

External Review of the Riksbank Research Division

Conducted by

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1. Executive Summary

The Research Division (RD) of the Riksbank has an established history both within the Bank and externally of informing policymaking based on its grasp of the frontier of knowledge on monetary policy and financial stability. It has done so by creating a research environment that encourages economists to investigate pressing issues related to policymaking at the Riksbank. It has also created a research group which can be tapped for advice on continuing policy issues and on unexpected policy debates that arise in the natural course of central banking. The RD also involves economists directly in the policymaking process with respect to specific policy projects. In doing so, the Riksbank seeks to achieve a research culture that provides a good balance between allowing researchers the ability to pursue undirected research and allowing the Bank to access the RD's knowledge and involving researchers in forging policymaking at the Bank.

In this external review we offer an assessment of the RD's productivity. This begins with an assessment of the quantity and quality of its research which we view as an important measure of its grasp of the research frontier in monetary policy and financial stability. This is followed by an assessment of the RD's policy contributions and an assessment of additional benefits of the RD, including those to other constituencies external to the Riksbank itself.

We follow these assessments with some recommendations which we feel might offer the opportunity to increase the value of the RD to the Riksbank and to better ensure its vital role in informing policymaking into the future. Below is a brief summary of our report including our assessments and recommendations.

A. Productivity Assessment

1) Quantity and Quality of Research

- The primary measure of the quantity and quality of research is a point system that scores journal publications. The RD has set a benchmark for itself of 100 points per person. The RD has been successful in achieving this benchmark since the initiation of the point system in 2012.
- The RD's research productivity compares favorably with respect to other institutions in Sweden. For example, average point score per researcher per year at the RD is about 100 points while the average for the Department of Finance at the Stockholm School of Economics is 87 points.
- In international comparisons the RD also compares favorably. In terms of the REPEC impact score the RD ranks number 88 out of a 3347 other research institutions in Europe – less than larger institutions such as the ECB but more than comparably sized central banks such as the DNB. This is also consistent with a point score benchmarking with the Norges Bank that averages about 42 points.
- The research topics selected by Riksbank staff appear consistent with the institution's policy mandate and particularly the missions of the Monetary Policy and Financial Stability Departments.
- Not all topics of relevance to the Riksbank's policymaking are covered by the RD, but this is to be expected in a small group.

- There is a wide dispersion of output relative to the benchmark - only 4 out of 15 RD economists have averaged 100 points or more since 2008.

2) Policy Contributions

- The RD is targeted to devote 20% of its time to direct policy work with 80% devoted to research. This 80/20 research/policy split is at the high end of the ratios typically found in central banks. This makes the RD, *ceteris paribus*, a very attractive environment for researchers.
- Policy support has broadened from mostly focusing on model development in the monetary policy area to a wider set of policy issues both in the monetary policy and the financial stability areas.
- Most of the policy work involves specific joint policy projects with the Monetary Policy and Financial Stability Departments. Other policy contributions are focused on interaction with counterparts in the policy areas and contributions to policy publications.
- Over time, the policy projects have become more demand driven by the policy side and more formalized in the planning process, i.e., stated objectives, specified research input, specified deliverables and well-defined deadlines. These changes appear to be associated with notable efficiency gains.
- The RD appears to be meeting the 20% target although there is variation across time for individual researchers – not surprising given the lumpiness of projects.
- The contributions by researchers to the joint projects appear to be very much appreciated by the staff and the junior management in the policy divisions.
- The visibility and impact of policy contributions appeared to be less clear at the senior management and Executive Board levels.

3) Other Benefits of the Research Division

- Swedish universities have very few faculty specializing in monetary economics, and the RD is providing an important public service in being a repository of expertise in this area. This includes teaching Ph.D. classes and advising Ph.D. students.
- RD economists are active in the academic community and raise the Riksbank visibility, in part through writing referee reports and presenting at conferences. However, output on these dimensions is not uniform and is skewed toward senior staff.
- The RD organizes conferences and seminars on macroeconomics and finance topics that bring researchers from universities and other central banks to the Riksbank. Topics are well chosen. Visibility is enhanced with weekly seminars and visiting scholars.
- The RD has provided a conduit for moving several economists into the Monetary Policy and Financial Stability Departments.

B. Recommendations

1) Organizational Structure

- The financial stability function of the Riksbank has expanded in size and importance since the financial crisis. This expansion has also been associated with a reorganization of the RD into a now-equal staffing split between economists focused on monetary policy and economists focused on financial stability.
- Despite the equal staffing split between economists focused on these two policy areas, the RD is organizationally located under the Monetary Policy Department (even though half of its work is targeted to the Financial Stability Department). The potential frictions with this structure are currently being managed at a personal level based on long standing relationships among the department heads and the RD itself. We are concerned that the current efficiency of this arrangement might not survive personnel changes and management turnover in the future.
- We considered a number of alternative structures. *Of these we recommend organizing the RD as a division under the General Secretariat. This structure avoids the current organizational frictions, it preserves a lean departmental structure, it affords a more direct link to the Board, it maintains the synergies between the two key areas – macro and financial stability, and it could be melded with the assignment of group liaisons for the monetary policy and financial stability activities.*

2) Integration of Policy and Research

- It is our assessment that the research contributions and findings of RD are not fully visible throughout the institution. Some of this likely stems from the RDs organizational position under the Monetary Policy Department. But, it also stems from a lack of visibility at the upper levels of the Riksbank's hierarchy.
- There is a companion issue that researchers are not as familiar as they should be with the policy issues confronting the Riksbank – and how responsibility for those issues is structured within the Bank.
- Thus, it is our view that the engagement of research in the strategic mission of the rest of the Bank could be improved.
- In this regard we offer seven recommendations:
 1. *We recommend that the Board formally articulates to the RD on a regular periodic basis the topics of most concern to the Board in the coming months.*
 2. *We recommend enhancing the visibility and impact of research within the bank by*
 - *Allowing for more attribution of research contributions*
 - *Creating a venue for research presentations to the Board on topical policy issues*
 - *Increasing researcher contributions to speeches by Governors*
 - *Circulating draft working papers to policy department heads*
 3. *We recommend allowing for the possibility of temporary, flexible and selective secondments to other departments (as part of the 20% policy component).*
 4. *We recommend increasing RD economists' contact with policy activity.*

5. *We recommend the possibility of creating a regular slot for research contributions in the policy process.*
6. *We recommend giving more weight to the formal assessment of policy contributions by researchers (i.e., in formal annual reviews, in setting policy benchmarks, in recognizing contributions in policy projects, memos, and publications, and in recognizing publications in policy-focused journals).*
7. *We recommend structuring a mechanism to ensure the systematic sharing of research activity and findings with other departments (e.g. Monetary Policy and Financial Stability Departments).*
8. *To make room for these increased policy interactions and contributions a slight increase in the share allocated to policy work may be considered.*

