Transparency in theory and practice

The case of Norges Bank and the Riksbank

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Preface

Denne oppgaven markerer slutten på en toårig mastergrad i samfunnsøkonomi ved Universitetet i Oslo. Takk til alle mine medstudenter som har gjort årene på skolebenken til en fest.

Jeg vil rette en stor takk til min veileder Øistein Røisland i Norges Bank. Han har bidratt med mange gode og nyttige ideer, litteraturtips og innspill underveis i prosessen. Oppgaven er skrevet i forbindelse med mitt studentengasjement i Norges Bank, og jeg vil takke for finansiell støtte og for en lærerik tid på en spennende arbeidsplass. For øvrig er synspunktene og konklusjonene i denne oppgaven mine egne, de kan ikke nødvendigvis tillegges Norges Bank.

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Eventuelle feil og mangler i oppgaven er helt og holdent mitt ansvar.
Januar 2010,
Marie Norum Lerbak
Summary

In this thesis, I look at transparency in theory and practice in Norges Bank and the Riksbank, and compare the two banks’ transparency policy, with a particular focus at transparency regarding the monetary policy meeting and future policy inclination.

When it comes to communicating future policy intentions, the two central banks are amongst the most transparent in the world, as they publish forecasts of their own behavior. Some observers view this practice of publishing endogenous forecasts for the policy rates as the last frontier of transparency (Blinder et al, 2008). Hence, in this area, they both represent the extreme point on the transparency scale. In this thesis, I take closer look at the reasoning behind publishing endogenous policy rate paths, and review some empirical evidence on how this stabilizes inflation expectations and make central banks more credible and predictable.

As regards transparency about the monetary policy meeting, however, Norges Bank and the Riksbank represent the lower and upper range of the scale, respectively. While the Riksbank publishes both attributed minutes and attributed voting records from the monetary policy meetings, Norges Bank publishes neither. I explain how this difference in practice is influenced by the different institutional arrangements in the two banks. The choice of communication policy also stems from different views on what provides the best monetary policy decisions. Since the Riksbank is one of few central banks to attribute the minutes of the monetary policy meeting, I focus on this feature if the transparency policy, and hence the effects of the said attribution.

I ask what explains the differences between their transparency policies, and evaluate how the policies affect the efficiency of the central banks’ internal decision making process and external communication. In addition, I explain why several authors claim that there is an optimal, intermediate degree of central bank transparency.

Doing this implies evaluating both positive and normative arguments, as done in other reviews and discussions of transparency (Cuikerman, 2009). I use relevant theoretical- and descriptive literature, applying amongst other things a model of decision making where the agents have career concerns. This indicates that a combination of policy makers with career concerns and extensive transparency can have adverse effects on the decision making process. I also use some available empirical investigations and surveys to see if the theoretical
propositions can be traced in the practice of a transparent monetary policy (of the Riksbank and the American Federal Reserve, in particular).

I find that, as in most reviews of central bank transparency, neither the theories nor the practices of central bank transparency so far have rendered a clear conclusion as to the optimal design of transparency policy. What is regarded as optimal openness and communication is influenced by institutional arrangements, the general monetary policy framework and policy goals. Finally, the debate on optimal transparency is, to a large degree, influenced by the beliefs on the gains and costs of transparency.
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1 Introduction

Researchers have shown that the predictability of interest rate decisions has improved remarkably over the last years; the financial market’s expectations are generally well aligned with the actual decisions (Blinder et al., 2008). In the central bank transparency literature, this finding is usually attributed to the significant increase in openness and communication from central banks over the same years (see for example Dincer and Eichengreen, 2009, and Geraats, 2009). As more and more countries delegate the conduct of monetary policy to independent central banks, there are democratic arguments for increasing central bank transparency. However, accountability has not been the only motivation for the increase in transparency; the need to ensure that the central bank has credibility in the markets has also been an important factor (Minegishi and Cournede, 2009). Hence, the increase in central bank transparency can also be explained and justified by economic theory.

As of yet, researchers have failed to reach clear conclusions regarding the optimal level of transparency. There is divergence with respect to the desirability of transparency in especially two areas: the monetary policy meeting and the communication of future policy inclination. The appropriate degree of transparency in these areas is an unsettled issue, and differences across central banks remain substantial (Minegishi and Cournede, 2009, Blinder et al., 2008). The transparency policies of the Riksbank and Norges Bank serve as good examples to illustrate this divergence in practices, and are what I will use as point of departure through large parts of this thesis.

When it comes to communicating future policy intentions, the two central banks are amongst the most transparent in the world, as they publish forecasts of their own behavior. Some observers view this practice of publishing endogenous forecasts for the policy rates as the last frontier of transparency (Blinder et al, 2008). Hence, in this area, they both represent the extreme point on the transparency scale. I will take a closer look at the reasoning behind publishing endogenous policy rate paths, and review some empirical evidence on how this stabilizes inflation expectations and make central banks more credible and predictable.

As regards transparency about the monetary policy meeting, however, Norges Bank and the Riksbank represent the lower and upper range of the scale, respectively. While the Riksbank publishes both attributed minutes and attributed voting records from the monetary policy
meetings, Norges Bank publishes neither. I will explain how this difference in practice is influenced by the different institutional arrangements in the two banks. The choice of communication policy also stems from different views on what provides the best monetary policy decision making process. I will take a closer look at some of the theories that explain this. Since the Riksbank is one of few central banks to attribute the minutes of the monetary policy meeting, I will focus on this feature if the transparency policy, and hence the effects of the said attribution.

