EXTERNAL EVALUATION OF THE DIRECTORATE GENERAL RESEARCH OF THE EUROPEAN CENTRAL BANK

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1. INTRODUCTION

The Executive Board of the European Central Bank (ECB) decided in February 2010 to request an independent external evaluation of the activities of its Directorate General Research, and invited the four authors of this report to act as evaluators.

According to its terms of reference, the evaluation should focus on the two main strategic objectives of this business area: (i) to establish intellectual leadership within the world-wide central bank-related research community; and (ii) to strengthen its role as a valued source of research-based policy advice within the ECB, Eurosystem, and European System of Central Banks (ESCB). Specific issues to be addressed are the focus, effectiveness, and organization of research, its scientific quality and value added, its relevance to other ECB business areas and to the tasks and functions of the ECB, and its influence within the Eurosystem, in the academic community and in other policy making institutions. The full Terms of Reference are in the Appendix.

This evaluation was preceded by a previous external evaluation submitted in 2004 by Marvin Goodfriend, Reiner König, and Rafael Repullo. The previous evaluation was broader in scope, dealing with all the research activities at the ECB, and not just at DG Research. For the purpose of that evaluation, research was defined as "the set of activities leading to economic analysis which strives to be up to academic standards, i.e. up to the standards of leading-edge scientific journals." This definition will also be used in the present evaluation. In addition to research, and in line with our Terms of Reference, we also looked at the contribution of DG Research to supporting policy analysis and providing policy advice to other ECB business areas.

DG Research provided a wealth of information about all aspects of the evaluation, and arranged interviews with ECB staff, including senior management in other directorates. The authors of this report also benefited from several meetings with and a survey conducted among the members of the ECB Executive Board. In addition, we solicited the views of prominent academics with expertise in areas related to central banks or some connection with the research activities of the ECB. We are, of course, responsible for all the views and recommendations presented herein.

The report is based on information about staff and organizational arrangements as of September 2010. The structure of the report is as follows. Section 2 reviews the main recommendations of the 2004 evaluation. Section 3 considers the internal organization of DG Research. Section 4 examines the quantity and scientific quality of the research output and section 5 evaluates the effectiveness and internal impact of DG Research. Section 6 reviews the research environment and staff incentives. Section 7 contains our overall assessment and main recommendations. Although the focus of the evaluation is on DG Research, some of these recommendations are also relevant for other ECB business areas.

2. REVIEW OF THE 2004 EVALUATION

The 2004 report started by stressing the importance of academic standards for central bank research. In particular, the arguments put forward were the following:

> "Academic standards in central bank research are important, first and foremost, to provide a solid theoretical and empirical foundation for policy-making. Creative economists of the highest calibre working in a central bank can best apply the latest advances in the theory, estimation, and simulation of models of monetary policy. For such economists, competing in the world of academic research provides a natural market test of the quality of their models and methods.
>
> Academic standards are also important for attracting, maintaining and further developing skilled human capital. Economists with leading-edge technical skills tend to be academically oriented. Central banks must provide such economists with the time and encouragement to produce and publish research in the top academic journals and to participate actively in seminars and conferences.
>
> Academically oriented economists provide additional benefits to a central bank. First, such economists can model economic circumstances not ordinarily, if ever, encountered in reality, such as financial instability or deflation, and develop strategies for dealing with them. Second, they can stimulate and encourage external research on issues of interest to the central bank through publications, conferences, and consulting relationships. Third, they contribute to the credibility and reputation of the central bank by improving its communication with the public and other policy-making institutions. Last but not least, the insistence on and appreciation of high academic standards for research fosters a culture of creative and challenging thinking throughout the central bank."

The 2004 report provided a fairly positive assessment of the research conducted at the ECB on several criteria: scientific quality, relevance for the conduct of monetary policy and for the other

tasks and functions of the ECB, and influence on the academic community and on other policy-making institutions. However, it also stated that the ECB was not exploiting its research resources to their full potential, which could lead to the depreciation of their human capital in the medium run, and that there should be more emphasis on quality. The report made a number of recommendations in five areas: (1) incentives for staff to conduct high-quality research; (2) long-term management of human capital; (3) coverage and coordination of research activities in the different business areas; (4) research support; and (5) communication and dissemination of research.

With respect to the incentives to conduct high-quality research, the 2004 report recommended that the ECB increase the weight of research activities, and especially journal publications, in the staff annual appraisal exercises, and introduce a point system for weighting publications according to the reputation of the journal and use the point score to reward excellence in research.

On the long-term management of human capital, the 2004 report proposed that the ECB build up a group of internationally recognized senior researchers who could lead and develop junior staff, provide high-quality advice for policy-making, and establish a high profile for ECB research worldwide. Specific recommendations were to ensure that staff in all business areas that are suitable for research are allocated sufficient time to do research that is relevant to their area, to create an expert career path in DG Research such that staff can be promoted for excellence in research without assuming managerial responsibilities, to strengthen the supervision of junior staff by involving internal and, more importantly, external advisors hired as consultants, and to enhance the visibility of research staff by having personal homepages on the ECB website.

With regard to the coverage and coordination of research activities in the different business areas, the 2004 report recommended that the ECB reactivate the Research Coordination Committee, which should draw up a comprehensive annual research program for all business areas in which research is conducted, and devote more resources to research on financial stability, international issues, and fiscal policy, while retaining the primary focus on macroeconomics and monetary policy.

The 2004 report recommended that the ECB upgrade the support of research staff by hiring more research assistants on a temporary basis and by increasing the flexibility in the provision of IT equipment (hardware and software).

Finally, on the communication and dissemination of research, the 2004 report recommended that the ECB set up a communication channel to disseminate research results to a wider public in a non-technical form such as a newsletter.

Many of these recommendations have been implemented since 2004. In particular, the introduction of a point system for weighting publications in academic journals, the reactivation of the Research Coordination Committee, and the publication of the ECB Research Bulletin have all taken place. However, implementation of recommendations on the management and support of research staff has been less satisfactory. In particular, progress on the build up of a group of internationally recognized senior researchers has been limited, and there has been no major advance in the supervision (by consultants), support (by research assistants) and visibility (by means of accessible personal homepages) of research staff. It should also be noted that DG Research has only seen a small increase in resources devoted to research on financial stability, and almost none in the international and fiscal policy areas. We will review the outstanding issues below in the context of the set of recommendations in this report.

3. THE ORGANIZATION OF DG RESEARCH

There are a number of ways of organizing the research function in a central bank. In one approach, the research function is centralized in a single department, which aims at both producing publishable articles and servicing the needs of the policy and operational areas. In another approach, each business area has its own research group, which is devoted to the development of tools and providing research assistance to the policy and operational elements of that area as well as producing publishable articles. In yet a third approach, economists in the central bank are expected to do some research and some policy/operational work in their own business area, and there is no group set aside whose primary function is to do research.

Most central banks prefer one of the first two approaches for the following reasons. First, having an area or areas in which economists are expected to do longer-term research facilitates the ability of the institution to attract top-notch researchers who can contribute both to the reputation and to the policy-making capacity of the institution. Second, while these research areas are typically the entry point for highly-trained economists joining the central bank, over time many of them transfer into other business areas at both the operational and managerial levels.

The choice between the first two approaches (centralized versus decentralized research groups) hinges on issues such as which approach maximizes synergies and facilitates staff mobility. It also depends in part on the overall amount of resources devoted to research in the central bank, since the decentralized model requires a critical mass of researchers in each group. From the perspective of synergies, is it better for all long-term researchers to be in a single research department and thereby benefit from the knowledge and technical skills of their colleagues in that department, or is it better that they be attached to the user departments and thereby be closer to the policy and operational issues that are of concern to the central bank?

Clearly, there are advantages and disadvantages to each of these alternatives. The main risk of having a single research department is that it could become overly removed from the issues of

particular concern to policy-makers. The main risks of having a research group in each department are that the researchers in the various business areas would not benefit sufficiently from the expertise of their counterparts in the other departments and that they would be drawn excessively into meeting short-term demands, to the detriment of their longer-term research. Regardless of which approach is chosen, efforts must be devoted to ensuring close communication across different business areas. That is, in the centralized model researchers in the research department should be in close contact with policy and operational economists in the other business areas, while in the decentralized model researchers in each of the business areas should be in touch with the researchers in the other business areas.

The ECB has opted for a mixture of these two approaches, with research conducted both in DG Research and also in some of the other business areas, especially in DG Economics and, to a lesser extent, in DG International. The remaining business areas rely mainly on DG Research for their research needs. Also, DG Research is directly involved in the preparation of the ECB's economic forecasts and works closely with DG Economics in this area. The overall structure was established at the inception of the ECB, and it seems to be working reasonably well. However, there is still considerable room for greater cooperation between DG Research and the other business areas.

The two main strategic objectives of DG Research are: (i) to establish intellectual leadership within the world-wide central bank-related research community; and (ii) to strengthen its role as a valued source of research-based policy advice within the ECB, Eurosystem, and ESCB. While the first objective is often thought of as long-term research associated with publications in academic journals and the second as medium-term analysis typically without such publications, this need not be the case. The development of tools for other business areas and the preparation of analyses addressing fundamental challenges facing these other areas might well result in journal publications. One example would be research done by economists in DG Research on nowcasting, which has been useful for forecasting and publishable in academic journals. Another example would be the analysis of payment systems, which has become a subject of research by academic economists, and is an area in which economists in central banks should have a comparative advantage.