3) Strategies for Increasing Research Output

- Our analysis of research productivity based on the point scoring system highlighted a wide dispersion of research output relative to the RD's benchmark.
- Our analysis of the link between compensation and research productivity suggests that the research productivity—compensation link could be strengthened within the RD.
- While our assessment is that research productivity is strong in terms of quality and quantity, there may be room for strategies to improve research output. We offer these three recommendations:
 1. *Institute a formal visiting scholar program.*
 2. *Increase research assistance.*
 3. *Consider modestly raising the research target point score benchmark above the current 100, if the 80/20 research/policy work allocation is maintained.*

4) Managing Turnover

- There are policy topics confronting the Riksbank for which there is no resident expertise within the RD.
- There also has been notable turnover within the staff of the RD since the last external review eight years ago. Turnover is not necessarily a negative sign.
 - Some researchers may not be sufficiently research productive in terms of publications and find themselves better suited to a policy role.
 - It could also be an indication that Riksbank has been a good incubator for young researchers whose research makes them attractive external hires. Furthermore, there has been some reverse mobility with researchers who left the Riksbank returning.
 - Nevertheless, turnover brings with it risk.
- Regarding turnover:
 1. *We recommend more involvement of young researchers with policy activities (e.g. through a new secondment system as recommended above). This will benefit researchers who might ultimately be a better fit for policy work. It will also benefit researchers who stay in research to better align their research with policy issues relevant to the Riksbank.*

2. *We recommend implementing a process that mimics the tenure decision in academia to channel researchers who are ultimately a better fit for policy work.*
3. *Tie the compensation scheme even closer to performance, if possible.*
4. *As a substitute for the loss of senior people, and to deal with the difficulties in forecasting the productivity of newly-minted Ph.Ds., we recommend that the bank hire more at the mid-career level, augmented by offering consultancies to seasoned researchers with interests in policy-relevant areas.*

C. Conclusions

The RD is a small but successful research unit with external visibility. RD staff publish in international academic journals and represent a repository of economics scholarship within Sweden. We find that the current model for structuring the research function has broadly served the Riksbank well.

On the research dimension the RD has been quite productive, compared to its own targets and relative to other Swedish and international institutions. On the policy dimension the RD provides valuable support services to the rest of the Monetary Policy Department and to the Financial Stability Department. It appears to us that these services are now well recognized and appreciated at the staff level, but may remain less visible to the Executive Board.

We have made a number of recommendations for further improving the RD. These include addressing the asymmetry in the organizational structure of the department whereby it is located in the Monetary Policy Department, but equally address monetary policy and financial stability issues. We have also made recommendations for better integrating policy and research, while continuing to allow and encourage researchers to follow their own research agendas, and for providing better incentives at the individual researcher level.

2. Introduction

Economic research plays a vital role in central banks around the world. This has certainly been the case at the Riksbank where there is an established history of the research group significantly informing policymaking particularly with respect to monetary policy. Many of these contributions have been visible not only internally but also externally – a remarkable achievement given the small size of the Riksbank. Sustaining a research group that can offer policymakers advice based on the latest theoretical and empirical research in economics and financial economics is extremely important. In order to attract and retain top scholars who can provide this advice, a central bank needs to create an environment where economists can flourish and conduct independent research on the frontier of knowledge. But, at the same time this research and knowledge is most valuable when it is in areas and topics that are relevant to the policy issues faced by the bank. Moreover, at times it can be enormously valuable to involve research economists directly in the policymaking process. However, if research becomes too “directed” and policy involvement becomes too extensive, top scholars may not find the central bank’s research culture sufficiently attractive. If this happens then the quality of advice offered to policymakers may suffer because the quality of the researchers declines. Finding this “sweet

spot” that balances research and policy is a significant management challenge for Central Banks in organizing and managing their research groups.

Eight years have passed since the last external review of the Riksbank. That review noted the “the Research Division had acquired a strong external reputation for high quality and central-banking-relevant research” and that the Research Division provided “creative input to pressing policy problems”. Our review will, of course, provide an updated assessment of the Research Division on these, and other, dimensions. Before turning to a more complete description of the scope of our assessment, it is important to mention that the world has changed quite a bit over these past eight years.

The last assessment occurred during a particularly critical juncture in the financial crisis. In fact, that examination team’s visit to the Riksbank happened during the week of the contentious vote in the U.S. Congress over the economic “bailout” package known as the Troubled Asset Relief Program (TARP). This followed shortly after the collapse of Lehman Brothers which many economists peg as the point in time when the crisis spread to Europe. As the New York Times noted (October 3, 2008), the positive vote on TARP that reversed a negative vote at the beginning of the week was a “change in course ... prompted by fears of a global economic meltdown.” As the crisis evolved in the U.S. and in Europe it led to profound changes in how we think about monetary policy and how we think about banking and bank regulation - and how we think about the links between the two particularly as it relates financial stability. Central banks have responded by placing more emphasis on research in these areas and implementing organizational changes that improve policymaking related in these areas. The Riksbank is no exception. On the organizational side the Riksbank, Financial Stability department has grown in size and importance since becoming a separate department. On the research side the Research Division has several more economists than in 2008 and now reflects a 50:50 split between research economists focused on monetary policy and economists focused on issues related to financial stability (i.e., markets and institutions).

We have been asked by the Riksbank to “evaluate the effectiveness of the Riksbank research division relative to its mission and goals, i.e., examine the value-added created by the research division in its professional interactions with research in the central bank and academic communities, as well as with policy formation at the Riksbank.” This charge includes opining on the effectiveness of the research division in producing impactful academic publications, providing the monetary and financial stability departments with informed support, organizing conferences and workshops that inform both policymakers and policy analysts as well as academic researchers, providing high quality articles and input for Riksbank publications, and interacting with local institutions. In addition, we were asked to opine on research staff issues and on the adequacy of staff resources. We were encouraged to view our charge broadly and to consider any other issues that might reflect on the value of the Research Division to the Riksbank.

We have endeavored to respond to this request by addressing the issues to the best of our abilities. We begin in Section 3 below with a comprehensive assessment of the Research Division’s productivity. This includes assessments of the quantity and quality of the RD’s research output, the RD’s policy contributions, and the RD’s other contributions to the academic

and national communities. In Section 4 we provide our recommendations on a variety of dimensions: the RD's organizational structure, the integration of policy and research, strategies for increasing research output, and recommendations related to managing RD turnover. Section 5 concludes.

3. Productivity Assessment

A. Introduction

In this section we assess the productivity of the Riksbank's Research Department (RD). Our assessment has three parts: i) an assessment of the quantity and quality of the division's research activity; ii) an assessment of the division's policy contributions; and, iii) an assessment of the other benefits of the RD.