To summarize; in this thesis I will look at transparency in theory and practice in Norges Bank and the Riksbank, and compare the two banks’ transparency policy, with a particular focus at transparency regarding the monetary policy meeting and future policy inclination. I will ask what explains the differences between them, and evaluate how the transparency policies affect the efficiency of the central banks’ internal decision making process and external communication. In addition, I will explain why several authors claim that there is an optimal, intermediate degree of central bank transparency. Doing this implies evaluating both positive and normative arguments, as done in other reviews and discussions of transparency (Cuikerman, 2009).

Examination of central bank transparency is tightly connected to examining the effects of inflation targeting, since the debate largely takes this framework as given, and this is where most of the empirical work has been done (Posen, 2003). However, the models used as point of departure for the debate differ with respect to which aspects of transparency they consider, what they assume about the institutional framework and how they model the effect of communication on the monetary transmission mechanism. They also differ in what they consider as gains and costs of transparency. What seems clear, however, is that a key empirical question is whether communication contributes to the effectiveness of monetary policy by creating genuine news (moving market interest rates in the desired way) or by reducing noise (lowering market uncertainty) (Blinder et al., 2008).

Another key issue is whether a high degree of transparency will provide better monetary policy decisions. To review this, I will use relevant theoretical- and descriptive literature, applying amongst other things a model of decision making where the agents have career concerns. Finally, I will use some available empirical investigations and surveys to see if the theoretical propositions can be traced in the practice of a transparent monetary policy (of the Riksbank and the American Federal Reserve, in particular).
2 Definitions and overview

2.1 Definitions

*Central bank communication* is provision of information by the central bank to the public. The information can be about the objectives of monetary policy, the monetary policy strategy, the decision process, the economic outlook and the outlook for future policy decisions (Blinder et al, 2008). Full *central bank transparency* could be defined as a state in which the central bank fully and immediately transmits and communicates all of its private information about the economy to the public. This includes the bank’s objectives and the internal procedures that underlie the bank’s policy decisions (Cukierman, 2009). Is immediate transmission of information enough to ensure real transparency? Petra Geraats (2002) focuses on the information that agents can use, not on the act of disclosing information, when she defines central bank transparency:

> “Central bank transparency could be defined as the absence of asymmetric information between monetary policy makers and other economic agents” (Geraats, 2002)

Using this definition, availability of data need not suffice to achieve transparency. If the public is constrained by limited resources or the information from the central bank is noisy, inconsistent or of bad quality, then there could still be asymmetric information in the relationship between the central bank and the public.

*Accountability* has become increasingly important as more and more countries delegate the conduct of monetary policy to independent central banks. If the public has information on what the decisions were based on, what was the intention with the policy and who meant what, they can evaluate the central bank’s achievement. Hence, transparency is a necessary, but not sufficient, condition for accountability. Accountability should also involve assuming responsibility for monetary policy choices and actions (Geraats, 2002, see also Posen, 2003).

In the following, I will use the terms *monetary policy committee* and/or *committee* when referring in general to the decision making bodies of central banks. However, the committees and boards in some central banks carry broader responsibilities. For example, the Executive Board in Norges Bank also is responsible for financial stability and asset management (www.norges-bank.no). The Executive Board in the Riksbank is also responsible for the
bank’s entire operations (www.riksbank.com). Nevertheless, as the focus in this thesis is on monetary policy issues and decisions on the interest rate, I will use the term monetary policy committee as a general name for the decision maker in charge of monetary policy.

2.2 A typology of transparency

A central bank can be transparent with regard to different aspects of the decision making process. The figure below illustrates the relationship between the decision making process in the central bank and the different types of transparency.¹

Figure 1 A typology of transparency

(Geraats, 2002)

Political transparency refers to openness about policy objectives and institutional arrangements. This could include explicit inflation targets, central bank independence and contracts. If there is economic transparency, the public has access to the economic information upon which the monetary policy is based on, including economic data, policy models and central bank forecasts. Procedural transparency is openness about how the monetary policy committee reaches its decisions. This includes letting the public in on the monetary policy strategy and the policy deliberations, typically through minutes and voting records. Policy transparency implies announcements and explanations of the policy decisions. It also involves giving an indication of likely future policy actions. Operational transparency concerns the implementation of monetary policy actions (Geraats, 2002). In the following, I will elaborate on the aspects of transparency that are the focus of this thesis, because of the

¹ This is only one of many ways to describe the different aspects of transparency. See Walsh, 2001 and Minegishi and Cournède, 2009 for other examples.
attention paid to endogenous interest rate paths and the releasing of minutes and voting records.

As I see it, releasing endogenous interest rate paths helps increasing both economic - and policy transparency, as the former implies releasing the economic information that is used for monetary policy, including economic data, policy models and central bank forecasts. As mentioned, the latter implies, amongst other things, that the central bank indicates the likely future policy actions.

*Economic transparency* is considered important because the public do not have the same resources as the central bank has to evaluate and gather information. If the central bank releases data and analysis, this will help reduce information asymmetries, both in the relationship between the central bank and the public, and between different actors analyzing monetary policy. In addition, if inflation rises above the target, it is important that the public knows whether this was due to factors the central bank could not have foreseen, or whether the central bank should have been able to predict it. If the public knows what the central bank knows, then it can assess whether the central bank made the right policy choices (Walsh, 2001). This illustrates the close relationship between transparency and accountability.

Usually, at least some of the information needed to ensure economic transparency is presented in monetary policy reports. Norges Bank publishes a monetary policy report three times a year, in connection with monetary policy meetings. It contains a description of important economic indicators and developments, and forecasts of important macroeconomic variables, including a forecast of the policy rate. In addition, a monetary policy statement from the Executive Board is published after each policy meeting. There is also a press conference the same day as the meetings, in which the Governor or the Deputy Governor explains the board’s decision in more detail (www.norges-bank.no). The Riksbank also publishes a Monetary Policy Report after three of the six yearly monetary policy meetings. After the remaining meetings, a Monetary Policy Update is published. Both the report and the update contain forecasts for the repo rate (Sveriges Riksbank, 2008a). As in Norway, there is a press conference after each monetary policy meeting.