Moreover, while the reputation of the ECB among academics will certainly be affected by the quantity and quality of its journal publications, its reputation among other central banks might equally well be influenced by research that addresses specific issues and challenges also faced by them.

3.1. Size of DG Research

The most important structural issue that needs to be addressed is the size of DG Research and the amount of resources devoted to research overall in the ECB. Over the next few years, the ECB and other central banks will be faced with a number of significant challenges.

First, they will have to address issues related to financial-real linkages, that is, to consider both the way in which financial shocks affect the real economy and the role of the financial system in propagating non-financial shocks through the economy. Researchers will either integrate financial-real linkages into the core forecasting model of the central bank in more complex and sophisticated ways than has been the case until now, or develop satellite models that could be used as an adjunct to the core forecasting model to analyze the role of financial developments in affecting the real economy. It will undoubtedly take a number of years for the research agenda related to financial-real linkages to come to fruition and to be fully integrated into forecasting and policymaking.

Second, considerable research will have to be done in the context of the financial stability responsibilities that will come partly or wholly under the aegis of the central bank.

Third, in the case of the ECB, a number of other challenges that might require additional research effort were noted in the President's letter on high-level priorities for 2011, such as changes in the post-crisis monetary policy operational framework and reinforced analysis of country developments and surveillance. The latter will undoubtedly include fiscal policy issues in the current EU environment.

Fourth, given the current focus on global and intra-European imbalances and the emphasis on international coordination and cooperation, such issues will require much greater research effort by DG Research if the ECB is to maintain its reputation within the central banking community.

In sum, DG Research will need more resources to carry out its responsibilities, in particular those related to financial-real linkages, financial stability, international imbalances, and fiscal policy issues. Moreover, in the context of our recommendation (in section 5.2) to replace the net 5 staff seconded from other directorates into DG Research rule by an opposite rule of "a net number of staff seconded from DG Research into other directorates," the increase in resources needed in DG Research will be even larger than would otherwise have been the case.[1]

RECOMMENDATION

- *If DG Research is to maintain its reputation for intellectual leadership within the world-wide central bank-related research community, more resources will have to be found to deal with the very challenging policy issues that central banks will have to address over the next few years. In particular, DG Research will have to expand its research capabilities in the areas of financial-real linkages, financial stability, global and intra-European imbalances, and fiscal policy issues in the European Union. In our view, achieving the increase in research output needed to address these issues will require an increase of the order of 10% to 20% in full-time equivalent (FTE) research input (the equivalent of 5 to 10 researchers). If there were an increase in DG Research of 10 researchers, we would recommend that 3 of them be devoted to financial-real linkages, 3 to financial stability, 2 to fiscal issues, and 2 to international issues.*

There are number of ways in which greater resources could be provided to fulfil the increased demands for such policy-relevant research. Some of these could also help improve the effectiveness of research staff at the ECB.

[1] All our recommendations with respect to resources are based on the numbers we were given during our visits in May and September 2010 and predate subsequent changes.

First, the staff of DG Research could be expanded as part of the increase in the number of PhD economists being hired by the ECB as it broadens its mission.

Second, there could be a temporary shift from that part of free research that is not focused mainly on ECB priorities to research focused on priority issues, although due attention should be paid to the importance of allowing sufficient time for the publication of the work coming out of the latter. This objective could be achieved in part by focusing on the hiring of PhD economists with research interests close to ECB priority areas. For purposes of this report, we follow the common usage of one-third of the time of research economists devoted to directed research, which focuses on achieving the priorities of the ECB, one third to institutional work (including policy analysis, speeches, presentations to the Executive Board and similar tasks) and one third to free research.

Third, there could be an increase in the number of secondments into the ECB from academic institutions, national central banks, and international financial institutions, with the research of the seconded economists focused on specific priority issues. The seconded researchers would work in close cooperation with economists in DG Research, and, if they were sufficiently senior, they could head task forces on some of these issues. Alternatively, the same amount of resources could be added in the form of external part-time consultants.

Fourth, the headcount ceiling on permanent staff and ESCB and international organization positions should be imposed on average over a period longer than a year. Because of the variable timing of entry and exit of such research staff, there can be unfilled vacancies at various points during the year. Increased flexibility with respect to the staff ceiling would allow DG Research to overfill at the time of hiring in the expectation that departures could lead to vacancies at a later date.

Fifth, to improve overall staff efficiency in conducting research, increased technical assistance could be provided by temporary hires, particularly students who have received an MA or MSc degree and plan to return to university to continue their studies toward a PhD degree, which is the model used at the Federal Reserve Board.

Sixth, the overall efficiency of the research effort of the ECB could be increased by greater mobility out of DG Research and, to a lesser extent, into DG Research. Such mobility, to be discussed below in detail, could result in increased research efforts by staff in other business areas and more focused research on priority issues by staff in DG Research. A number of these suggestions could also be helpful in improving staff incentives and career paths, as we will see in section 6.

RECOMMENDATIONS

- *The proposed increase of research input could be achieved by a combination of additional hiring of PhD economists with research interests close to ECB priority areas, a temporary shift in the allocation of research time toward these priorities, and an increase in the number of secondments from other institutions and of external consultants.*

- *To improve the management and productivity of research staff in the long run, and to contribute to the increase of research input in the short run, the ECB should increase the flexibility in the application of staff ceilings, which could be imposed on average over a period longer than a year, expand the number of temporary research assistants, and increase the mobility out of DG Research and, to a lesser extent, into DG Research*.

3.2. Structure of DG Research

DG Research has three divisions: Econometric Modelling, Financial Research, and Monetary Policy Research. A significant part of the resources of the Econometric Modelling Division is devoted to developing the tools for the model used in the ECB forecast and working together with DG Economics on the quarterly forecast process. This arrangement allows DG Research to maintain a close involvement in this central part of ECB policy making. It also has the advantage of making evident to researchers in DG Research the changing demands on the forecasting model in response to new economic conditions (e.g., zero lower bound on nominal interest rates) as well as the policy issues raised by the Executive Board and the Governing Council. It is worth noting, however, that those economists whose main responsibility is to work on the regular forecast will be stretched in carrying out longer-term research projects.

The Financial Research Division needs to expand to provide research support to the new European Systemic Risk Board (ESRB) as well as to research projects in DG Financial Stability, such as financial stability indicators and early warning models. Given the increased importance to the ECB of this responsibility as well as the high visibility of this area among central banks globally, it is appropriate to maintain a separate financial stability division in DG Research. It will be crucial for this division to be closely involved in new financial stability developments but to be shielded to the extent possible from day to day pressures, since research in this area will have to be leading-edge if it is to contribute significantly to the financial stability responsibilities of the ECB.

The Monetary Policy Research Division focuses its research effort largely on monetary policy issues, but it also covers areas beyond monetary policy. Given the relatively narrow focus of the other divisions, this division should continue to take responsibility for issues other than econometric model building and financial research, in addition to its monetary policy responsibilities. Because of the wide range of issues that will have to be addressed by this group, it is especially important for them to interact closely with staff in other business areas, both to take advantage of their institutional and subject matter knowledge and also to help the staff in these areas to participate in longer-term research projects.

Consideration should also be given to reorganizing the three divisions into two -- one responsible for monetary stability and the other for financial stability. Such a reorganization would help address the possibility that there is not sufficient critical mass in individual sub-fields within the Monetary Policy Research Division because of its responsibilities in several areas.

RECOMMENDATION

- *The Monetary Policy Research Division should continue to take responsibility for research in areas other than econometric model building and financial research, including international and fiscal policy issues as well as linkages between monetary policy and financial stability. As such, it should develop closer links with other business areas and perhaps should be renamed.*

Alternatively, the three divisions in DG Research could be re-organized into two divisions -- one devoted to monetary stability and the other to financial stability.

3.2. Research priorities

Central banks have to set priorities for the directed part of the research program. These can also provide an indication of important lines of research that at least some economists might choose to follow in the free part of their research effort. In addition to setting priorities, management needs a tool to monitor progress on the projects that result from research priorities and, if required, to reset priorities in response to changing needs. Given the long span of research projects, from the initial idea to the working paper and the subsequent publication in an academic journal, resetting priorities should only be done in response to major crises or very significant changes in the economic environment. Otherwise, the quality of the research would suffer, and the results would be much less useful.

Priorities setting should result from the interaction of top-down and bottom-up suggestions for lines of research and for projects. As far as top-down is concerned, the Executive Board and the senior management of the ECB will be most aware of the kinds of challenges likely to be faced over time by the institution. In part, this will result from problems and issues that they have faced in the course of carrying out their responsibilities in the past and expectations as to what issues might be coming up in the future. An obvious example following the current crisis is the importance of increased understanding of financial-real linkages in the context of monetary policy decision-making and the range of issues related to the new responsibilities of the ECB in relation to financial stability.

The Executive Board should be more involved in delineating broad research priorities at the beginning of the process than is currently the case. This does not imply micro management of research projects by the Executive Board. Rather, it involves indicating at an early stage in the process its views on the most important issues requiring research inputs.

As far as the bottom-up approach is concerned, economists in DG Research and other business areas will be knowledgeable about the topics that are currently being researched in academia, central banks, and international financial institutions and that are likely to provide insight into issues relevant to the ECB. They are well-placed to determine the kinds of projects that would meet the demands of the Executive Board and senior management in the directorates and that can also result in research publishable in academic journals.