B. Quantity and Quality of Research

In this subsection, we assess the quantity and quality of the publications by economists in the Riksbank's RD. Since 2012, the RD has used a points system to score journal publications. This system is the average of the points system used at the Division of International Finance of the Board of Governors of the Federal Reserve System, the New York Federal Reserve Bank, the European Central Bank and the Tilburg rankings. The RD has set a benchmark for itself of 100 points per person. To put this benchmark in context, the *Journal of Banking and Finance*, a second tier journal in most academic and policy research departments is around 100 points. Using data provided by the Riksbank, since 2008 the division has averaged about 101 points per employee. And thus, when averaged over the period 2008-2015, the Riksbank has met its benchmark. At an annual level, the RD has met its benchmark in four out of the last seven years (2009-2015).

Nevertheless, to understand how the RD at the Riksbank might compare to local peer institutions, we use the Riksbank's scoring system to examine the research productivity of researchers in the Finance and Economics Departments at the Stockholm School of Economics—a local prominent research university. We focus primarily on Assistant and Associate Professors. Full professors are often recruited from abroad and paid differently relative to more junior central bank researchers, and they are unlikely to make an apt comparison. Table 1 lists the year of PhD and the average points since graduation for the relevant faculty. In the Department of Finance, where there are 10 faculty at the appropriate comparator rank, only four faculty averaged more than one hundred points a year since 2008 (Table 1). Also, the average score per researcher at the Riksbank, about 100 points, is higher than in the Department of Finance, which is around 87 points.

However, once we control for the log number years since a researcher earned her PhD, there is no statistical difference in research productivity—the log of the average points per year—between Riksbank and Department of Finance economists. Productivity at the Department of Economics also appear in line with the RD and the finance department. All else equal, the data suggest that the average quality of research output at the Riksbank is likely to be broadly similar

to local research institutions at the rank of associate professor and below. We should also add that the Riksbank has been especially successful in placing articles that use unique Swedish microdata in the very top scientific journals.¹

Another pair of benchmarks are provided in Table 2 where we offer a comparison with two relatively small research groups from central banks that reflect a population base roughly comparable to Sweden's: the Norges Bank and the Federal Reserve Bank of Minneapolis.² The average score per researcher at the Riksbank of about 100 compares with an average score at the Norges Bank and the Minneapolis Fed of 42 and 170 respectively. These two research departments are also comparable with respect to the size of the research groups – at least in a broad sense. However, some perspective is in order with respect to the Minneapolis Fed. The Minneapolis Fed can best be regarded as the “ivory tower” of the Fed system. In some sense it could be regarded as the upper bound to which a research group can aspire. It is also worth noting that Minneapolis Fed never hires on the rookie market and instead hires seasoned researchers who are very much known quantities. In light of this, it is our view that, overall, the Riksbank's RD compares well on an international basis as it does on a domestic (i.e., local) basis in terms of the RD's point system benchmark.

There is, however, wide dispersion of output relative to the benchmark among the staff, as only 4 out of 15 RD economists have averaged 100 points or more since 2008. This could reflect the fact that the current research staff at the Riksbank is still relatively young, especially in the area of finance, and the more junior research staff might take some time to develop publishable ideas after graduate school. Also, the research and publications process is itself lumpy, and there are long lags from the conception of a publishable idea to acceptance and final publication. Another factor that could be at work is that researchers at the Riksbank often specialize in topics and datasets relevant to the Swedish economy. In some, but by no means all fields, this can make it more difficult to publish in international scientific journals, which tend to emphasize research that can be more easily generalized to other contexts; Swedish academic researchers are however likely to be less constrained in their choice of research topics.

The RD's 100 point benchmark is set at the division and not the individual level, but it would still be useful to monitor the variance of productivity across individuals within the division. Given the tenure standards at SSE, it is important to keep in mind that tenure at either the SSE's Department of Economics or Finance might require an average level of productivity in excess of the Riksbank's current benchmark. Also, while academic peer pressure and other factors might also keep tenured researchers productive, there is some evidence in the Riksbank data (Table 1) that research productivity tends to decline somewhat after a number of years in the division, *among those who choose to remain in the division*. Specifically, three out of the four researchers that meet or exceed the collective 100 point benchmark earned their PhD within the last five years; yet they account for only 33 percent of the research staff. Some of this might reflect the effects of mobility, as more successful researchers move into other areas within the Riksbank or

¹ Cerqueiro, Ongena and Roszbach (2016), Jacobsson and von Schedvin (2015).

² Norway's population is about 5 million and the Federal Reserve Bank of Minneapolis' district has about 9 million people. This compares with a Swedish population of about 10 million.

pursue outside options. But such an apparent decline in productivity with time among those that remain in the RD only seems warranted if it reflects an increased policy load.

The research topics selected by Riksbank staff appear consistent with the institution's policy mandate. A simple word cloud (Figure 1), based on the titles of working papers published in 2015 point to a research agenda squarely focused on macroeconomics and finance, with these studies being primarily empirical or data driven in nature. The titles of these papers are in Table 3. A more careful reading of the working papers reveals studies that predict bond risk premia using macroeconomic data; models of contagion and bank runs; models of economic growth and fossil fuels; and advanced statistical models of default risk for financial sector firms. A similar pattern is evident in 2014 as well. There are papers for example focused on exchange rate volatility; forward guidance and long term rates; and a couple of papers on household finance and the mortgage market in Sweden. All of these topics are relevant to a central bank and are particularly relevant to the two departments that the RD most directly services – the Monetary Policy and the Financial Stability Departments.

At the same time, with only 15 or so full time researchers, the Riksbank's RD cannot cover all topics. Developing expertise in an area is costly and time intensive, and the incentives in scholarly research are to build up human capital to study particular topics in depth, rather than to spread oneself too thinly. Some research areas, such as the effectiveness and impact of various macroprudential tools; quantitative easing; negative interest rates, and other applied research on transmission channels; as well as the building of financial frictions into DSGE models have become extremely policy relevant. Thus, while the research output is broadly aligned with the policy focus of the Riksbank, most of the staff in the finance section of the group are very young, and it will take some time for the RD as a whole to meet more of the demand for research in these newer areas, like macro-finance and payments.

By way of context, other central banks such as the Board of Governors have filled the growing demand in these new areas by greatly expanding the number of economists in these key areas. But the increase in demand for macro-finance skills at central banks, business schools and industry have also pushed up salaries in these areas.³ This wage pressure in macro-finance and other relevant areas can in turn make it more difficult for some smaller central banks, like the Riksbank, to attract PhD recruits in these high-need areas, slowing the pace at which the RD might be able to recruit full time researchers in order to meet the demand for research on some of these more policy relevant topics.

³ The payscales at the Board of Governors can be found at: <https://www.federalreserve.gov/careers/salary.htm>. These payscales are generally somewhat less in nominal terms than at the reserve banks in the Federal Reserve System. Business school salaries in the areas of finance are generally available on the internet for public universities in the United States.