The instruments that serve to ensure economic transparency also help maintaining a high degree of *policy transparency*. Both Norges Bank and the Riksbank announce the interest rate decision on the day of the monetary policy meeting, and both hold press conferences the same
day. They also explain the background to the decision in press releases, monetary policy reports and monetary policy statements. Furthermore, both the Riksbank and Norges Bank publish endogenous interest rate forecasts for two to three years ahead. Only a few other central banks do this, and hence the two banks are amongst the world’s most transparent central banks in this respect.²

Another source of information asymmetry is that monetary policy may change, for example because new monetary policy committee members have been appointed or because of learning and policy improvements (Svensson 2009a). The public can get more information on this through *procedural transparency*. This is typically done through minutes and voting records. Minutes from the monetary policy meeting also provides information on the arguments raised in the meetings and the strategic considerations of the policy makers (Geraats, 2002). Minutes can be verbatim or non-verbatim, attributed or non-attributed. Voting records are attributed in most countries that publish them, but few central banks publish attributed minutes (Minegishi and Cournède, 2009). The practice of procedural transparency is where the Riksbank and Norges Bank differ the most. The Riksbank is one of few (possibly the only) to release both attributed minutes and attributed voting records within a short time after the policy meetings.³ Norges Bank releases neither minutes nor voting records.

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³ For example, attributed transcripts of the deliberations in The Federal Open Market Committee (FOMC) of the Federal Reserve are published, but this is with a five-year lag.
3  Why central bank transparency?

3.1  Inflation targeting

In the context of this thesis, it could be useful to view the relationship between the central bank and the public as an agency relationship, where the public is the principal and the monetary policy maker (the committee as a whole or its members) is the agent.⁴ The public gives the monetary policy maker the objective of policy. In both Sweden and Norway, the relationship between the public and the central bank has changed somewhat over the last decade, as the goal of monetary policy has changed and the central banks have become more independent from the government.

From 1999, a price stability target was included in the Sveriges Riksbank Act⁵, and the central bank was granted its independent status.⁶ At the same time, an Executive Board consisting of six full-time employed members was established. According to the new provisions of 1999, the objective of Swedish monetary policy is to “maintain price stability”. More precisely, the bank’s objective is to keep inflation around 2 per cent per year, as measured by the annual change in the consumer price index (CPI). However, the Riksbank also attaches some weight to stabilizing resource utilization (the output gap). This combination of goals is usually referred to as flexible inflation targeting.⁷ The key interest rate (the repo rate) is the instrument used to reach these goals, and the Executive Board decides when and how to change this interest rate (www.riksbank.se, Sveriges Riksbank, 2008a).

According to the new regulation on monetary policy that was adopted in 2001, Norges Bank shall set the key interest rate to maintain low and stable inflation. In practice, the bank’s goal is to maintain an annual consumer price inflation of approximately 2.5 per cent over time. At the same time, the bank’s policy shall contribute to stable development of output and

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⁴ An agency relationship exits whenever a person (the agent) acts on behalf of another (the principal).
⁵ The inflation target was introduced in January 1993 and applied since 1995. This made Sweden the fourth country to introduce a formal inflation targeting regime. New Zealand was the first country, followed by Canada and the U.K. However, the price stability target was not included in the Sveriges Riksbank Act until 1999.
⁶ The act contained an express ban on the public authorities to try to determine how the Riksbank shall decide on monetary policy issues.
⁷ The important difference between the inflation target and the target of stable recourse utilization, is that the inflation target is subject to choice, while the average level of the output gap is determined by structural factors (Svensson 2009a).
employment. Monetary policy is decided on by the Executive Board, which consists of seven members, appointed by the Government. The Central Bank Governor and Deputy Central Bank Governor serve as chairman and deputy chairman of the board, respectively. The other five members are not employees of Norges Bank (www.norges-bank.no).  

The move towards inflation targeting is an international trend. In 1989, exchange rate pegs accounted for two thirds of monetary policy regimes in industrial countries. However, over the last decades, a growing number of countries started exercising monetary policy in accordance with the principles of (flexible) inflation targeting. This trend draws on insights from theory and practical experience. Central banks cannot pursue multiple goals with only one policy instrument available (the interest rate), and in the long run, monetary policy can only influence nominal variables. Combined with New Keynesian theory claiming that the efficiency of policy depends on the central bank’s ability to influence expectations and maintain the credibility of the policy goals, this pointed towards preferring to give the central bank a clear objective of price stability. In addition, it was recognized that strengthening central bank independence enhances the credibility of the commitment to low inflation. Therefore, inflation-targeting central banks are usually granted independence from the government (Roger, 2009). The independence might not be as formal as the Swedish Riksbank’s status, but most inflation targeters enjoy at least operational independence.