Another important objective of the process that results in the setting of research priorities and developing research projects (both individual projects and projects arising from the research networks) is to ensure the absence of both gaps and duplication.

Bringing together the views of both senior management and researchers as to the most productive and useful lines of research for the coming year is likely to result in a research program that is both relevant to the institution and most likely to be successful in achieving the desired results. Thus, in developing the list of research priorities and the research program, the ECB should integrate the views of the Executive Board and senior management on the one hand, and the views of researchers on the other hand. As an example of such a process, meetings to set priorities might be arranged in the following order:

(i) Heads of directorates meet separately with their own staff to discuss proposals for lines of research and projects.

(ii) Members of the Executive Board meet heads of directorates to discuss their views on research priorities.

(iii) Heads of directorates meet together to integrate the views discussed in (i) and (ii) and to prepare the research program for the coming year. DG Research should continue to take responsibility for managing the process.

(iv) The program resulting from (iii) should be presented to the Executive Board for approval and then circulated to staff.

RECOMMENDATION

- *The ECB should organize the research priorities and the research program in a formal process that takes account of and integrates the views of the Executive Board and the staff. The views of the Executive Board on broad research priorities should be made known early in the process.*

The Research Coordination Committee (RCC) of the ECB plays an important role in setting research priorities, coordinating work across directorates to meet established priorities, and avoiding duplication. DG Research plays an important role at the RCC and produces the annual Research Priorities Report. Our general assessment of the role of the RCC is positive, as it contributes to both research alignment with ECB priorities and its efficiency by promoting synergies across directorates and reducing wasteful duplication. Yet the RCC is also sometimes perceived -- both in DG Research and other directorates -- as being excessively bureaucratic and detailed.

The documents prepared by the RCC enable the Executive Board and senior management in the various directorates to see how the priorities agreed by the Executive Board are translated into individual projects. They also present information on the extent to which the projects involve joint research across directorates. These documents allow for regular monitoring of the projects proposed at the beginning of the year. Also, learning how much has been completed and the knowledge gap that remains to be filled can be helpful in moving the research agenda forward from one year to the next. And the information provided allows all the directorates to be aware of what research is going on elsewhere in the ECB. It can also be used to facilitate research collaboration across directorates.

The only reservation that we have about the RCC is whether the process is unduly bureaucratic and takes excessive amounts of time for those involved in the preparation of the Report. Consideration should be given to ways of streamlining this process. In particular, the Report could focus on general priorities rather than more detailed priorities. Also, consideration could be given to including those free research projects that have been directed to priority areas as an addendum in the documents prepared by the RCC.

While the resetting of priorities should be an unusual event, the Executive Board and the senior management could hold a mid-year assessment of research progress and research priorities, with the possibility of resetting them if absolutely needed.

4. QUANTITY AND SCIENTIFIC QUALITY OF RESEARCH

The first strategic objective of DG Research is to establish intellectual leadership within the world-wide central bank-related research community. To achieve this objective, the production of high-quality published research is essential. In this section, we review the performance of DG Research in this regard, focusing on the research output of DG Research staff.

As a summary indicator, it is useful to note that RePEc ranks the ECB as fourth among the set of central banks and international organisations in terms of aggregate research productivity, after the International Monetary Fund, the Federal Reserve Board, and the Federal Reserve Bank of New York.[2] At a European level, the RePEc data show that that the ECB ranks sixth across all institutions (including universities).

In part, the overall RePEc ranking is driven by a scale effect, since it measures aggregate research performance and the ECB is large relative to most other institutions. One sub-measure that partially adjusts for the scale effect is the "institutional *h* index" where *h* is the number of individuals in an organisation that have *h* articles cited in the RePEc database at least *h* times.[3] The ECB's institutional *h* index is 9.1 which is the same as the Federal Reserve Bank of New York, just behind the Federal Reserve Bank of San Francisco (9.2) but further behind the Federal Reserve Board (11.1), the Federal Reserve Bank of Minneapolis (12.2) and the International Monetary Fund (14.2).

This relative ranking is broadly consistent with our survey of academic economists (more fully described below) that positions DG Research just behind the Federal Reserve Board and the Federal Reserve Bank of New York in terms of research performance. Although necessarily

[2] The RePEc (**Re**search **P**apers in **Ec**onomics) ranking combines indicators such as citations, downloads and abstract views for the papers produced by individuals affiliated with each organisation. This includes all ECB staff, not just DG-Research.

[3] The *h* index focuses on the number of highly-productive researchers. All else equal, there still remains a scale effect but the cumulative impact of a large number of low-performing staff is eliminated.

subjective, this survey evidence indicates the high reputation of DG Research in the academic community.

Turning to the volume of journal publications over 2004-2009, DG Research published a total of 163 journal articles during this period, corresponding to an average of 27.2 papers per year and 0.6 papers per research staff member per year.

Following the 2004 evaluation, DG Research introduced a point system that ranks journals into four groups. In broad terms, these groups correspond to standard journal rankings, with the exception that monetary-focused journals are given greater priority.[4] Table 1 shows the distribution of publications across the four groups. Of the 163 articles published over 2004-2009, 17 were published in the top-ranked Group 1, 50 in Group 2, 68 in Group 3, and 28 in Group 4.[5] Still, the Group 1 publications include 2 regular articles in the *American Economic Review*, 12 in the *Journal of Monetary Economics*, 2 in the *Review of Economics and Statistics* and 1 in the *Review of Economic Studies*.

Table 1. Distribution of DG Research journal publications by quality groups over 2004-2009

	Number	%
Group 1	17	10.4
Group 2	50	30.7
Group 3	68	41.7
Group 4	28	17.2
Total	163	100

Note: Group 1 is the top quality group including the top 5 general-interest journals plus the *Journal of Finance*, the *Journal of Monetary Economics*, and the *Review of Economics and Statistics*.

[4] In particular, the *Journal of Monetary Economics* is placed in the top group and the *Journal of Money, Credit and Banking* and the *International Journal of Central Banking* are placed in the second group.

[5] Articles in a "papers and proceedings" issue or a special issue of a journal are in principle classified one category below the normal ranking of the journal.

In relation to Group 2 publications, there were 14 articles in the *Journal of Money, Credit and Banking* and 9 articles in the *International Journal of Central Banking*. Among the other journals, there were 4 articles in the *Economic Journal*, 4 in the *European Economic Review*, 3 in the *International Economic Review*, 3 in the *Journal of Business and Economic Statistics*, 2 in *Economic Policy*, 2 in the *Journal of Econometrics,* and 1 each in the *Journal of the European Economic Association*, the *Journal of Economic Theory,* the *Journal of International Economics,* and the *Review of Financial Studies*.

Turning to the Group 3 category, the most placements were in the *Journal of Economic Dynamics and Control* and *Economic Modelling*, with 6 apiece. Other noteworthy publications include 5 articles in the *Journal of International Money and Finance*, 4 in the *Oxford Review of Economic Policy*, 3 each in *Macroeconomic Dynamics*, the *Journal of Financial Econometrics* and the *Journal of Common Market Studies*, and 2 in the *Review of Finance*. [6]

In summary, the journal publications of DG Research are concentrated in the main journals related to monetary economics and other central banking topics. In addition, there is significant representation in other technical field journals (such as *Economic Modelling* and the *Journal of Economic Dynamics and Control*) and also in policy-focused journals (such as *Economic Policy*, the *Oxford Review of Economic Policy* and the *Journal of Common Market Studies*). With some important exceptions, there are relatively few publications in top general journals.

The distribution of publications across the three divisions within DG Research is presented in Table 2. The number of publications per research staff member (both in absolute and quality-adjusted terms) is higher in the Senior Management Group and Monetary Policy Division than in the Econometric Modelling Division and the Financial Research Division. In part, the lower output of the Financial Research division may relate to a younger age profile and/or a shorter period in DG Research. Also, in assessing the volume of journal publications, it is important to take due account of the operational responsibilities of the Econometric Modelling Division in relation to forecasting.

[6] There were also 6 articles in "papers and proceedings" issues of the *Journal of the European Economic Association*.

Table 2. Publications per research staff in the three divisions of DG Research over 2004-2009

Division	Average Staff Level	Publications per capita	Points per capita
Econometric Modelling	16	3.0	10.3
Financial Research	11	3.5	12.2
Monetary Policy	13.5	4.4	18.1
Senior Management	2.5	6.9	29.8
Total	43	3.8	14.4

Note: The table shows the sum of journal publications across DG Research staff members during 2004-2009 divided by total research staff in each division. Divisional allocation based on most recent staff positions. The points per capita column shows a quality-adjusted measure, where Group 1 journals receive 8 points, Group 2 journals 5 points, Group 3 journals 3 points and Group 4 journals 1 point.

Across DG Research, those staff members who spent the entire 2004-2009 period in research have a higher average output than those who spent periods of time in other divisions or who were recent recruits to the ECB. It is also worth noting that those with management responsibilities have a higher average productivity. However, it is also true that there are examples of long-duration appointments in DG Research with very low publication output and of management appointments with low publication output.

In relation to bibliometric evidence, we consider citation data from two sources: Thomson ISI and Google Scholar. The former database measures citations in journal publications and is the basis for the influential ISI's Journal of Citation Reports. The latter database is broader since it includes citations in unpublished papers and other publication formats. To minimize double-counting and other errors, the Google Scholar data are filtered through the "Publish or Perish" software program.