Table 1: Riksbank Research and Stockholm School of Economics

Stockholm School of Economics				Riksbank	
Department of Finance		Department of Economics		RD	
PhD year	Average points	PhD year	Average points	PhD year	Average points
2007	108	1998	72	1992	89
2007	172	2006	70	1999	208
2009	17	2010	169	2001	88
2009	38	2010	240	1999	62
2010	64			2004	81
2010	64			2005	92
2011	175			2005	71
2011	164			2006	62
2013	64			2007	80
2015	0			2009	84
				2012	78
				2012	238
				2012	126
				2012	18
				2013	121

Table 2: Norges Bank and the Federal Reserve Bank of Minneapolis

Norges Bank		Federal Reserve Bank of Minneapolis	
PhD year	Average Points	PhD year	Average Points
2001	47.11	1967	308.03
2006	69.55	1986	125.12
2010	90.00	1991	149.87
2010	13.57	1998	172.50
2012	54.75	1999	246.67
2014	58.13	2000	67.94
2014	0.00	2003	241.07
2014	47.19	2003	86.79
2015	0.00	2004	139.90
		2007	95.63
		2010	290.00
		2011	128.25

Figure 1: Research Topics Cloud



Table 3: Working Papers Published in 2015

21/12/2015	Debt, equity and the equity price puzzle
10/12/15	“Since you’re so rich, you must be really smart”: Talent and the Finance Wage Premium
1/10/15	Fire Sale Bank Recapitalizations
18/09/2015	Optimal Inflation with Corporate Taxation and Financial Constraints
18/09/2015	On the Theoretical Efficacy of Quantitative Easing at the Zero Lower Bound
10/9/15	Modeling financial sector joint tail risk in the euro area
10/9/15	Score Driven Exponentially Weighted Moving Averages and Value-at-Risk Forecasting
11/8/15	Speeding Up MCMC By Delayed Acceptance and Data Subsampling
29/07/2015	Scalable MCMC For Large Data Problems Using Data Subsampling and the Difference Estimator
14/07/2015	Bringing Financial Stability into Monetary Policy
14/07/2015	Jump-Starting the Euro Area Recovery: Would a Rise in Core Fiscal Spending Help the Periphery?
1/7/15	Central bank policy paths and market forward rates: A simple model
1/7/15	Price Level Targeting and Risk Management
1/7/15	What Broke First? Characterizing Sources of Structural Change Prior to the Great Recession
2/6/15	Searching for Information
2/6/15	Fuel for Economic Growth?
30/04/2015	Amortization Requirements and Household Indebtedness: An Application to Swedish- Style Mortgage
30/03/2015	Speeding up MCMC by efficient data subsampling
26/02/2015	The Importance of Reallocation for Productivity Growth: Evidence from European and US Bank
11/2/15	Risks in macroeconomic fundamentals and excess bond returns predictability
28/01/2015	A wake-up call theory of contagion

Regarding the metric used by the Riksbank to set its benchmark for productivity, the points system is a way of measuring research output that is completely transparent and predictable (conditional on journals’ editorial decisions). But it is not the only possible measure of research productivity. Google citation counts are another alternative that receive some attention in academic hiring and promotion decisions. We examined the Google citation counts of papers by Riksbank staff accepted for publication in 2013, 2014 and 2015. One paper received 49 citation counts in total, and a further 6 received more than 20 citations. These are reasonable (though not very high) citation counts indicating that several papers have had good scholarly impact. Of course, these papers have all been published quite recently, and they will continue to accumulate more citations in the future.

Another source to evaluate the impact of the RD of the Riksbank is the REPEC database. Table 4 compare the overall impact with other research institutions and, in particular central banks in Europe at the beginning of September (see <https://ideas.repec.org/top/top.europe.html>). The Riksbank ranks 88th amongst 3347 research institutions in Europe. Its impact score is less than the larger central banks in Europe such as the ECB, Banca d’Italia, Banque de France, Bank of England, Banco de Espana and the Bundesbank, which all (with the exception of the Banco de Espana) have a substantially larger number of authors in the REPEC database. But it scores

better than comparably sized central banks such as the DNB, Banco de Portugal, Swiss National Bank, Suomen Pankki and others.

Table 4: Ranking of central banks among research institutions in Europe based on the REPEC impact score (see <https://ideas.repec.org/top/top.europe.html>)

Ranking	Institution	Overall REPEC Score	Number of Authors
1	London School of Economics	1	289
5	European Central Bank	6	176
19	Bank for International Settlements	21	63
20	Banca d'Italia	21	179
39	Banque de France	49	133
41	Bank of England	51	153
64	Banco de Espana	78	52
85	Bundesbank	97	94
88	Riksbank	100	40
90	De Nederlandsche Bank	103	82
122	Banco de Portugal	151	48
126	Swiss National Bank	155	69
157	Suomen Pankki	200	30
160	Czech National Bank	205	85
164	National Bank of Belgium	211	29
194	Bank of Greece	244	38
195	OeNB	245	32
204	Central Bank of Ireland	268	27

C. Policy Contributions

In addition to producing state-of-the-art research on central banking issues, the RD provides research-based support to the internal policy analysis at the Riksbank. Involving researchers in policy work and thereby enhancing the interaction between research and policy has a double advantage. First, it increases the analytical and empirical content of the policy preparation process (e.g. through the development of targeted theoretical analysis of specific policy issues or the development of econometric tools) thereby strengthening the foundations for solid policy advice. Second, it enriches the researchers' knowledge of the relevant policy questions, which will tend to enhance the quality and relevance of their research.

In order to promote these mutual benefits, the RD is targeted to devote 20% of its time to direct policy work (with the other 80% being devoted to unrestricted research and research-related activities, e.g., coordinating conferences and seminars, recruiting, journal referee reports etc). Most of this work appears to take the form of specific joint policy projects with the more analytical divisions of the Monetary Policy and Financial Stability departments. In addition, researchers reported to have regular contacts and discussions on both research and policy questions with their counterparts in the policy areas.

The RD also contributes to policy publications, mostly the Riksbank’s Economic Review and Economic Commentaries, as shown in Table 5. There appears to be little identifiable contributions to other publications like the Financial Stability Review. The RD contributions to policy publications are of high quality, topical, and of broad scope. They cover traditional macroeconomic topics, such as the natural interest rate, but also the analysis of unconventional monetary policy, the implications of society moving away from cash, real estate finance, and financial stability. They are written in a style that conveys research on important questions to a broad audience. Many members of the RD have contributed to these policy publications.