When a fixed exchange rate was the goal of monetary policy, it was easy to judge, based on events in the foreign exchange markets, whether the central bank was true to its mandate (Dincer and Eichengreen, 2007, 2009). With the introduction of inflation targeting, however, the central banks acquired greater discretion over policy. If inflation deviates from the target rate, the monetary policy committee will select the adjustment path toward the target (Issing, 2005). In addition, the effect of the central bank’s actions is no longer immediate; the interest

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8 For more information on the institutional arrangements in Norges Bank, see Norges Bank (2003).
9 This simplified view on the possible effects of monetary policy is debated, as there is also agreement that under some conditions monetary policy can affect the real economy, for a review of the discussion see Dørum, Holden and Isachsen, 2005.
10 See for example Kydland and Prescott (1977)
11 The status of Norges Bank’s formal and informal independence is somewhat debated. For example the Norges bank Watch (NBW) committee in 2007 argued that Norges Bank does not have full operational independence because the Bank must inform the Ministry of Finance before making important decisions (including interest rate decisions), and because the Government has the right to instruct Norges Bank (Goodfriend, Mork and Söderström, 2007). However, in 2005 the NBW committee argued that the procedure of having the Governor submit his suggested interest rate proposal to the Ministry of Finance, does not limit the policy options considered by the Board and that the Government’s right to instruct Norges Bank does not limit the Bank in its execution of monetary policy (Dørum, Holden and Isachsen, 2005). I will not go further into the debate here.
rate affects the inflation and the economy with the proverbial “long and variable lags” (Blinder et al. 2008). In agency relationships, problems emerge if there is asymmetric information between the agent and the principal. This makes it harder for the public to judge whether the central bank’s policy complies with their interests, whether they make good and appropriate decisions and whether the committee members are able and good monetary policy makers.

3.1.1 The need for accountability

The purpose of monitoring is to ensure that the agents do their job properly. It is also important for democratic control, and to ensure that the monetary policy makers are held accountable. In the context of this thesis, central bank transparency, and especially policy-, economic- and procedural transparency, is evaluated as tools the public can use to monitor the decision makers.

Generally, transparency can help the central bank maintain the credibility of the inflation target. If the public knows what the central bank knows, it is also easier for them to judge if the monetary policy maker’s actions are in accordance with the goal, and understand why inflation is not at its target rate (Walsh, 2001). Thus, transparency also maintains the legitimacy and credibility of an independent inflation targeter.

The “Condorcet jury theorem” suggests that a majority of a group is more likely than a single individual is to choose the better of two alternatives, because the group has access to more resources (in the form of information).\textsuperscript{12} This conclusion rests on the assumption that is costless to acquire information. However, in the monetary policy context, it is reasonable to assume that it takes much time, data and knowledge for a committee member to obtain information about the state of the economy. In addition, a monetary policy meeting is a natural setting for sharing this information. Hence, assessments of, and information on, the state of the economy can be considered a public good\textsuperscript{13}. This means that the committee

\textsuperscript{12} Condorcet stated that if a committee makes decisions by majority rule, then the committee is more likely to pick the best option than any of its members acting on his information alone, and as the number of committee members goes to infinity, the probability that the committee selects the best outcome goes to one (Sibert, 2006).

\textsuperscript{13} Public goods are recognized by two characteristics: they are non-excludable and non-rival in consumption. Information on the state of the economy is a public good in the sense that once it is provided, it is hard to prevent the other members from using it, and all members can use the same information once it is provided.
members can have incentives to exert less effort in assessing the economy than they would if they were to decide on an action alone (Sibert, 2006).\textsuperscript{14}

In this context, depending on transparency regime, the public cannot always observe the effort of the committee or its members. When the public cannot distinguish and evaluate an individual’s costly contribution to the group effort, moral hazard can be the result.\textsuperscript{15} As the output of a committee deliberation is the result of the collective effort exerted by the members, this is inefficient (Sibert, 2006). Inefficiencies may also arise if the public are unable to evaluate the results and effort of the committee as a whole. If the public does not have access to the same information as the central bank has, it is difficult for them to evaluate whether the central bank is true to its mandate or make good decisions given the economic circumstances. Hence, accountability will also affect the credibility of monetary policy.

To summarize; the combination of independence and room for judgment implies a need for the public to monitor the monetary policy makers. Central bank transparency helps them do this. And in fact, the increase in central bank independence and the move towards inflation targeting has been accompanied by a trend that central banks now are more transparent (see for example Geraats, 2009, Dincer and Eichengreen, 2007 and 2009, and Blinder et al., 2008).

### 3.1.2 A limit to transparency

Transparency on the different stages of the decision making process provide the public with access to the background to, the implementation of and the possible consequences of the central bank’s policy. It goes without saying that this also increases the democratic accountability of the committee members, and in many cases improves the public’s understanding of the central bank’s behavior. Imposing procedural transparency will make the members more responsible for their contribution to the discussion, and give the public possibilities to evaluate the committee members’ performance\textsuperscript{16} (Sibert, 2006).

\textsuperscript{14} As emphasized by Blinder (2008), when considering this, it is important to keep in mind that serving on a monetary policy committee can be the top of the career for some members, and hence that it is unlikely that they will not do their best. However, this drive to do appear smart and able might have other, adverse effects on the process, as I will describe below.

\textsuperscript{15} To economists, this phenomenon is also known as free riding. Free-riding is use of a good without paying for it, here the payment is the effort put into assessing the economy.

\textsuperscript{16} This is also a reason why giving the committee a clear goal, for example an inflation target, is an advantage. This gives the public a measure to evaluate the committee’s performance by.
However, removing one problem can give rise to another. Another source of inefficiencies is if costless monitoring of the agent is not possible. In this thesis, I will show why some authors apprehends that imposing transparency on the monetary policy decision making process distorts the agents’ incentives. As the public gets insight into the committee members’ contributions to debate and their actions, they can deduce the committee members’ abilities. Committee members that care about their reputation might try to manipulate the public into believing that they are able and smart.\(^{17,18}\)

### 3.2 Managing expectations: the economic benefits of transparency

The increase in transparency is not simply a corollary of greater central bank independence, although the above-mentioned arguments imply that the two trends should come hand in hand. Central banks have also embraced transparency for its benefits with respect to the efficiency of monetary policy (confer the empirical review in Geraats, 2009).