As of mid-2010, 124 articles published by DG Research staff during 2004-2009 have received 807 citations in the set of journals tracked by Thomson ISI, which gives an average 6.5 citations per

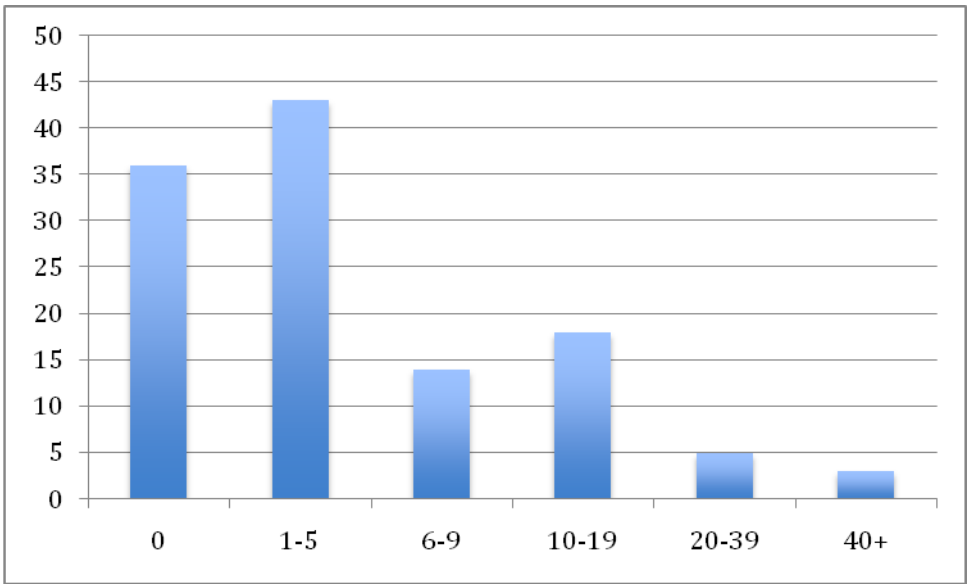
article.[7] According to ISI's Essential Science Indicators (ESI), this average citation rate is just outside the top 20 percent of all papers published in Economics and Business journals during 2004-2009. A rough comparison with the citation data published by ESI for selected top economics institutions suggests that the ECB citation rate is reasonably similar to the IMF, top regional Federal Reserve Banks and major European university departments, even if it is substantially behind that for the leading US research universities.[8]

Figure 1 shows the distribution of citations in the ISI Thomson database to articles published by DG Research staff over 2004 to 2009. As one would expect, the distribution of citations is quite skewed. One influential 2007 paper has attracted 87 citations, a level which is only achieved by one paper in a thousand in Economics and Business, according to ESI data. Two more papers have been cited in the 40-69 range, with five papers in the 20-39 interval. There are 18 papers with 10-19 citations, 14 with 6-9 citations and 43 with 1-5 citations. A further 36 papers have not received any citations (but this includes 19 papers published in 2009). Accordingly, the Thomson ISI database indicates that economists in DG Research have produced 26 papers with 10 citations or more, which is in the top 10 percent of all papers published in Economics and Business during 2004-2009, according to ESI data. This is a threshold which might be construed as indicating a significant degree of impact on the research literature.

[7] Thomson ISI does not include all journals in economics, so that this index undercounts total citations in all journals.

[8] The ESI institutional citation data cover a longer time period and are not reported for all institutions, so more precise comparisons cannot be made.

Figure 1. Distribution of citations in ISI Thomson database to articles published by DG Research staff over 2004-2009



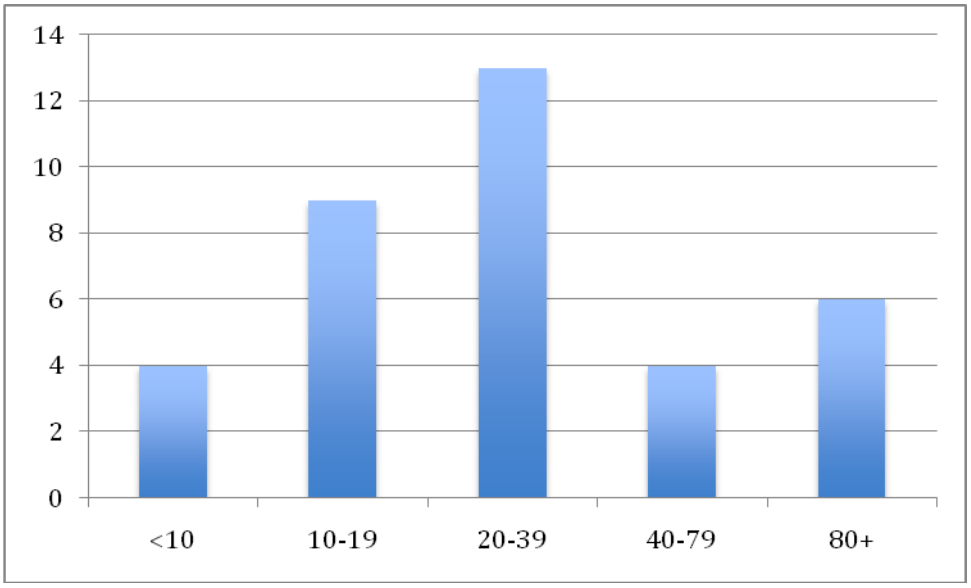
Note: The horizontal axis shows the number of citations in ISI Thomson database to articles published by DG Research staff over 2004-2009, and the vertical axis shows the number of articles in each range.

Turning to the Google Scholar database, we consider two indicators for each staff member: number of citations per year and the *hc* index, which is an index that captures the breadth of publication impact (the value of the standard *h* index is *h* if an author has *h* papers each cited at least *h* times; the *hc* index gives a higher weight to recently published papers). For DG Research staff members, Google Scholar shows that the average number of citations per year is 43.8, while the average *hc* index is 9.6.

Figure 2 shows the distribution of citations per year in Google Scholar across DG Research staff. Again, the distribution is quite skewed. The median number of citations per year is 26.3, while the 90th percentile is 89.1 and the 10th percentile is 9.1. Figure 3 shows the distribution of the *hc* index in Google Scholar across DG Research staff. The median value of the *hc* index is 8.5, the 90th percentile is 14.5 and the 10th percentile is 5.0.[9]

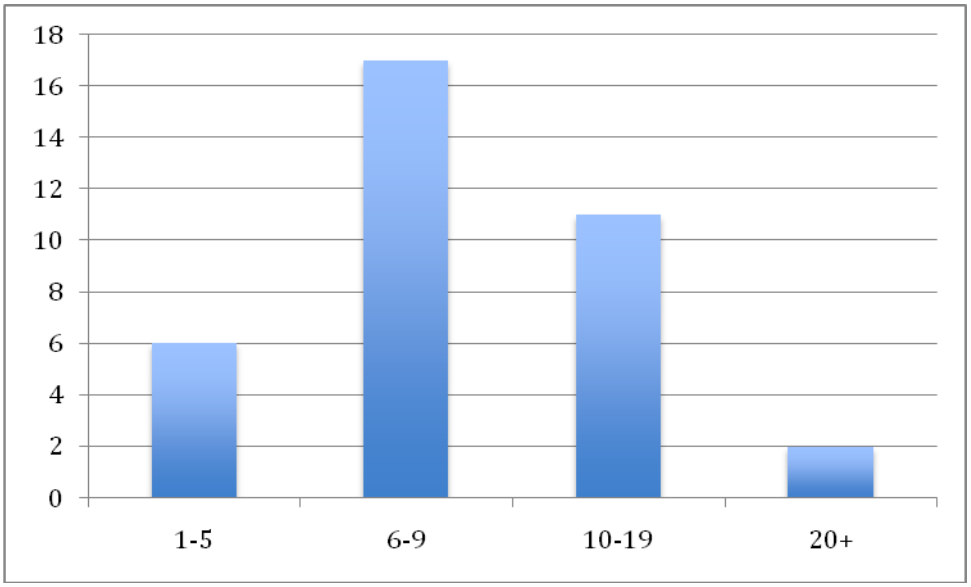
[9] The correlation between citations-per-year and the *hc* index is 0.86.

Figure 2. Distribution of citations per year in Google Scholar across DG Research staff



Note: The horizontal axis shows the number of citations per year, and the vertical axis shows the number of staff members in each category (for the 2009 list of DG Research staff).

Figure 3. Distribution of *hc* index in Google Scholar across DG Research staff



Note: The horizontal axis shows the value of the *hc* index, and the vertical axis shows the number of staff members in each category (for the 2009 list of DG Research staff).

In overall terms, the results from Google Scholar are quite similar to those from the Thomson ISI database. ECB research is well cited, with a small number of researchers responsible for the bulk of the citations, a middle group performing at a good level, and a smaller group that is not very visible in terms of publication frequency or impact. However, within this latter group, there are some early-stage researchers who have papers "in the pipeline" and the publication/impact record for this cohort should improve in the coming years.

As a further step, we also conducted a survey of academic economists who have had exposure to DG Research, either through research visits to the ECB or through membership of the editorial boards of journals with a focus on monetary and central banking issues (the *Journal of Monetary Economics* and the *International Journal of Central Banking*). We obtained 35 responses. In the survey, we asked the respondents to rank DG Research along a four-point scale for two questions, where 1 indicates "poor" performance, 2 "underperforming", 3 "reasonable", and 4 "excellent".