Table 5: RD contributions to policy publications: 2009-2016

Sveriges Riksbank Economic Review
The transmission mechanism and the financial crisis
The monetary transmission mechanism
Monetary policy when the interest rate is zero
The Riksbank’s communication of macroeconomic uncertainty
Household indebtedness, house prices and the macroeconomy: a review of the literature
What is the natural interest rate?
Monetary policy and unemployment: A conceptual review
Cards or cash. How should we pay?
Monetary policy and financial stability—a simple story
The bail-in tool from a Swedish perspective
Effects of unconventional monetary policy: Theory and evidence
Thinking about the future of money and potential implications for Central Banks
Sveriges Riksbank Economic Commentaries
Understanding productivity growth
Numeracy, financial literacy and household finance
Lower neutral interest rates in Sweden
The Riksbank’s future information supply in light of big data
An analysis of the fixation period for Swedish mortgages
How can government bond purchases make monetary policy more expansive?
Other*
Was monetary policy optimal during past deflation scares?
Output gaps and monetary policy at low interest rates
Mortgage prepayment decisions of households
RAMSES II-Model Description

*Kansas City Fed Economic Review, Sveriges Riksbank Occasional Paper Series and Council for Cooperation on Macroprudential Policy.

Over time, the policy projects have become more demand driven, i.e. driven by the policy side. There is a formalized planning process in which the objectives, the research input, the deliverables and the deadlines are well defined. Such a process is important to align expectations on both the research and the policy side. In the past, researchers complained that the demand was not always very well specified, leading to frustration on both sides as the products that the

researchers delivered were not always well-attuned to policy interests. Our impression is that this process has improved quite a bit leading to efficiency gains in the production of policy input. Good planning also minimizes disturbances to the RD economist's research projects. Involvement of economists from the policy departments in the joint projects also promotes synergies between research and policy.

The RD appears to be meeting the target of devoting 20% of time to policy work. However, the distribution of policy work among the researchers in a given year is not uniform. In a given year, some researchers spend much more than 20% of their time on policy work, whereas others spend less. As projects are lumpy, that is natural, but it is important for management to ensure that over time, this more or less averages out for each researcher. In contrast to the research output for which an overall target for the RD exists, there are no formal targets for the RD's policy output.

Three times a year the two policy departments score the overall contributions of the RD to the policy work using a traffic light system: Green – OK; Yellow – Warning; Red – Not OK. Over the past three years both wings of the RD have received a green light (see Table 6). This constitutes a considerable improvement for the financial stability wing which before 2014 got yellow and earlier even red lights. This improvement in the quality and quantity of policy contributions in the financial stability area reflects both the increase in the size of the financial stability group in the RD and the greater analytical content of the policy work in the financial stability department (with the transfer of some key researchers to the financial stability department and the setting up of a modeling group).

Table 6: Policy support indicator

	2013	2014	2015
Monetary policy	Green	Green	Green
Financial stability	Green	Green	Green

From our interviews, it was clear that the contributions by researchers to the joint projects are very much appreciated by the staff and the management in the policy divisions that are directly involved in these projects and who work and collaborate on these projects with the researchers. However, the visibility and impact of those contributions appeared to be less clear at the senior management and Executive Board level. This suggests that some efforts should be made to increase the visibility and communication of the policy contributions from the RD towards the Executive Board and senior management.

Another factor that may explain the limited visibility of policy work by the RD at the Executive Board level is that the RD is not very involved in the regular policy process. Although researchers are invited to various policy meetings, there are no dedicated spots in the policy preparation process where the RD can present its own contributions. Several managers and EB members saw scope for such an enhanced contribution of researchers to the regular policy debate. Of course, significantly more involvement in the regular policy process may not be feasible given the 20% allocation towards policy work.

Policy support has broadened from mostly focusing on model development in the monetary policy area (see Ramses – BVARs) to a wider set of policy issues both in the monetary policy and the financial stability areas. This includes projects on liquidity provision, housing markets and macroprudential policy. Nevertheless, senior management in the policy departments and various Executive Board members saw scope for more cooperation on a number of topical policy issues that are now under-researched, including monetary policy transmission and risk-taking channels of non-conventional measures, the development of early warning indicators in financial stability analysis, recent developments in payments systems and the theory of money.

D. Other Benefits of the Research Division

The value of the RD goes beyond the direct benefit of the publications that it produces and the policy contributions that it makes. Swedish universities have very few faculty specializing in monetary economics, and the RD is providing an important public service in being a repository of expertise in this area. RD staff teach Ph.D. level classes at local universities and advise Ph.D. students at the research stage. This makes it much easier for graduate students in Sweden to work on monetary economics and finance topics.

RD staff have been active in doing referee reports and in presenting at conferences, services that are both important to the academic and central banking communities, and important in raising the visibility of the Riksbank. But RD staff output on these fronts have been quite skewed. Two senior staff have done more referee reports in the last three years than all of the other staff combined. Some of the staff have presented little at conferences. Also, presentations have not been uniformly targeted at the highest quality and most visible conferences.

The RD organizes conferences and seminars on macroeconomics and finance topics that bring researchers from universities and other central banks to the Riksbank. In recent years, there have been one to two conferences per year, which seems like the right amount for a small research group. The topics are clearly well chosen. There are weekly research seminars, mostly from overseas visitors. There is an active visiting scholars program. All of this helps to support the work of the Riksbank, keep the Riksbank staff at the cutting edge of research, to increase the external visibility of the Riksbank.

In addition, several economists in the Monetary Policy Department and Financial Stability Department have been recruited from the RD. These are well-trained Ph.D. economists who find that they would prefer to choose a more policy-oriented career path. This pipeline is another important service that the RD provides to the Riksbank.

4. Recommendations

A. Introduction

In this section we offer recommendations on four topics: i) recommendations related to organizational structure; ii) recommendations related to the integration of policy and research;