Within the New Keynesian framework, monetary policy affects inflation and output mainly through forward looking expectations. A change in the central bank’s overnight rate affects the economy through the impact it has on other financial market prices.\(^{19}\) Thus, the ability of central banks to influence expenditure and pricing is critically dependent on their ability to influence the market’s expectations of the future path of overnight rates. Monetary policy has popularly been renamed “management of expectations” (Woodford, 2005). Hence, this theory suggests that the more convincingly a central bank explains the reasons for its policy to the public, the more effective the monetary policy can be.

Within this subject, I will take a brief look at how general transparency affects inflation expectations. Then, I will take closer look at how central banks forecast their own behavior. Some observers view this practice of publishing endogenous forecasts for the policy rates as the last frontier of transparency (Blinder et al, 2008). Norges Bank and the Riksbank have

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\(^{17}\) If the public instead only had access to the committee’s decision, but not how they reached it, they have to base their beliefs about the members’ abilities on this final decision, and not on their individual contributions. This can again align the committee member’s interest with the public’s interests. However, now we are back at a situation where the member’s contributions to the debate cannot be identified, and hence a possible moral-hazard problem.

\(^{18}\) This problem is enhanced by the fact the goals of the committee members might differ from those of the public.

\(^{19}\) Such as long-term interest rates, exchange rates and equity prices.
gone further than most other central banks in this respect \( ^{20} \) (see for example Minegishi and Cournède, 2009 and Andersson and Hofmann, 2009). Both central banks publish a conditional, endogenous forecast of the policy rate. This interest rate path feeds into the banks’ forecasts for inflation and the output gap. Norges Bank and the Riksbank both believe that publishing these forecasts will help the public and the financial markets understand how the bank evaluates interest rate developments and how it reasons. The banks expect that this will make monetary policy easier to understand, to predict and to evaluate (see Gjedrem, 2006 and Sveriges Riksbank, 2008a).

The removal of information asymmetries between the public and the central bank will increase the persuasiveness of the central bank. Again, transparency is an effective instrument here; refer Geraats’ (2002) definition of transparency above. However, this does not necessarily imply that maximum transparency is best. If the public is overloaded with useful and useless, noisy and clear information, the asymmetry is not removed, it has just changed shapes. This is why opponents of this practice argue that extensive transparency will give rise to inefficiencies.

### 3.2.1 Effects from transparency in general on inflation and expectations

Because this thesis focus mainly on two of the aspects of transparency, a short introduction to the literature that considers the overall degree of transparency is appropriate. Here, I will review two papers that investigate the effects of general transparency, not the specific aspects.

Using data on transparency and inflation from 100 central banks, Dincer and Eichengreen (2009) find that an increase of the overall transparency leads to a reduction of inflation volatility. Hence, they test the credibility of the monetary policy goal. They also ask whether there are diminishing returns to transparency, by allowing for nonlinear effects. With this specification, transparency continues to enter with a significant negative coefficient as before, but the nonlinear measures of transparency are associated with a positive, significant effect. This suggests that increasing overall transparency has a stronger effect on inflation variability if the increase starts from a low level. Dincer and Eichengreen (2009) also test the effect of

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\( ^{20} \) Other central banks that have published own projections for the future policy rate path is the Reserve Bank of New Zealand (since 1997), Norges Bank, Riksbanken, Sedlabanki (2007) and the Czech National Bank (since 2008), see Andersson and Hofmann 2009.
general transparency on inflation persistence. Here, the same broad pattern as above is evident; it seems to decline with increased transparency, but at a decelerating rate. However, these effects are not significant at normal confidence levels.

Van der Cruijsen, Eijffinger and Hoogduin (2008) also look at the empirical relation between inflation persistence and central bank transparency, using the same data set as Dincer and Eichengreen (2007). They argue that beyond an optimal level of transparency, people might start to attach too much weight to the conditionality (and hence the uncertainty) of their own forecasts, and get confused by the large and increasing amount of information. This will reduce the quality of their inflation forecasts, and when price setters cannot rely on their own forecasts of future inflation, they are more inclined to determine price increases based on previous inflation. Using a New Keynesian model, the authors show that this will result in higher inflation persistence. Van der Cruijsen, Eijffinger and Hoogduin find empirical support for their hypothesis that there is an optimal intermediate level of transparency. At this optimal level, inflation persistence is minimized. Here, the results are significant.

The regression specifications used by Dincer and Eichengreen (2009) when estimating the effects of transparency on inflation persistence, differs from those used by van der Cruijsen, Eijffinger and Hoogduin (2008). Additionally, the two differ in the sense that the former uses instrument variables when measuring the effects of central bank transparency on inflation. They believe there is a possible endogeniety present in the relationship between central bank transparency and the economic, financial and political environment. Van der Cruijsen, Eijffinger and Hoogduin do not consider this, and this discrepancy might be the source of their differing results. Nevertheless, these empirical enquiries seem to indicate that measured in effects on inflation expectations, there is an optimal, intermediate level of overall central bank transparency. This view is challenged, but at the same time supported, if we consider the effects of central bank transparency on the decision making process and on the predictability of monetary policy, as I will do in this thesis.

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21 Inflation persistence is the speed in which inflation moves back towards its equilibrium level after shocks occur (see van der Cruijsen, Eijffinger and Hoogduin (2008) for a review of different methods for estimation).
22 See also Amato, Morris and Shin (2003)
23 They first do an empirical investigation of the determinants of transparency and use these factors as instrument variables in a two-stage regression.
3.3 Summary: why central bank transparency?