For the question "How do you evaluate DG Research as producer of high-quality academic research?", the modal response was category 3 with a 68.6 percent share, while 17.1 percent selected level 4 (excellent), and 14.3 percent picked levels 1 and 2. Accordingly, the majority of respondents considered DG Research to have achieved a reasonable level of success in producing academic research.

For the question "How do you evaluate DG Research for promoting research in the international academic community (i.e., through its various outreach activities such as visitor programs, conferences, seminars, etc.)?", 40 percent evaluated outreach at excellent level, while 48.6 percent selected level 3 (reasonable). Only 11.4 percent selected level 2 and no one selected level 1 for this question. Overall, the survey indicates a high level of satisfaction with the research outreach efforts of DG Research.

We also asked two open-ended questions: "How does DG Research compare in overall terms to the research functions at the Federal Reserve and other major central banks?"; and "Do you have comments or suggestions that might enable DG Research to improve its research contribution?"

In relation to the first question, the strong message from the survey responses is that DG Research has established a research reputation that is clearly ahead of most other central banks, with the exception of the US Federal Reserve System. In comparison to the Federal Reserve System, the pattern of responses was that DG Research outperforms the research functions of the regional Federal Reserve Banks (with the specified exception of the Federal Reserve Bank of New York), but has not quite reached the aggregate performance level of the Federal Reserve Board. Although the survey respondents considered that some individual staff members are top-ranked internationally, they also viewed the scale of DG Research as too small.

Another message from the survey is the perception in the academic community that there are relatively few mid-career or late-career staff members at DG Research. The high fraction of early-stage researchers means that research output should improve over time, but this would also be enhanced by the addition of more senior researchers that could provide research leadership and mentoring. An additional finding from the survey is that the left tail of under-performing research economists is perceived to be higher at DG Research than at the Federal Reserve System.

In relation to the second question, the survey respondents had a number of suggestions. In terms of ECB staff policies, the enlargement of DG Research was highlighted, as were policies to improve the competitiveness of DG Research as a recruiter relative to the Federal Reserve System and top US universities. As noted, the appointment of senior researchers to provide leadership is viewed as an important step. In complementary fashion, the establishment of an academic advisory panel could prove useful in helping to frame and monitor the research agenda, as is the case with several regional Federal Reserve Banks. In terms of career progression, the survey responses highlight the importance of a research career path that would enable highly productive researchers to remain active in research rather than necessarily follow a management path in order to obtain promotion.

The survey responses supported the view that a separate DG Research was helpful in building a research culture at the ECB. However, there was a mix of views, with some advocating that a small group of top-quality researchers should have minimal policy responsibilities, while others emphasized the importance of exposing DG Research staff to other functions within the ECB.

Similarly, there was a mix of views as to the appropriate balance between theoretical and applied research, with some advocating a greater amount of theoretical research, while others suggesting a shift towards more applied work. A common view was that the range of topics and research methods employed by DG Research staff was too narrow, with greater diversity in research topics and methods having the potential to improve the quality of the research environment.

In summary, the overall level of publication output in DG Research is good. We view DG Research as having made substantial progress since 2004 in meeting its aim of achieving "intellectual leadership within the world-wide central bank-related research community," both directly in terms of its own publication output and indirectly via its support for such research in the academic community. There is a critical mass of productive researchers building significant track records of publications on central banking topics and attracting significant numbers of citations in the wider research literature.

Nonetheless, further improvements are possible. In particular, there are two main concerns: the left tail of researchers with little publication output is too large for a research-focused directorate and the quality of DG Research journal publications could be improved. In relation to researchers with low publication output, this may be explained in some cases by a heavy load of operational duties and in other cases by early-career status. However, as is discussed in more detail later in the report, an important issue is whether staff members with a sustained track record of low publication output should remain in DG Research.

In terms of incentives, one element in improving research quality would be to revise the point system for valuing publications in academic journals. First, the current point system does not sufficiently differentiate across the groups: it allocates 8 points to a Group 1 journal, 5 points to a Group 2 journal, 3 points to a Group 3 journal and 1 point to a Group 4 journal. This does not sufficiently reward publication in the top journals. By way of contrast, the Federal Reserve Bank of New York grading system treats a top-ranked publication as two times more valuable than a publication in the second tier, and sixteen times more valuable than a bottom-ranked publication.

Second, the current system does not sufficiently recognise finance and banking journals. This is a

problem in view of the high importance of these fields for the mission of the ECB and the high degree of external competition for productive researchers in these areas. Third, the current system does not sufficiently differentiate between regular articles and "papers and proceedings" and other non-refereed articles in major journals.

In addition to the design of such incentive systems, improving the quantity and quality of research output could also be supported by greater mentoring of research staff, especially in the earlier stages of their career. This could be facilitated by more senior-level appointments and/or the establishment of an academic advisory panel. While such mentoring is in part provided by long-term academic consultants to DG Research, the scale of this program is in our view insufficient. Finally, as is discussed later in the report, improved research assistance support can also contribute in raising the research output of DG Research.

RECOMMENDATIONS

- *Revise the point system for valuing publications in the following manner: (i) Introduce much greater differentiation in the points given to publications in higher-level and lower-level journals; (ii) Add the Journal of Financial Economics and the Review of Financial Studies to the top group and review the allocation of other finance and banking journals across groups; and (iii) Reduce the points given to articles in "papers and proceedings" issues and other non-refereed articles.*

- *Improve the mentoring of research staff by senior economists in the profession. This could be achieved by senior-level appointments, the establishment of an academic advisory panel and/or the expansion in the number of long-term external consultants.*

5. EFFECTIVENESS OF DG RESEARCH

The second strategic objective of DG Research is to strengthen its role as a valued source of research-based policy advice within the ECB, Eurosystem, and ESCB. In this section we assess and make recommendations on the policy advice and research input provided by DG Research. As opposed to the previous section on research quantity and quality, there are no direct quantitative measures of research effectiveness for (or impact on) the quality of policy advice. Hence we make use of the qualitative information gathered by us on the research-based input provided by DG Research to the Executive Board and Governing Council of the ECB, to other ECB business areas, and to the Eurosystem and the ESCB. We provide recommendations for improvements based on our assessment of current weaknesses and best practice observed in comparable institutions.

5.1. Policy advice to the Executive Board and the Governing Council

DG Research is expected to enhance the policy analysis and decisions of the Executive Board (EB) and the Governing Council (GC) in five ways: (i) conduct of policy-relevant research; (ii) model development and use in forecasts and policy simulations; (iii) preparation of seminars for the EB and the GC; (iv) discussion of policy issues and preparation of briefing material for EB members; and (v) provision of research-based input to EB briefing and other material prepared in other business areas. We focus on each of these ways in the rest of this section.

<u>Overall standing of DG Research and its conduct of policy-relevant research</u>

As documented in the previous section, the average quality of DG Research staff and its aggregate research output is very high in comparison to most other central banks worldwide (including all National Central Banks of the ESCB), with the exception of the Federal Reserve Board and some of the regional Federal Reserve Banks. This is reflected in a high reputation of DG Research both within the ECB, the world's central banking community, and the international academic community. DG Research's reputation is a valuable element in the effectiveness of the ECB.

However there is room for further improvement in average DG Research staff efficiency, raising staff output to its potential. DG Research could raise its publication productivity, described in Section 4, and correct some weaknesses in its policy work, as discussed below.

A view expressed sometimes – both within and outside DG Research – is that DG Research did not exert much influence on thinking during the financial crisis. This assessment is in part contradictory to the facts (significant research on financial markets and financial stability was carried out by DG Research very quickly in response to the crisis) and in part unfair (a quick analytical understanding of what was going on during the crisis escaped everyone). However this test case raises the question whether some changes in the organization of DG Research should be introduced that would allow it to deploy staff resources more quickly or effectively to deal with extraordinary challenges that require the development of well-grounded analytical understanding and rapid policy response. For example, if early response teams had been deployed during the past few years, they might have focused more deeply on understanding of financial-real interactions and macro-prudential policy issues in 2008-2009 and fiscal policy issues in 2010. However, considering the existing expertise on financial markets, financial stability, and economics in other directorates, in many circumstances early response teams should be formed in close coordination with other business areas to include their specialists.

The size and composition of the early response teams would be identified to match crisis issues and staff specialization, as needed to address the corresponding issues on an ad hoc basis. Therefore all staff should be prepared to be deployed in emergencies, if needed, and their actual participation should receive appropriate weight in their annual performance evaluation. To provide flexible managerial resources for such early-response initiatives, two senior advisers – one in monetary and the second in financial economics – should be named immediately for, say, the next 2-3 years. They would work on their longer-term research agenda in normal times.

RECOMMENDATIONS

- *Develop a more flexible organizational structure within DG Research to deal with extraordinary developments that require a fairly quick understanding and policy response. DG Research*

should be able to assemble quickly a core early response team of modellers and policy researchers led by a senior advisor.

- *In many cases, effectiveness of early response teams will be critically enhanced by participation of specialized staff working in other directorates. Therefore we recommend that all directorates and their senior management be mandated with the responsibility to participate in multi-directorate early response teams to emergencies, if needed. We suggest that the DG Research Director take the lead in coordinating the terms of reference and staffing of early response teams in consultation with the Executive Board and the directors of the other business areas.*

Model development and use in forecasts and policy simulations

DG Research plays an important role in model development and subsequent use of models. Models are developed for and/or with other ECB directorates. A stellar example is the new area-wide dynamic stochastic general equilibrium model, used for producing ECB forecasts and policy simulations. The quality and usefulness of analytical tools developed by DG Research is evaluated very positively in most cases. One example of a timely response in modelling to unforeseen developments was the fiscal analysis and simulations conducted in the context of the projections in 2009-2010. One exception has been the difficulty of extending the area-wide model to include richer financial-real links and the role of financial markets, which have been identified as an area of concern. While this is an analytical challenge for macroeconomists and macro modellers at large, this issue justifies devoting more resources to financial issues, as recommended in Section 3.1.