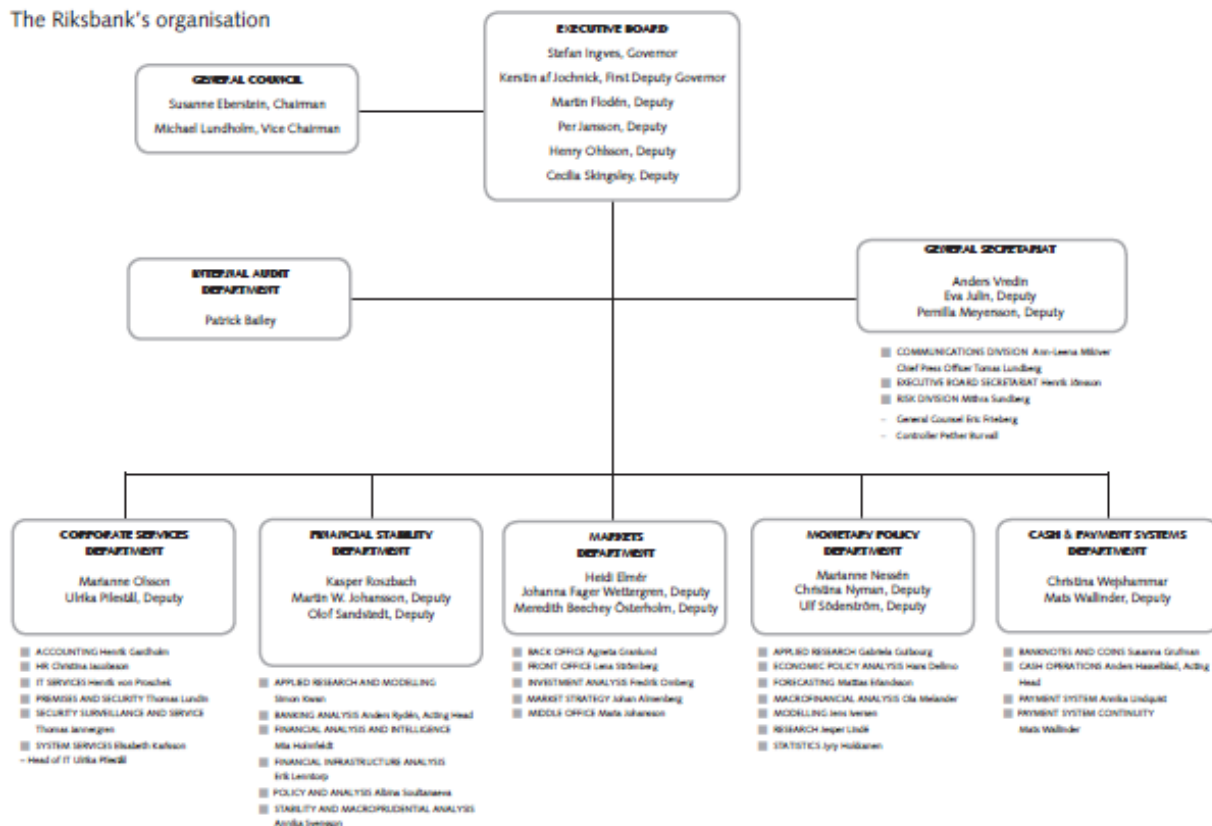
iii) recommendations related to strategies for increasing research output; and, iv) recommendations related to managing RD turnover.

B. Organizational Structure

B.1. Issues Associated with Organization Structure

Since the last evaluation, the importance of the financial stability function and the capacity of the Riksbank's financial stability activity have substantially increased. This elevation of the financial stability function is certainly in line with what many other central banks have done in response to the financial crisis. Importantly, at the Riksbank financial stability has now been placed on an equal footing organizationally with traditional macro/money activity. More specifically the financial stability activity is now housed in a separate department like monetary policy with an equal organizational status and with both departments reporting to the Executive Board (see Figure 2).

Figure 2: The Riksbank Organizational Structure



The RD is structured to provide input and contributions to the policy activities of the Riksbank's departments. The two principal departments to which the RD contributes are the Monetary Policy Department and the (new) Financial Stability Department. The staffing of research economists in the RD (in terms of research interest and skillsets) is equally split between these two activities. And, as we noted in our assessments of the quantity and quality of research by the RD (subsection 3.B) and in our assessment of the RD's policy contributions (subsection 3.C), the RD is contributing substantially to these two departments.

However, there is some tension between the organizational location of the RD and the split nature of the division's primary obligations. Specifically, the research function is organized as a division under the Monetary Policy Department even though roughly half of its work is targeted to the Financial Stability Department. By its nature this organizational structure introduces frictions that present a management challenge. These potential frictions are currently being managed at a personal level based on long standing relationships among the heads of the Monetary Policy Department, the Financial Stability Department, and the RD itself. While this arrangement appears to be working relatively well, it seems quite dependent on the strength of these long-standing personal relationships. Without these relationships, these organizational frictions could be quite costly to the Bank. The efficiency with which this arrangement appears to operate today might not survive personnel changes and management turnover in the future.

B.2. Our Recommendations

In our view there are a number of options that are available to address this asymmetry between the obligations of the RD and the organizational structure in which it is nested. Below is a list of the four options that we identified.

1. The research function could be organized as a new department with co-equal organizational status with the Monetary Policy and Financial Stability Departments.
2. The research function could be organized under the General Secretariat.
3. The RD could be split into two components with one component under the Monetary Policy Department and one under the Financial Stability Department
4. Keep the current organizational structure but assign an economist from each function (i.e., monetary policy and financial stability) as a liaison to the Monetary Policy and Financial Stability Departments. Each of these two liaisons would attend program direction and policy meetings in their area's department and brief their group within the RD. These liaisons could also be assigned under either option 1 or 2, so as to maintain a flow of information with both Monetary Policy and Financial Stability Departments.

To one degree or another all four of these options address the conflict between the RD's equal obligations to the Monetary Policy and Financial Stability Departments and the fact that it formally reports to (i.e., it is structured under) only one of these departments. However, in our view #2 may be the best alternative. Option #1 also has much to commend it and would be our second choice. A number of factors drive our recommendation of option #2. First, like options #1 and #3, the structure under option #2 completely avoids the organizational frictions associated with not aligning the symmetric policy responsibilities of RD to the Monetary Policy and Financial Stability Departments with an asymmetric organizational structure (reporting under

just one of these departments). Option #2 also has the virtue of preserving a lean departmental structure. That is, it avoids the necessity of having another department head that would be required under option #1.

Another virtue of option #2 is that it affords a more direct link to the Board. As we noted in subsection 3.C research contributions and their impact on policy of the RD were not as visible to senior management and the Executive Board as they might and should be. The organizational structure under option #2 likely lends itself best to an organizational framework that enhances the visibility of research.

In addition, option #2 maintains the synergies between the two branches of research - macro and financial stability. As we noted earlier in our report, these synergies may ultimately prove to be very important as researchers attempt to integrate macro and financial models to better understand economic activity through the business cycle and during crisis periods. This would be lost under option #3. Also lost under option #3 would be the scale economies associated with the current structure. Put differently, option #2 avoids lowering the critical mass that could occur by splitting up the RD. This also includes avoiding the potential risk of absorption of the research activity into policy activity that might be – or even likely would be - associated with a research group that is too small.

Finally, we also note that the option #2's structure under the General Secretariat could also be melded with the assignment of group liaisons for the monetary policy and financial stability activities. That is, option #2 could be combined with this aspect of option #4.

C. Integration of Policy and Research

C.1. Issues Associated with the Integration of Policy and Research

It is our assessment that the research contributions and findings are not fully visible throughout the institution. A recent example illustrates this problem. Swedish economists and policymakers had been concerned about rising real estate prices and rising personal debt and the potential for a related bursting real estate bubble. In 2014 the Swedish Financial Supervisory Authority (FI) had proposed regulation on mortgage amortization as a macro-prudential policy response to this problem. The FI had withdrawn its proposal after the courts ruled against it on legal grounds. Nevertheless, the regulation on mortgage amortization remained alive as a policy option in 2015. The RD agreed to conduct a research project to analyze the impact of the proposed regulatory constraints on mortgage amortization. While macro-prudential policy falls squarely in the portfolio of the Financial Stability Department, the Financial Stability Department was not fully aware that the RD was conducting this analysis. In addition, the preliminary and final findings of the research project were not conveyed in real time to Financial Stability Department. In our view, this lack of communication between the RD and the Financial Stability Department likely partially stems from the problematic organizational structure itself – the fact that the RD is organizationally structured under the Monetary Policy Department. This creates a hierarchical distance that is costly to bridge. It also likely stems from the fact that researchers are not as familiar as they should be with the policy issues confronting the Riksbank – and how

responsibility for those issues is structured within the Bank. As a consequence, it is our view that the engagement of research in the strategic mission with rest of the Bank could be improved.