Above, I have given a brief review of the theoretical, practical and historical background to why central banks today are more transparent than central banks were some decades ago. As the discussion shows, even if the desirability of transparency per se seems to be uncontroversial, there is some debate on the optimal level of transparency (Posen, 2003). Amongst the most debated subjects is the question of whether central banks should publish endogenous policy rate paths. Here, the practices of the Riksbank and Norges Bank are aligned, as they are two of few central banks to do this. However, when it comes to another much debated transparency issue, namely the desirability of extensive procedural transparency, the two banks are not as harmonized.

In chapter 4, I will look at how the Riksbank and Norges Bank manage expectations using endogenous interest rate paths, and some empirical evidence on the effects of this practice. In chapter 5, I will elaborate on the background to the debate on procedural transparency, and show how the different practices also are related to different institutional arrangements, again relating the debate to the practices in Norway and Sweden. In chapter 6, I will introduce the theoretical literature on the effects of transparency on group decision making. Chapter 7 presents some data on the Riksbank’s experiences with extensive procedural transparency. In the final chapter, I summarize and review the costs and gains of central bank transparency.
4 Policy- and economic transparency: managing expectations in Norway and Sweden

4.1 Communicating future policy intentions

The majority of central banks communicate policy intentions indirectly, i.e. through forecasts based on technical interest rate assumptions or by giving verbal signals in policy statements and speeches. With indirect communication, the market participants have information on the direction of the future interest rate decisions, but less information about the size (Holmsen et al, 2008). However, as central bankers believe that monetary policy works through the expectations about future policy rates, it could seem that publishing a policy rate path is the best way to manage interest rate expectations (Svensson, 2009b). Access to the central bank’s forecast of the interest rate can make it easier for private agents to verify that the central bank follows a commitment strategy. It also makes it easier for the private agents to estimate the central bank’s reaction function (Holmsen et al, 2008). This can improve their understanding of the monetary policy process.

In both Norges Bank and the Riksbank, the move towards publishing the endogenous interest rate forecasts was gradual. At first, they used the market’s expectations of future interest rates as the technical assumption in the forecasts for the other macroeconomic variables. In 2004, Norges Bank commenced the publication of a strategy interval of the policy rate for four months ahead. The width of this interval is normally 1 percentage point, and the midpoint is interpreted as being the point forecast of the policy rate. When Norges Bank started publishing explicit forecasts for the policy rates in 2005, the main change was that the forecasts of the policy rates were for a longer period ahead (3 years). There is also a more formal difference between the strategy interval and the interest rate forecast: While the governor presents the forecast to the Executive Board for discussion, only the strategy interval is formally voted on (Holmsen et al, 2008).

Norges Bank and the Riksbank both publish conditional forecasts of their own policy rate for three years ahead. Both central banks have a probability distribution (“fan chart”) around the
point forecast. This illustrates that the interest rate path is not a promise; it is conditional upon the developments of other variables. There is also uncertainty about the future outcome of these variables, as illustrated by the uncertainty fans around the banks’ forecasts for consumer prices, GDP and the output gap (Holmsen et al, 2008).

Norges Bank’s forecasts are produced using a core macroeconomic model and considerable judgments (Holmsen et al, 2008). The forecast of the policy rate is usually published three times a year, together with the monetary policy reports (see figure 2). In the Monetary Policy Report 3/09 (published in October 2009), we see that the bank then expected that the key policy rate will be around 4.75 by the end of 2012.

Figure 2 Norges Bank’s forecasts for key economic variables

This interest rate path lies somewhat higher than the interest rate path published in June the same year. The “interest rate account” quantifies how various types of shocks have

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24 The fan charts for the key macroeconomic variables, including the interest rate, are based on model simulations, where the shocks are identified using a small macro model and historical variances of the shocks (Holmsen et al 2008)
contributed to the change in the interest rate forecast (Holmsen et al, 2008). We see that expectations about the future development of the exchange rate have contributed negatively, while expectations of higher demand and productivity have contributed positively (see figure 3). This account probably helps the public understand the central bank’s reaction pattern, and give insight in how recent economic development affects monetary policy.

Figure 3 Changes in the baseline scenario and the interest rate account

In 2007, the Riksbank started publishing endogenous interest rate paths. As in Norges Bank, the Riksbank’s forecasts are based on both formal models and monetary policy expert assessments. These serve as the basis for the “main scenario”, as presented in figure 4 (Svensson, 2009a).

25 The account is a technical model-based illustration. The decomposition is based on the Bank’s DSGE model NEMO. Since the account follows from a specific model, the exact decomposition is model-dependent and should thus be interpreted as a model-based illustration (Holmsen et al, 2008).
In contrast to the procedure in Norges Bank, the Swedish monetary policy committee agrees on an interest rate path by majority voting. This formal difference is caused by the different institutional arrangements in the two central banks, which I will come back to. At 12 of 17 monetary policy meetings since 2007, at least one member has entered a reservation either against the interest rate forecast (10 reservations) or against both the interest rate decision and the interest rate forecast (13 reservations) (Ekici, 2009). Whenever there is dissent, the dissenters state what interest rate decision and path they prefer to the main scenario (which is presented in the figure above).

4.2 Empirical tests of the predictability of Norges Bank and the Riksbank

The empirical literature on the effect of communication and transparency usually considers the predictability of monetary policy, and hence the credibility of the bank’s policy goals. An indirect test of credibility is to check whether market expectations of future interest rates are
aligned with the central bank’s interest rate forecast. Another possible test is to see whether a higher degree of transparency coincides with smaller monetary policy surprises.

Andersson and Hofmann (2009) do a comparative analysis of the performances of the forward guidance strategies of the Reserve Bank of New Zealand, the Riksbank and Norges Bank, respectively. They find evidence that all three central banks have been highly predictable in their monetary policy decisions, and that long-term inflation expectations have been well anchored in all three economies. However, these results emerge irrespective of whether forward guidance involved publication of an endogenous interest rate path or not. This indicates that if a central bank already operates with a clearly defined price stability objective and a high degree of transparency, publication of an interest rate path does not enhance the short-term predictability of monetary policy or the anchoring of long-term inflation expectations to a large degree.