Preparation of seminars for the Executive Board and the Governing Council

Different directorates prepare specialized seminars for the EB, typically on a bi-weekly basis. DG Economics is responsible for a large majority of seminars, conducting them individually or in conjunction with other directorates, often with DG Research. DG Research co-organized with other directorates 11 of the 20 EB seminars held in 2008 and 10 of the 25 seminars held in 2009.

For the GC, DG Research was responsible or co-responsible for all 6 non-conjunctural seminars held in 2008 (more than any other directorate).

Both EB and GC seminars -- largely, but not exclusively, on monetary and financial issues -- are highly valued by participants. They enrich background information and the understanding of key policy issues and therefore also enrich the policy dialogue of the ECB with the National Central Banks of the Eurosystem. The shifting of seminar topics toward immediate policy issues since the beginning of the crisis has tended to reduce DG Research's relative contribution compared to that of other directorates. The absence of direct DG Research participation deprives seminars of valuable analytical input from DG Research staff and precludes exposure of DG Research staff to discussion of issues that could lead to subsequent research.

RECOMMENDATIONS

- *Raise participation by DG Research in the preparation of seminars organized individually by DG Research or jointly with other directorates for the EB. This may be a natural outcome if DG Research expands staff resources in the areas of financial-real linkages, financial stability, global and intra-European imbalances, and fiscal policy issues (as recommended in Section 3.1), and if DG Research widens its joint work with other directorates (as recommended below).*

- *Include formal commentators in seminars organized for the EB and the GC who are drawn from staff in business areas other than those involved in the organization of the corresponding seminars. Adoption of this practice (which is common in several international organizations and central banks) would contribute to the discussion at seminars. It would also raise the awareness of DG Research in relation to pressing policy issues, improving subsequent analytical work conducted by DG Research.*

<u>Discussion of policy issues and preparation of briefing material for Executive Board members</u>

DG Research provides regular input for EB members' policy discussions and public speeches. The number of policy notes prepared by DG Research for the EB (separately or jointly with other

directorates) has grown over time and is valued positively. However, our assessment is that the extent of inputs to informal briefings and inputs to speeches prepared for EB members, as well as their quality, is uneven, leaving significant room for further improvement.

RECOMMENDATION

- *As needed, improve the provision of policy briefings, research distillation, and inputs to speeches by DG Research staff to Executive Board members. In order to ensure useful feedback about the timeliness and quality of such provision, develop performance indicators for such activities.*

<u>Provision of research-based input to briefings and other material prepared in other business areas for the Executive Board</u>

DG Research provides significant research-based input to briefing and other material prepared in other business areas for the EB. The largest single example is the ongoing input provided to the forecast/projections exercises. Sometimes such input is invisible to the policy makers, distorting alignment of incentives with required efforts. It would be helpful to encourage provision of work inputs across different directorates by acknowledging more explicitly the inputs provided by other directorates to any directorate's report or briefing material prepared for the EB.

5.2. DG Research interaction and collaboration with other directorates

On the whole, DG Research is working reasonably well with other directorates. However both the volume of DG Research input and its evaluation by other directorates exhibit a high variance across directorates. On the one hand, DG Research does not contribute as much as it could in providing research-based input to the work of other directorates. On the other hand, when provided, DG Research's analytical contribution to other directorates appears sometimes to be under-valued at the receiving end.

DG Research development and use of the new area-wide model for forecasts and policy simulations, as part of its collaboration with DG Economics, runs smoothly and effectively, as is also the case with joint DG Research-DG Economics collaboration in preparing joint policy notes and seminars. However, there also appears to be considerable scope for greater collaboration between DG Research and DG Economics, in view of the high overlap in interests across the two directorates.

There is also collaboration between DG Research and other directorates, which ranges from moderate (with DG Financial Stability) to low (with DG Payments & Market Infrastructure and DG International & European Relations). Several managers in the latter directorates have expressed an unmet demand for research, policy analysis, and model development services by DG Research.

In addition, we have found that in the case of some other directorates there seems to be a weak connection between the policy questions posed by them to DG Research and the subsequent work conducted by DG Research. Moreover, it is difficult to influence policy understanding and formulation in other directorates if DG Research staff remain at their desks for the most part and do not actively interact with staff in other directorates.

RECOMMENDATION

- *Develop incentives for DG Research staff to respond effectively to demands by other directorates for analytical work. This may also involve spending a fraction of their time working at those directorates.*

The existence of excessive layers of required hierarchical approval is a hindrance to effective collaboration between staff across directorates and, when finalized, their presentation as joint policy notes to the EB.

RECOMMENDATION

- *Support bottom-up research collaboration between staff across different business areas (involving DG Research) and preparation of joint policy notes by providing better staff incentives and removing unnecessary layers of approval at the highest level.*

It is also the case that some DG Research staff want to be involved in other business areas because they value data to conduct research, while the other business areas want them to conduct policy analysis, not publishable research. However, with some flexibility and the right incentives on both sides, there could be much more mutually beneficial collaboration.

RECOMMENDATION

- *At the ECB level, attach a positive weight to joint or collaborative work of staff across directorates. Also, provide appropriate incentives to staff and management in all directorates to expand the organization of joint workshops, seminars, and conferences on topics of mutual interest and policy relevance.*

Regarding staff secondment from other directorates into DG Research and from DG Research into other directorates, there is a requirement of "net 5 staff seconded from other directorates into DG Research". This requirement was suspended de facto during the crisis, as staff in other directorates were retained to conduct policy work of relevance to their business areas. Our view is that the returns of secondments – to both the ECB and seconded staff – are on average higher if DG Research staff is seconded to other directorates than the reverse. This does not mean that staff from other directorates should not be allowed to be seconded into DG Research; we certainly encourage a continuous gross flow of a limited number of seconded staff from other directorates that could contribute to and benefit from close interaction with DG research staff. However, the number of inward gross secondments should be exceeded by a larger number of gross outward secondments.

RECOMMENDATIONS

- *Replace the "net 5 staff seconded from other directorates into DG Research" rule by an opposite rule of "a net number of staff seconded from DG Research into other directorates" (this could be a low single-digit number), encouraging gross flows of secondments in both directions. Secondments could be full-time (for a period extending from one week to one year) or part-time (for example, one day per week). Secondments should be organized very flexibly, driven by other directorates' demands but taking into account DG Research's staff constraints. Partial resource transfers by receiving directorates could be considered in order to provide better incentives, and seconded staff should get appropriate recognition of their joint work with other business areas in their performance evaluation.*

- *Implement a system of early detection of potential demands by other directorates for DG Research services. This could be encouraged by regular contact of DG Research division heads with division heads in other directorates.*

There are over 100 papers released in the ECB Working Paper series each year. These papers are drawn from across the different directorates of the ECB, in addition to a substantial number of external authors (for example, papers written as part of an ESCB research network). Although DG Research staff contributed only 16 percent of the papers in 2009, they were responsible for supervising 53 percent of the papers through the refereeing process. About half of the papers that appear in the ECB Working Paper series are ultimately published in a journal or book volume, with the series probably constituting "final publication" for the other half.

To the extent that a significant proportion of the working papers are not motivated by research questions, it may be better to have two separate series. One series would disseminate research papers that are ultimately targeted at publication in refereed journals. The other series would disseminate policy-focused papers, which might not be intended for subsequent publication in a refereed journal. DG Research could take lead responsibility for managing the research working paper series, while the policy working paper series could be managed by a consortium of the other business areas.

RECOMMENDATION

- *Split the ECB working paper series into a Research Working Paper series and a Policy Working Paper series.*

5.3. Eurosystem and European System of Central Banks

Research and policy thinking has blossomed throughout the ESCB, with a marked improvement in the National Central Banks (NCBs) in recent years, not least because of the influence of the ECB in general and DG Research in particular. DG Research's influence occurs through several channels: the research networks coordinated by DG Research with NCB researchers, other research interaction with NCBs, and demonstration effects of the research and policy analysis carried out by DG Research.

Research networks coordinated by DG Research, with active participation of distinguished academics and researchers from many NCBs, have been very successful in extending the knowledge frontier and developing a policy-relevant agenda for the euro area and its member countries, yielding publishable empirical research of world-wide interest. Our positive evaluation is based on our own assessment of the research networks' output, within-ECB evaluation, and very positive feedback that we have gathered from participating NCBs and outside academics.

In addition, EB and GC seminars based on research network outputs have been given high marks by participants. Moreover, the contribution of research networks to policy discussion is significant. While research-based in nature, they help to develop a Eurosystem / ESCB-wide perspective on important policy issues that serves to facilitate discussions in the decision-making bodies. Hence we encourage DG Research (and the ECB at large) to maintain the good track record of research projects undertaken by research networks.

DG Research contributes significantly to the organization of a number of ECB conference series with other central banks, including the Workshop on Forecasting Techniques (jointly organized

with the Bundesbank and CEPR), the International Research Forum on Monetary Policy (jointly organized with the Federal Reserve Board, Georgetown University, and Goethe University), and the research conference on exchange rates (jointly organized with the Bank of Canada). Such joint conferences are hugely successful in promoting high-quality research and providing synergies and feedback among specialized (but often isolated) central bank researchers. In our view, DG Research should continue, and possibly expand, joint conferences with other central banks.