But, we also note that improving the engagement of the RD and its internal visibility in the Bank should be done in ways that exploit the natural synergies between research and being in a central bank. Again, we emphasize that this engagement should be a two-way street - more engagement by the senior management and governors with RD researchers; and, more contact by researchers with the strategic mission of the Bank.

C.2. Our Recommendations

To address the problem of integrating policy and research we make seven recommendations.

1. We recommend that the Board formally articulates to the RD *on a regular periodic basis* the topics of most concern to the Board in the coming months. This could involve policy assignments, or simply making the RD staff aware of pressing issues. This could, for example, take the form of semi-annual or annual presentations by Board members and/or senior management to researchers. These presentations could be structured as a one hour session where the Board (and/or senior management) outline policy issues that they will likely confront. It could be simply part of an annual planning meeting.
2. We recommend that the visibility of research contributions be enhanced within the Bank.
 - a. The Bank should allow for more attribution of research contributions on projects and activities such as presentations (including presentations at the Board level). Put differently, the Bank should encourage a process where written attribution to economists' contributions to projects are routinely and prominently noted in the front pages of the project. Likewise, economist contributions to presentations should be routinely acknowledge (e.g., on the introductory slide in PowerPoint presentation.)
 - b. A venue should be created where researchers make presentations to the Board summarizing the state of research on topical policy issues (e.g., the presentation of a *Commentary* on quantitative easing.) To enhance the effectiveness of these presentations, mentoring and training for new economists on communication and presentation skills should be provided. This should be done with an eye toward translating and interpreting research for a policy audience.
 - c. Researcher contributions to speeches by the Governors should be increased.
 - d. Draft working papers should be circulated to the heads of policy departments to make them aware of current research output from the RD.
3. The possibility of temporary, flexible and selective secondments to other departments (as part of the 20% policy component) should be considered.
4. We recommend an increase of RD economists' contact with policy activity. This could include, for example, regular attendance at policy meetings of the applied modeling and applied research groups in the Monetary Policy and Financial Stability Departments by a research economist. Economist participation could be structured on a rotating basis.
5. The possibility of creating a regular slot for research contributions in the policy process should be considered.

6. We recommend giving more weight to the formal assessment of policy contributions by researchers. This would not include any parallel points system, but rather would entail:
 - a. Recognition of policy contributions by researchers in annual reviews and promotions, possibly through bonuses and pay raises.
 - b. Setting benchmarks for policy contributions and presentations. In this regard, there may be some scope for the Board to be more strategically involved with the RD in shaping its research agenda (and indirectly these benchmarks).
 - c. Recognition of contributions to policy projects and memos.
 - d. Recognition of contributions to Riksbank publications (e.g., *Commentaries*, boxes)
 - e. Increased recognition of publications in policy-focused journals (e.g., *IJCB*, *Economic Policy*, *AEJ Policy*) over and above the fact that these journals are already given extra weight in the points process. One could also consider dropping the Tilburg ranking which gives little weight to policy journals from the point scoring list.

In new hires, be mindful of the policy issues and topics of most interest to the Bank.

However, it is important to remember there are limitations on how many policy topics a small research group can work on in depth.

7. Structure a mechanism to ensure the systematic sharing of research activity and findings with other departments (e.g. Monetary Policy and Financial Stability Departments).

D. Strategies for Increasing Research Output

D.1. Issues Associated with Increasing Research Output

As we discussed in Section 3.B, our assessment of the RD's overall research output is quite positive. The RD division has met its aggregate publication benchmark in four of the last seven years. In addition, it compares favorably with the Finance and Department of the Stockholm School of Economics (at the assistant and associate levels) which offers a good academic comparison. The use of points to rank or evaluate the department is not unusual, as other central banks and academic departments also use similar rankings. However, mechanically using points can be problematic, as the influence of some papers and ideas can substantially exceed that of other papers published in the same tier journals. Most academic departments make these adjustments using citation counts, and outside evaluation letters from experts. Hence, while the points system provides an important benchmark, the RD should monitor its implementation to ensure that it does not become mechanical. For example, additional credit should be given for papers that become heavily cited in an area. The RD's points system should also allow for more nuance than in academic departments: policy relevant ideas and papers published in policy journals might be given more weight in a ranking relevant for a policy institution relative to their value in an academic department.

The use of the point scoring system, while applicable at the RD as a whole, has highlighted a wide dispersion of research output relative to Division's own benchmark. Specifically, only 4 out of 15 RD economists have averaged 100 points or more since 2008. And among the research areas covered, the increased demand for research in the macro-finance area was not fully met. This dispersion in output and unmet demand in some key areas could reflect the lumpiness of the

publication environment and the specialized topics pursued by some of the researchers. However, the issue of the link between pay and performance could also be relevant here. In particular, while smaller central banks might find it difficult to compete in high demand areas, it remains uncertain whether the Riksbank's compensation scheme is incentive-compatible with research productivity. That is, within the available budget window, tying compensation more closely to research productivity could maximize research output even further, and possibly induce researchers to meet more quickly the unmet demand in some key areas.

To understand better the link between compensation and research productivity, we examined the correlation between the log number of points and the log salary of researchers in the RD. These data are available for only 15 people in the RD, but the regression coefficient is nevertheless statistically significant and suggests that a 10 percent increase in research productivity—measured by the number of points—is associated with a 2 percent increase in annual salary. However, this association vanishes both economically and statistically when seniority---the log number of years---is included in the regression. This suggests that among the researchers that remain in the RD, salary might be more tightly linked to seniority than to productivity. The decision to remain in the RD is not random, and given that our sample is limited to RD economists, this non-random movement of economists makes it difficult to infer the general relationship between research productivity and compensation within the Riksbank. But the simple correlations do suggest that the research productivity—compensation link could be augmented within the RD.

So, in short, our assessment is that research productivity is strong in terms of quality and quantity. However, there may be room for strategies that could improve research output. We offer our thoughts on these below.