This is in line with some of the suggestions of Holmsen et al (2008), who test the predictability of monetary policy on Norwegian data. If the private agents understand the central bank’s reaction pattern, most of the adjustments in market interest rates should occur when new economic data arrive, and not when the central bank announces the interest rate decisions. On this background, Holmsen et al (2008) test whether endogenous interest rate paths has resulted in less volatility in market rates on the day of interest rate decisions. To measure volatility, they consider the change in money market rates from the day before the interest rate decision to the day after. The sample is divided into two sub periods; from 2001 to 2005 and from November 2006 up until November 2008. Then, they compare the absolute value of the changes in the money market rates on the days of interest rate decisions between the two sub samples. On average, they find that the market rate has reacted less to policy decisions in the period of interest rate forecasts.26

However, they also find evidence that this increase in predictability started before the introduction of endogenous interest rate forecasts. Holmsen et al (2008) attribute this finding to the publication of the strategy interval from 2004. As explained, this interval could be regarded as an implicit forecast of the policy rate four months ahead. This could imply that publishing a forecast of the interest rate for the long term is less important for predictability than providing information on the short-term interest rate.

26 However, this empirical test does not test if the drop in volatility is actually due to the publishing of interest rate forecasts or an increase in central bank transparency. They just show a correlation in time.
They also find that the interest rate forecasts and the market expectations are well aligned with the bank’s forecast, at least up to one year into the forecast horizon. On some occasions, however, the market expectations deviate further out on the curve. The reason for this may be that the forecast reflects both policy intentions and the bank’s forecasts of important macroeconomic variables. There is less uncertainty with respect to the economic variables in the short end of the forecast, implying that the forecast mainly reflects policy intentions in the beginning of the path. Thus, the market probably takes these as given. Further out on the path, on the other hand, there is more uncertainty about variables such as international economic developments. A discrepancy between the central bank’s interest rate path and market expectations might reflect different assessments of these macroeconomic variables. On this background, Holmsen et al (2008) argue that discrepancy between the market and the central bank’s forecasts does not necessarily reflect that the central bank lacks credibility.

Anderson and Hofmann also underline that the central bank’s forecast and the implied market expectations do not need to be completely in accord with each other, especially further out on the path, as markets and central banks might (and should) have different assessments of the macroeconomic outlook (Anderson and Hofmann, 2009, see also Amato, Morris and Shin, 2003). However, the consequences of large and lasting deviations of market expectations from the published policy rate path might be severe. If the market expects an interest rate path that lies above the policy maker’s path, this implies that in practice monetary policy is more restrictive than intended (Svensson, 2009b).

Lars E. O. Svensson (2009a, 2009b) has examined the Riksbank’s record on the management of market expectations of future policy rates. The conclusion through 2008 was that the management of policy rate expectations had been good, though not a complete success. He notes that in many cases, expectations were already in line with the new forecast prior to publication. This indicates that the market understands the monetary policy patterns and that the Riksbank is able to conduct a predictable policy. If the market expectations differed from the forecast, in many cases the market would adjust its expectations towards the path after publication of the new path.

However, as Andersson and Hofmann (2009) emphasize, from 2005 to mid 2007 there was a tranquil financial market environment. Under such conditions, it is easier for the market participants to anticipate upcoming monetary policy decisions. Data from Sweden suggests that the situation may change when the financial market and the real economy is more
unstable. Svensson (2009b) shows that there have been big deviations of market expectations from published policy rate paths since April 2009. The market’s expectations of future rates have generally been above the published paths, at least 3-9 quarters ahead. Everything else being equal, this implies that the effective monetary policy will be tighter than the intended one. It seems like the Riksbank has faced problems in maintaining the credibility of the repo rate path during the financial crises.27

4.3 Noise from forward guidance

There is disagreement among both academics and central bankers as to whether a high degree of policy- and economic transparency, in the form of publishing endogenous interest rates, is beneficial or not. The key issue is whether the publishing of endogenous interest rate paths implies guidance or noise, respectively (Holmsen et al, 2008). As there is considerable uncertainty about future policy rates, forecast errors could be large. Mishkin (2004) criticizes the practice, on the basis that private agents might interpret the path as an unconditional promise, and hence put too much weight on the central bank’s forecast when forming own expectations. Amato, Morris and Shin (2003) argue the same point when they claim that too much transparency may reduce policy effectiveness, as it distorts the market’s processing of information.

Both the Riksbank and Norges Bank emphasize that the future path of the policy rate is neither a promise nor a commitment to a particular future policy. They acknowledge that interest rate forecasts can, and probably will, be revised when new information on economic development arrive (Sveriges Riksbank, 2008a, Svensson, 2009a). Andersson and Hofmann (2009) show, empirically, that the Reserve Bank of New Zealand have made large revisions of the published interest rate path without causing big disruptions in the market or suffering a loss in credibility. The same applies, presumably, as far as Sweden and Norway is concerned.

Additionally, the empirical enquiries reviewed above indicate that the monetary policy makers in both Sweden and Norway generally enjoy a high credibility in the markets. Their monetary policy seems to be predictable. It is difficult, however, to credit these findings to the practice of explicit quantitative forward guidance alone.

