Management and PPO, but there are periodic meetings of all those interested in financial markets.

14.3.2 Comments

Currently, there are some relationships between the Monetary Policy wing and Financial Stability wing. For example, both wings are involved in the forecast and in the recommendations for interest rate setting. And there are periodic meetings between managers of the two wings. The relationships between these two wings and the Investment Management wing are much less developed, which is not surprising given the very different responsibilities of the Investment Management wing. Nonetheless, the groups in each of the three wings responsible for financial market developments do meet periodically to discuss issues of common interest.

The kinds of links that already exist should be encouraged and deepened. Consideration should be given to finding more ways of using the expertise in financial markets in the three wings for their joint benefit. More generally, there should be increased mobility of staff across wings. This is particularly important between the Monetary Policy wing and the Financial Stability wing since much of the expertise used by economists in these wings is transferable. Also, when issues arise that cut across two or three wings, committees or task forces made up of representatives of the relevant wings can be helpful in addressing the issues and, as a byproduct, in strengthening the ties across the wings.

15. SOME CONCLUDING REMARKS

If implemented, some of the options discussed in this report would result in appreciable changes in the functioning of PPO. The planning and implementation of such changes would require a great deal of effort on the part of the management and staff of the wing. As part of the process, it would be crucial to have buy-in by managers and staff for the changes decided upon. And this in turn would require understanding and support by staff of the proposed changes.

Because change is often difficult and sometimes threatening, it would be important for the Executive Director and the senior staff of the wing to be open with managers and

other staff about the objectives of any proposed changes, the reasons that they are being carried out, and the implications for employees in different parts of the wing. A communications policy could be developed to inform staff of the developments that are being planned and that are being put into place. One element of this communications policy could be "town hall" meetings to which the staff is invited to discuss the changes with the Executive Director and the departmental directors.

While some of the suggested options would result in more formal processes, it is important to avoid overloading managers and staff. There is clearly a risk of too much paperwork and too many meetings in more formalized processes. That is, there is a tension between having insufficient formality in the processes to achieve the desired transparency and so much formality that the participants will feel overburdened. As is the case in other central banks, it will be a challenge for PPO to find the fine line between these two problems.

PPO has made significant improvements in recent years on the economic and policy side, and in the structure and functioning of the wing. The further benefits that would result from the implementation of some of the suggested options would be a further advance by the Bank and the wing towards international best practice.

APPENDIX 1

EXCERPTS FROM LETTER TO STAFF

There are two broad areas, organizational issues and human resource issues, that will be the focus of the study and on which I will make recommendations for improvement, where relevant.

(1) Organizational issues

- Is the structure of the departments and the groups in PPO best aligned to its objectives, values and needs?
- What needs to be done to promote a culture in which there is cooperation and collaboration across departments in the wing? In this context, is there a role for cross-departmental committees and/or task forces to deal with issues that cross departmental lines or that involve overlapping responsibilities?
- How can staff mobility across departments and groups be enhanced?
- Does the process for setting priorities result in the desired outcome?
- Does the decision-making structure of PPO lead to the best possible monetary policy decisions?
- Is the allocation of resources to different areas of work within PPO adequate?
- Is the incentive structure of PPO well aligned to the needs of the wing? Is PPO able to attract and retain a group of professional economists with the mixture of competences and personalities to challenge each other and result in creative output, or is there a danger that the staff will become too uniform?
- How can the process for deciding on longer-term research topics be structured so that the research is most useful to the wing as a whole and to the departments in the wing?
- Is PPO fully utilizing the potential of its staff of economists?
- How can the structure of internal communications by which PPO staff are notified of developments and changes be enhanced so as to improve the efficient functioning of the wing?
- Is PPO structured in such a way that changes in staff will not lead to overly different monetary policy recommendations and decisions? In this context, is the documentation of work and methods in PPO such as to cope with staff

turnover without resulting in an inability to provide the same quality of policy advice to the Executive Director of PPO and the Executive Board?

(2) Human resource issues

- What is the best way to structure personnel arrangements so that there are career paths for both managers and non-manager professional economists?
- What processes are helpful in assessing the training and development needs of employees and arranging for these needs to be met?
- What arrangements have proven useful in other central banks for improving the motivation of the staff and maintaining it at a high level? Are there well-functioning career paths for different groups of professionals, and are career paths clearly communicated?
- Should a mentoring system be further developed to help younger economists and other professionals to understand the culture and organization of PPO? Would a system in which there were orientation meetings for all new staff be helpful in this regard?
- What are best practices in central banks regarding the work environment? In particular, are measures for attracting and retaining young women professionals and other groups of professionals with family responsibilities functioning well?
- Should economists be given greater scope to do some research that is not directly related to the needs of the wing? Would changes in current arrangements, such as increased time to polish studies prior to submitting them for publication, be helpful in satisfying the desire of economists to publish some of the research that they are doing?
- To a greater extent than is currently the case, should economists doing mainly shorter-term policy work be encouraged to do some longer-term research, and should economists doing mainly longer-term research be encouraged to do some shorter-term policy work or current analysis?
- To ensure that memoranda, research, forecasts, etc. produced in PPO become part of the knowledge base of the Bank, an efficient system is needed for storing such material and providing access to it. Is the current system satisfactory?
- What techniques are available for improving "knowledge transfer"? In particular, what systems are available that would allow economists to easily access each other's work? (This would reduce the likelihood of duplication,

especially in areas where work had been done some time ago.) Do younger economists receive sufficient coaching about the work that has been done at the Bank in the past? How is the knowledge of a staff member leaving the institution transferred to the person taking the job?