D.2. Our Recommendations

1. Institute a formal visiting scholar program, in addition to the existing local scientific advisors. At the Board of Governors, visiting scholars come for a few days or a week, give a seminar, and meet with economists. It generally works well, provided that the scholars are carefully chosen.
2. Increase research assistance. The RA/research ratio is quite low compared to other central banks. This imposes a significant cost particularly with respect to empirical work and especially empirical work involving large and complicated data sets. Ideally, we recommend directly adding more RAs. If headcount constraints make this impossible (short of shrinking the number of economists), we recommend providing a budget that could be used to hire research assistance from outside the Bank (especially local doctoral students).
3. Conditional on enhancing the research environment as above, the Bank could consider raising the department research target modestly above 100 per year per person. We make this recommendation in light of the fact that in recent years the RD has exceeded the 100 points per year per researcher target. While we don't view the Minneapolis Fed's research output as attainable (as measured by the RD's journal point system), it does offer an aspirational perspective. That is it suggests room for productivity growth and a higher target would provide impetus for this. This recommendation should also be viewed in light of the

Riksbank's 80/20 research/policy allocation. This is certainly one of the highest ratios among central banks. We note that the last external review in 2008 addressed the issue of the 80% research time allocation by suggesting that "for those researchers who show an inclination towards policy work, it would be logical to allow for a gradual increase in policy work. ... [This could ultimately lead to an] "overall allocation of the RD ... to something like 60-40." In our view setting a higher benchmark modestly above 100 per year per person would be consistent with sustaining (and justifying) a steady-state 80% allocation. In other words, if the Riksbank would regularly achieve a modestly higher benchmark, the 80/20 research/policy allocation would be justified and potentially optimal. Alternatively, an improved research environment as described above could allow the 100-point benchmark to be maintained with a slight decrease in the allocation of economists' time to research from 80% to 70%. This could make room for increased interactions with and contributions to the Executive Board and policy departments.

E. Managing Turnover

E.1. Issues Associated with Managing Turnover

One issue that the Bank may wish to consider is the strategic hiring of researchers who are conducting research on policy issues that are confronting the Bank, and for which there is little expertise among existing researchers. But if so, these types of strategic hires should be used to address very long-term needs of the Bank, not the specific issues that are more important in the policy debate at one point in time. As we have noted elsewhere, more conjunctural issues could be more flexibly addressed by longer-term visiting scholars.

Yet another issue is the notable turnover in the RD staff since the last review. This is not necessarily a bad outcome because turnover has a positive side. It is a sign that research – and researchers - have been successful and priced accordingly in the market. It can be a signal that the research environment at the Riksbank provides a good research culture and that the Riksbank is a good place for newly minted PhDs to launch their research careers. Also, some researchers who have left the Riksbank - and who were highly productive earlier while at the RD – have returned and are now filling important positions. That is, there is evidence of mobility where researchers can come back with experience obtained elsewhere at other central banks or academic institutions.

However, turnover also has its risks. The loss of seasoned people limits the pool of potential researchers. The loss of accumulated research capital on timely policy issues can be quite costly. It is often difficult to replace this type of policy-relevant intellectual capital within a timeframe that is temporally consistent with the policy debate. Historically, replenishment of the RD's staff has emphasized new PhDs whose research agenda, research trajectory and interests are likely not fully formed. So, in the short run, these replacements are not good substitutes for policy-relevant topics where the policy debate is time sensitive. Also, it is harder to assess whether newly minted PhDs will ultimately be a better fit in the RD or in a policy department. Put differently, there is always a risk in hiring newly minted PhDs in terms of whether they will ultimately be productive researchers – even though they might prove quite valuable in policy positions. This is the same risk that academic departments face when hiring newly-minted PhDs when trying to

predict whether their research productivity will likely lead to tenure (i.e., likely lead to a publication record over the next five years consistent with a tenure hurdle). However, the tenure process provides a very straightforward way of resolving cases in which recruits turn out not to be research active, which does not exist as such in the RD. The research departments of many regional Federal Reserve banks choose to hire mainly or exclusively on the seasoned market for this very reason.

E.2. *Our Recommendations*

1. In order to maximize the value of junior researchers and to manage the risk that they may not be sufficiently research productive in terms of publications, we recommend more involvement of young researchers with policy activities (e.g. through a new secondment system as recommended in C.2.3 above). As we noted above, this will benefit all researchers (including those who ultimately become research-productive) in terms of their exposure to the policy priorities of the Bank and potentially introduce them to policy-relevant research topics. But, in addition, it will give researchers who might not ultimately find success on the publication dimension an early exposure to an alternative career path within the Bank. A by-product of this exposure to policy activity is the enhancement of the mobility of researchers moving to other departments.
2. Regarding the management of researchers whose publication performance in their first three to five years falls short of the publication points benchmark (when applied at the individual level), we recommend implementing a process that mimics the tenure decision in academia. Many universities, for instance, begin informal pre-tenure reviews (some even formal reviews) at the third year mark. If, for example, a researcher at the end of three years has not yet hit the benchmark (currently 100 points in a year), and the researcher's pipeline predicts an ongoing shortfall in publication output, then the researcher can be encouraged to consider a policy track in one of the policy departments.
3. If there is room in the compensation scheme to tie compensation even closer to performance, then this should be considered. We note that this recommendation also may help in aligning incentives appropriately. That is, this recommendation is also related to "strategies for increasing research output" discussed above in Section 4.D.
4. As a substitute for the loss of senior people, and to deal with the difficulties in forecasting the productivity of newly-minted Ph.Ds., we recommend that the bank hire more at the mid-career level. In addition, the Bank should consider hiring visiting researchers for a period of six months to a year. Also, offering consultancy to seasoned researchers that will visit for a certain number of days per year can be a viable alternative. An attractive feature of this recommendation is that it can be used to target researchers with a revealed preference for topics that are policy-relevant and time sensitive to the Bank's agenda.

5. Conclusions

The RD is a small but successful research unit with external visibility. RD staff publish in international academic journals and represent a repository of economics scholarship within Sweden.

The RD has adopted an approach of giving researchers great autonomy on what they want to work on. The vast majority of RD staff time is devoted to unrestricted research activities. We find that this model has broadly served the Riksbank well. Despite the flexibility that the staff are given, virtually all of the work that they do is of relevance to the mission of the central bank. Given its small size, the RD collectively covers about as wide a range of topics as can realistically be addressed without sacrificing depth and quality. While the RD remains a technological leader on open economy DSGE model issues, it has substantially broadened the scope of its research activities.

The RD has on average met its research output target of 100 points per researcher per year at the department level. The target is intended for the departmental level, not the individual level. Still, we do note that research output is rather concentrated among a small number of researchers.

The RD provides valuable support services to the rest of the Monetary Policy Department and to the Financial Stability Department, and has improved markedly on this front in recent years. It appears to us that these services are now well recognized and appreciated at the staff level, but are less apparent and have less of an impact at the Executive Board level.

We have made a number of recommendations for further improving the RD. These include addressing the asymmetry in the organizational structure of the department whereby it is located in the Monetary Policy Department, but equally address monetary policy and financial stability issues. We have also made recommendations for better integrating policy and research, while continuing to allow and encourage researchers to follow their own research agendas, and for providing better incentives at the individual researcher level.