6. RESEARCH ENVIRONMENT AND STAFF INCENTIVES

Because of the large number of economists hired at the time that the ECB was being established, the normal attrition through retirement of older staff and promotion to managerial ranks of younger staff is very limited. The implication of this "demographic problem" is that other ways must be found to satisfy the aspirations of younger staff, especially the most talented among this group who are the most likely to leave the ECB for higher-level jobs elsewhere. Moreover, these other ways of satisfying aspirations must be consistent with the desire of the organization to be efficient.

There are a number of mechanisms that can play a role in providing satisfying careers for research economists at the ECB and that will also contribute to improved outcomes for the organization. The three that we will discuss in this section are increased mobility (both external and internal, and in the case of the latter both temporary and permanent), the adviser career path, and compensation. We will also discuss elements of hiring policies and some aspects of the research environment.

6.1. External mobility

Allowing ECB staff to take time off at various points during their career to take on a visiting position at a university, international organization (such as the OECD, BIS, or IMF), or another central bank (inside or outside the euro area) can be a satisfying element in an economist's career and provide a partial substitute for the relative paucity of promotion possibilities. While the ECB currently has a well articulated policy on external leave (both fully paid secondment under the External Work Experience Scheme for up to one year and unpaid leave for up to three years), additional flexibility in the program might help to facilitate such mobility without causing excessive difficulties for DG Research (or for the other business areas if that is where the outgoing staff member works). In the case of unpaid leave the staff member on leave may be replaced by a newly recruited staff for the duration of the leave. In the case of fully paid external leave, there is no scope for replacing the seconded staff member.

There are two possible changes that might improve the situation from the point of view of the ECB and thereby induce managers to encourage external mobility. First, requiring budgetary or human resource constraints to be met on average over a period longer than a year would allow for easier reintegration of staff that are away on long-term unpaid external leave since the directorate can go into temporary surplus upon the return of the staff member on leave while awaiting the departure or retirement of other staff members. Second, rather than committing a specific position or even a position in a specific division or directorate to the staff member going on unpaid external leave, it might be the case that only a commitment of a position at the same level in the ECB as a whole would be made.

This would involve some uncertainty with respect to the type of work to which the person going on leave would be returning but the trade-off between increased mobility and increased uncertainty might be acceptable to staff. Such a change would require greater cooperation on personnel matters among the various directorates, and their taking an ECB-wide perspective, to ensure that an appropriate position is found for the returning staff member. If this change were made, the possibility of replacement of staff going on short-term external leave should also be considered. Exceptions to this approach of not committing to a position in DG Research upon a staff member's return from external leave should be made for the very best researchers, who would receive a commitment that they could return to DG Research.

In the case of fully paid leave, managers might be given increased incentive to encourage such movements. In the case of movements to other central banks or international organizations, more effort could be devoted to arranging swaps of comparable staff, thereby providing the sponsoring directorate within the ECB with resources to replace the leaving staff member.

RECOMMENDATION

- *The assessment of managers in the various directorates should include a factor reflecting their encouragement of external mobility. This will provide recognition of the fact that the short-term cost to the department of losing a highly trained staff member is offset by the overall*

benefit to the staff and to the ECB as a whole. To facilitate external leave, budgetary or human resource constraints should be met on average over a period longer than a year (for example, three years).

6.2. Internal mobility

Increased internal mobility in which short-term transfers across directorates are encouraged by managers would be healthy both for staff members and for the organization as a whole. Short-term transfers from DG Research to other business areas can be very helpful to the receiving business area insofar as it gets technical expertise that may not be available to it from its own permanent staff. It also increases the likelihood of joint research between the researcher transferring from DG Research and the permanent staff of the other business area, research that could continue even after the expiry of the short-term transfer. Moreover, such a short-term stay could lead to increased interest in a permanent move by researchers to the other business areas, in an economist or adviser role or possibly in a managerial capacity. With experience in various directorates, staff members become more valuable to the organization and are more likely to receive promotions across directorate lines. (See below for discussion of permanent movements across directorates.)

Short-term transfers from other business areas to DG Research are also valuable, but perhaps to a lesser extent than transfers in the opposite direction. Such transfers to DG Research can lead to an improvement in the technical capability of transferring staff members, and the latter can both engage in useful research during their stay in DG Research and bring back improved technical abilities to their home directorate. It would also bring to DG Research an increased understanding of the challenges facing the other business areas as well as greater understanding of institutional issues that have to be integrated into their research.

RECOMMENDATIONS

- *The assessment of managers in the various directorates should include a factor reflecting their encouragement of internal mobility in both directions. This will provide recognition of the fact*

that the short-term cost to the department of losing a highly trained staff member is offset by the overall benefit to the staff and to the ECB as a whole.

- *There should be regular meetings of the heads of all business areas using research economists, with representation by staff from DG Human Resources, to discuss potential short-term movements across directorates that would be valuable from the point of view of staff development and valuable for the long-term health of the organization.*

A standard career path in most central banks is that many of the PhD economists who enter the bank as a member of the research department (or as a member of the research group within one of the business areas) over time become more involved in current analysis and policy making and move into these areas. This pattern is beneficial for the central bank as a whole.

The promotion of such internal mobility within the ECB would require a change in the culture of the organization. This can be facilitated in a number of ways. First, there has to be recognition that some (but not all) researchers can also be good or even excellent managers.

Second, there may have to be more emphasis on some form of management training that is offered to researchers at a certain stage in their career (perhaps after five years and ten years), as well as the opportunity to manage some staff before being considered for more senior managerial positions. The management of staff could, for example, involve the coordination of a number of researchers in a small research project or the organization of a research network.

Third, researchers may have to be shown that the issues involved in other business areas can be intellectually challenging and exciting. For example, issues related to policy implementation techniques may require knowledge of institutional and market behaviour as well as an understanding of technical aspects of payment systems. Interest in other business areas can be facilitated by the kind of short-term mobility from DG Research discussed earlier in this section.

Fourth, in addition to research economists who produce high-quality publishable research and who become interested in other business areas and decide voluntarily to move to these areas,

there can also be research economists in DG Research who are no longer producing high-quality publishable research but continue to be capable of high-quality policy relevant analysis. They should be strongly encouraged to move into other areas of the ECB, where they can produce such useful work. As in the case of short-term mobility, this could be facilitated by regular meetings of the heads of all business areas using research economists, with participation of staff from DG Human Resources.

Fifth, in cases of research economists in DG Research who are no longer producing high-quality publishable research and who do not appear to be capable of making a useful contribution in other areas of the Bank, ways should be found of terminating their employment with the ECB.

Sixth, there should be increased mobility of managers with the requisite talents across directorates. While managers cannot be expected to achieve the same publication level as full-time research economists, those in DG Research should be able to maintain some level of ongoing research activity.

RECOMMENDATIONS

- *There should be a more pro-active approach by directorate management (at a high level) and across directorates with respect to career path and permanent internal mobility. Increased mobility across directorates of research economists and managers would be beneficial to the ECB as a whole and should be viewed as a positive element of a career in the Bank.*

- *Some form of management training should be offered to researchers at a certain stage in their career (perhaps after five years and ten years), as well as the opportunity to run small groups before being considered for more senior managerial positions.*

- *Research economists in DG Research who are competent but are no longer producing high-quality publishable research should be strongly encouraged to move into other areas of the ECB, where they can produce high-quality analysis that is policy relevant and useful.*

- *In cases where research economists in DG Research are no longer producing high-quality publishable research and do not appear to be capable of making a useful contribution to the work of other business areas, DG Human Resources and DG Research management should find ways of terminating their employment with the ECB.*

6.3. Adviser career path

Many central banks and international organizations such as the IMF or the World Bank use the adviser position as a way of having more experienced staff continue to do longer-term research. They can be especially valuable in working on the high-priority items that are providing challenges to the central bank. In addition, they can assist in writing think pieces for the Executive Board, help with important speeches and lectures for members of the Executive Board, serve as the central organizer of cross-directorate research on areas that need attention or of cross-country central bank research networks, and provide mentoring to younger and less experienced staff.

While the position of advisers should be limited to the best researchers or research managers, and it should never be used as a form of grade creep or level creep, having advisers at the ECB and having a career path for advisers can make an important contribution to the institution. In addition to the benefits described in the previous paragraph, it allows the best researchers to move up in level and compensation within the organization without necessarily becoming managers (a position which may not suitable in some cases, or desirable from the perspective of the staff member in other cases, or both). As such, it allows the ECB to provide a satisfactory and satisfying career for top-notch researchers and therefore helps to keep them productive in the institution.

While the adviser position would be particularly important in DG Research, it should also be available to staff in other business areas, but we reemphasize only to the highest-quality researchers. As priorities and needs of the institution change, there should also be mobility across business areas for advisers. This would allow research "firepower" to be shifted temporarily to areas where there is a particular need at the time.

The current arrangements in which there are specialist advisers and coordinator advisers at the I-band level, senior specialist advisers and senior coordinator advisers at the J-band level, and principal advisers at the K-band level seems appropriate to the needs of the ECB. All vacant adviser positions should continue to be advertised as job vacancies. The current arrangement by which applicants must go through a structured selection process to be chosen and which usually involves an interview and/or presentation and sometimes a written test appears to be appropriate.