APPENDIX 2

THE CHOICE BETWEEN A PERMANENT AND A TEMPORARY FORECAST TEAM

Two alternative models are used in inflation targeting central banks to organize the expertise needed for the forecast process: (1) entrusting the organization of the forecast to a temporary team, or (2) using a permanent forecast team. Both options have advantages and disadvantages, and can also be combined.

The advantage of a temporary team is that it includes a wider range of expertise. Being temporary, it is also easier to rotate its members, so that the experience is gradually shared. Typically, it would include a monetary policy expert, a core model operator, and specialists from the most important economic sectors. Its greatest disadvantage, however, is its *ad hoc* structure, which could lead to lack of responsibility and leadership. If it is to accomplish its task successfully, it has to have the formal power to coordinate the contribution of other units in providing the required assistance and experience to the team. Ensuring continuity also sometimes proves difficult under this arrangement.

The permanent team, on the other hand, has the advantage of clear responsibility and continuity, but often suffers from the “ivory tower” problem. Given its responsibility, the team might resort to developing its own expertise if an adequate answer, analysis, or cooperation from other teams is not provided regularly or in time. Such redundancies are highly undesirable and can only be avoided if the unit cooperates intensively with the others on an informal basis and/or has the power to solicit responses from individual analysts. Finally, a permanent team may assist a temporary team including some of its own staff, and staff from other units. Whatever the decision, the final arrangement will have to ensure transparency and openness of the whole process to wider expertise within the central bank. It must provide for channels through which expert views from various units will be systematically considered, to avoid a “high priest” culture that occasionally appears in connection with the highly skilled and advanced modeling activity.

APPENDIX 3

CAREER PATHS AT THE BANK OF CANADA

The Bank of Canada has a number of mechanisms that support the concept of a career path for economists and other professionals. The use of various streams allows Bank employees to progress and to receive increased compensation as they develop professionally. The "career stream" is a form of broad-banding (or grouping of more than one job grade) that enables certain employees to progress through job grades without necessarily changing jobs as they gain more expertise. The "progression stream" enables entry-level economists to move up to the working level for economists⁹ over a time period that is related to their performance. And the "dual career stream" enables outstanding economists to move above the working level for economists while continuing to do research, and allows them to move back and forth between research and management positions. Finally, it is well understood that, once an economist has reached the working level, he or she can apply for management positions as they become vacant and are posted. The rest of the discussion in this subsection draws heavily on the Bank of Canada's explanation of the operation of the various streams.

The Bank of Canada has grouped similar positions at different grades into "streams" that allow employees to progress through the grades according to each stream's promotional criteria. Streams give employees an opportunity for advancement without changing the units or departments in which they are working. As noted, there are three different types of streams at the Bank of Canada: career stream, progression stream, and dual career stream. Although they have different characteristics, they all share a common objective, which is to map out a career path for employees and to compensate employees appropriately for the increasing value of their work as they develop professionally.

Career streams encompass positions at two or more grades. Advancement within a career stream may not require the use of a poster, but may require the availability of work at the higher grade, and availability of an appropriate approved position. Employees move through the levels to the grade maximum in the usual manner. In general, promotion is based on criteria that may include minimum time at a particular grade, and/or availability of work at the higher grade. Employees in career streams are eligible for lump-sum performance payments when they reach the grade maximum at any grade.

A progression stream is an apprenticeship program where employees acquire the competencies to function at the working level of the position. The goal is to have all employees at the working level. Depending on the occupational progression, it can take three to seven years to reach a working level. During this time, performance is recognized through salary level increases. Performance that "exceeds objectives" is

⁹ The working level for economists is defined at the level or grade that all economists performing at ranking of "met expectations" or higher will eventually reach. To move to a higher level than the working level, an economist will have to be appointed to a managerial position or enter the dual career stream, as discussed below in this appendix.

rewarded by a faster rate of progression through the salary levels. Employees in progression streams are not eligible for re-earnable performance payments until they reach the working level.

Economists are typically placed in such a progression stream. At the Bank of Canada, those entering with an MA or MBA degree are expected to move through 16 levels before entering into the grade that is defined as the working level. (There is therefore still some time before they reach the top of the working level grade.) If their evaluation was consistently "met expectations" it would take them five years to reach the working level. An MBA with a finance specialization enters at a higher level (because of the difficulty that the Bank of Canada has had in hiring this type of resource) and takes four years to reach the working level. An economist with a PhD degree enters at a yet higher level and takes three years to reach the working level with a "met expectations" evaluations. Those who consistently receive evaluations of "exceeds expectations" would reach the working level in 75% of the time typically required, and those who consistently receive evaluations of "greatly exceeds expectations" would reach the working level in 60% of the time typically required. (Recall also that those who joined the Bank with extra experience, for example with earlier work experience at the Bank, would be slotted at a higher level to start and consequently would reach the working level somewhat faster.)