While rotation from adviser levels to managerial levels should be a regular occurrence for those advisers who have managerial capacity and interest, rotation from managerial levels to adviser levels is likely to be exceptional because of the difficulty of maintaining a high level of research output on the part of managers.

RECOMMENDATION

- *The ECB should be sensitive to the importance of the adviser level to the organization. It should periodically make an assessment of the number of advisers to ensure that there are enough advisers of very high quality to meet the needs of the organization.*

6.4. Compensation

The overall compensation level of economists at the ECB appears to be competitive in the European market. There are, however, possible additional arrangements that might be useful in the context of the current situation at the ECB.

The lack of promotional opportunities would imply that economists can reach the compensation ceiling of their scale at a relatively young age. Some central banks have a bonus scheme in operation that deals with staff that have reached compensation ceilings in their position and yet ought to be rewarded in some way because they have had an exceptional year. Some form of bonus, which is not built into the base salary level, could be used to reward such outstanding behaviour. One would want to limit the number of such bonuses and their level so as not to make it the focus of excessive attention, but to allow it to act as a reward to those whose financial

compensation would otherwise not recognize a particularly outstanding achievement. This approach is in line with current ECB practice and should be continued. In addition, there could be other forms of appreciation for a significant contribution to research or policy analysis.

6.5. Hiring policies

The central banking world has become increasingly global and competitive, with many central banks hiring economists who are not citizens of their own country. The ECB should also hire citizens of other countries in the same way that central banks of many other countries are prepared to hire EU citizens. Also, DG Research should attempt to attract citizens of EU countries who are now working outside the EU area

DG Research should also consider hiring research economists at more senior levels, if strong candidates with international reputations become available at these levels. This would have the effect both of strengthening the research capability of DG Research and increasing the capacity of DG Research senior research staff to mentor junior research staff.

RECOMMENDATIONS

- *The ECB should lift restrictions on hiring research economists who are citizens of non-EU countries as permanent staff. These would typically be hired through the ASSA "job market" since this is where hiring of the best newly minted PhD research economists typically takes place.*

- *DG Research should hire research economists at more senior levels, if strong candidates with international reputations become available.*

6.6. Research support and visibility

DG Research makes very little use of research assistants. As noted in section 3.1, a significant improvement in research efficiency could be achieved by temporary hires (no more than 2 years),

particularly students who have received an MA or MSc degree and plan to return to university to continue their studies toward a PhD degree. An increase in the amount of assistance available to research economists can contribute to raising the research output of DG Research as well as improving the work environment in the ECB.

It would also be helpful if research economists have homepages that are easily accessible to external users, in order to facilitate information exchanges with their counterparts in the academic community and with research economists in other central banks and international organizations.

RECOMMENDATIONS

- *DG Research should increase the amount of research assistance available to its research economist. Research assistants should ideally be PhD students or MA or MSc graduates from top universities familiar with the latest analytical tools and techniques.*

- *Research economists at the ECB should have an easily-accessible homepage.*

7. OVERALL ASSESSMENT AND MAIN RECOMMENDATIONS

Our overall assessment of DG Research is very positive. On the one hand, DG Research has made substantial progress since 2004 in meeting its aim of achieving "intellectual leadership within the world-wide central bank-related research community," both directly in terms of its own publication output and indirectly via its support for such research in the academic community. There is a critical mass of productive researchers building significant track records of publications on central banking topics and attracting significant numbers of citations in the wider research literature. Moreover, DG Research has contributed significantly as a "valued source of research-based policy advice within the ECB, Eurosystem, and European System of Central Banks (ESCB)," especially in terms of the development of analytical tools for forecasting and policy simulation and the leadership and coordination of monetary and financial research within the Eurosystem and ESCB.

Nonetheless, there is still considerable room for improvement. DG Research needs more resources to deal with the very challenging policy issues that central banks will need to address over the next few years, and also needs to devise ways to use its resources more efficiently, which requires reviewing its organizational structure and research incentives as well as establishing closer cooperation with other ECB business areas. In relation to the latter point, this also requires a shift in ECB-wide managerial practices in order to ensure that DG Research is able to provide more effective support to other business areas.

Here we list our main recommendations under five headings: size of DG Research, research incentives, mentoring of junior staff, cooperation with other business areas, mobility, and hiring policies. Other important suggestions for improving the performance of DG Research are in the main text of the report.

Size of DG Research

- *DG Research will have to expand its research capabilities in the areas of financial-real linkages, financial stability, global and intra-European imbalances, and fiscal policy issues in the European Union. Achieving the increase in research output needed to address these issues will require an increase of the order of 10% to 20% in full-time equivalent (FTE) research input.*

Research incentives

- *Revise the point system for valuing publications by introducing much greater differentiation in the points given to publications in higher-level and lower-level journals and by reviewing the allocation of finance and banking journals across groups.*

Mentoring of junior staff

- *Improve the mentoring of research staff by either senior-level appointments, the establishment of an academic advisory panel and/or the expansion in the number of long-term external consultants.*

Cooperation with other business areas

- *Replace the "net 5 staff seconded from other directorates into DG Research" rule by an opposite rule of "a net number of staff seconded from DG Research into other directorates." Secondments could be full-time (for a period extending from one week to one year) or part-time (for example, one day per week). Secondments should be organized very flexibly, driven by other directorates' demands but taking into account DG Research's staff constraints.*

Mobility

- *Over time, some of the PhD economists hired by DG Research would be expected to become more involved and more interested in current analysis and policy making and would want to*

make a career in other business areas. In this context, there should be a more pro-active approach at promoting internal mobility. Moreover, research economists in DG Research who are no longer producing high-quality publishable research should be strongly encouraged to move into other business areas, where they could produce high-quality analysis that is policy relevant and useful. When this does not appear to be the case, the ECB should find ways of terminating their employment.

Hiring policies

- *The ECB should lift restrictions on hiring research economists who are citizens of non-EU countries as permanent staff.*

Appendix

TERMS OF REFERENCE FOR EXTERNAL EVALUATION OF DG RESEARCH

The Executive Board of the European Central Bank (ECB) has decided to request an independent external evaluation of the activities of its Directorate General Research, focusing on the two main strategic objectives of this business area, *viz.* (i) to establish intellectual leadership within the world-wide central bank-related research community; and (ii) to strengthen its role as a valued source of research-based policy advice within the ECB, Eurosystem and ESCB. The evaluation will be undertaken by four independent external experts.

1. Functions of DG Research at the ECB

DG Research conducts and coordinates economic research on issues relevant to the conduct of monetary policy and other ECB tasks. It provides research results relevant for the formulation of policy advice to the ECB's decision-making bodies. It supports other business areas by providing research and policy advice input. This support includes the design and implementation of analytical tools in order to strengthen the analytical basis for their policy advice. DG Research builds, maintains and uses econometric models for economic forecasts and the comparison of policy alternatives. It interacts with other research centres and with the academic community. It contributes to external communication through such interaction and the publication of research in external refereed journals.

2. Objectives of the evaluation

The evaluators will assess to which extent the activities of DG Research contribute effectively to its functions listed above and to the wider objectives of the ECB. In particular, the evaluators are asked to consider:

a) the focus, effectiveness and organisation of activities conducted by DG Research;

b) the scientific quality and value-added of these activities;

c) the influence of DG Research activities within the academic community and in other policy making institutions;

d) the relevance of DG Research's activities to the tasks and functions of the ECB;

e) the influence of DG Research' activities within the ECB and Eurosystem, both with regard to academically-oriented research and in support of the provision of policy advice; and

f) the focus, effectiveness and organisation of DG Research's input to the policy advice developed in other ECB business areas.

3. Conditions

C. Freedman, P. Lane, R. Repullo and K. Schmidt-Hebbel have agreed to conduct the evaluation and to submit a joint report to the Executive Board of the ECB. In preparing their report, the evaluators will be assisted by DG Research and, as necessary, offered support by DG Human Resources.

The evaluators shall conduct their work freely and objectively and shall render impartial judgement and make recommendations to the best of their professional abilities. The following conditions apply:

a The evaluators will begin work in May 2010; completion of the evaluation report is expected by December. The evaluators will keep the Director General Research informed of the progress of the work.

b The evaluators shall have access to information in possession of the ECB as needed for carrying out the evaluation. The Director General Research shall make all necessary

arrangements to facilitate and assist the procurement by the evaluators of relevant information in possession of the ECB.

c The evaluators may, if they wish so, interview ECB Executive Board members as well as the ECB management and staff. The Director General Research will make arrangements to assist with any logistical or liaison support in this respect. The evaluators are also free to request information from sources outside the ECB as deemed appropriate.

d The evaluators shall maintain secrecy on all matters coming to their knowledge in the course of the exercise and shall not at any time use information or material not available to the general public for the purpose of furthering a private interest or the interest of any other person or entity. They will act with appropriate propriety and discretion and in particular shall refrain from making any public statement concerning their duties without the prior approval of the ECB. They will be bound by these obligations after the end of the evaluation.

e 53The ECB reserves the exclusive right to publish the report. The Director General Research will ensure that all ECB business areas shall have the opportunity to respond to relevant parts of the evaluation report in draft form, as well as in final form. The evaluators are free to take account of, or ignore, any comments on the draft evaluation report. Comments on the final evaluation report shall be considered part of the official record. If the Executive Board decides to make public the final evaluation report, it may also decide to make public the comments thereon, including the conclusions of the Executive Board consideration of the report.