27 Svensson’s (2009b) possible explanations of this include differing views of future economic developments between the central bank and the market, communication challenges associated with very low interest rates and perhaps exaggerated lower-bound problems. I will not discuss the possible reasons for this further here.
5 Procedural transparency: different strategies, different committees

Studies that measure the degree of transparency in central banks usually rank the Riksbank as one of the most transparent central banks in the world, while Norges Bank usually is placed in the intermediate group (see for example Dincer and Eichengreen, 2007, 2009, and Minegishi and Cournède, 2009). This difference is mainly due to their different practice of procedural transparency (see Claussen (2008) for a closer explanation of Norges Bank’s results).

In the following, I will look at how this difference in the Riksbank’s and Norges Bank’s communication policy can be explained by different institutional frameworks. The different practices are not only caused by different views on the consequences of the agency problems in the relationship between the public and the central bank, which I will describe in further detail below. The type of monetary policy committee that is in charge of making the decisions also influences the transparency policy. However, keep in mind that there is a two-way causation between (especially procedural) transparency policy and committee type. The choice of communication regime also depends on what committee type is believed to make the best decisions (see Qvigstad, 2008). Determining what type of committee is most effective is outside the scope of this thesis, and I will not go into this debate here.

5.1 The monetary policy maker and communication

Monetary policymaking is usually left for committees. This trend can be explained by several theoretical arguments, for example that groups are less likely to adopt extreme positions, that they pool the knowledge of their members and that they are less volatile (Blinder, 2008). In short, committees are assumed to make better decisions than individuals do (confer also the Condorcet jury theorem presented above). However, by democratic standards and norms, it has probably been perceived as more appropriate to delegate the monetary policy decisions to a group of people, rather than to one individual, as central banks have become more independent (Apel, Claussen and Lennartsdotter, 2009).

28 For an exposition of the different institutional frameworks in several of the central banks mentioned in this thesis, confer appendix B.
As monetary policy usually\textsuperscript{29} is made in committees, Alan Blinder and Charles Wyplosz (2004) argue that the appropriate volume and methods of central bank communication and transparency depend crucially on the type of monetary policy committee being in charge. They have made the following typology of the decision makers:

(i) Individual central bank governor (e.g. Reserve Bank of New Zealand)
(ii) Autocratically-collegial monetary policy committee (e.g. The Federal Reserve System under Burns, Volker and Greenspan)
(iii) Genuinely-collegial monetary policy committee (e.g. The European System of Central Banks)
(iv) Individualistic monetary policy committee (e.g. Bank of England)

### 5.1.1 Norges Bank: collegial committee

A collegial committee is founded on the principle of group accountability; the committee stands united behind the decisions. The committee arrives at a decision that derives, in one way or another, from the collective wisdom or knowledge of the group.\textsuperscript{30} Differing opinions should be subordinated to the common good of unanimity. The meetings of a collegial committee may or may not involve a formal vote. If there is a vote, this is expected to be, and normally is, unanimous. In this context, a dissenting vote is a noteworthy event (if made public) (Blinder and Wyplosz, 2004).

There are two subgroups to this category. In a genuinely collegial committee, members may argue for their point of view behind closed doors, but they ultimately compromise on a decision. There may or may not be a formal vote, but in any case there are no public disagreements. They show a united front when the decision is reached.

By contrast, in an autocratically collegial committee, the chairman more or less dictates the group consensus. For example, the decision might already be made before the meeting, and the chairman begins the session by simply informing the other members what it will be. He may also listen to the debate and announce the group’s consensus afterwards, expecting the others to agree. In either case, the group’s decision is essentially the chairman’s decision, informed and influenced by the views of the other committee members.

\textsuperscript{29} With the notable exception of New Zealand
\textsuperscript{30} See Blinder, 2008, for a presentation of different empirical investigations of group decision making.
Blinder and Wyplosz argue that a collegial committee, especially one that is autocratically collegial, can afford to submerge differences of opinion amongst its members when communicating. It is the group’s decision (or, in some cases, the chairman’s decision) and the reasoning behind it that need to be communicated to the markets. An autocratically collegial committee should find it easy to prepare a detailed statement to be issued at the end of the meeting. After all, the chairman may walk into the meeting with a draft of the statement in his pocket. Since sooner is better than later as far as the market is concerned, Blinder and Wyplosz recommend that such a committee should rely more on the statement and less on the minutes. Blinder (2008) also claims that the statement released immediately after the monetary policy meeting and (non-attributed) minutes are substitutes. If the statement is sufficiently long and detailed, he thinks there is no need for detailed minutes and no rush to produce them, as it is possible that the minutes will not contain any market sensitive information, anyways. Press conferences also have some advantages over minutes as they allow for follow up questions and clarifications (Blinder et al., 2008).

A truly collegial committee may find it harder to agree on a detailed statement to be published directly after the monetary meeting. Therefore, it might choose to release a brief statement, with more elaborate explanations delayed until the minutes, if any, are released. If projecting an aura of consensus is considered important for the collegial committee, there may be a case for not publishing votes or not having a vote. Nevertheless, Blinder and Wyplosz also recommend that when there are disagreements, a truly transparent monetary policy committee can present the dissenting views as arguments that the committee considered, but rejected.

In Norges Bank, a collegial committee decides on monetary policy. The members of the Executive Board shall stand unified by the decision. The Board’s monetary policy statement is published at the same day as the policy meeting and there is a press conference the same day. At the press conference, the Governor or the Deputy Governor explains the board’s decision in more detail (www.norges-bank.no). Given the institutional arrangements and the communication policy, it seems like the Executive Board could be characterized as an autocratically collegial committee. The Governor and the Deputy Governor have an informational advantage because they work full time with monetary policy and have the central bank staff available at all times. It is likely that their views will dominate the discussion at the Executive Board. In addition, the Governor submits his recommended interest rate decision to the Ministry of Finance on the day before the monetary policy
meeting. This is the interest rate recommendation he will make at the monetary policy meeting (Bjørnland, Ekeli, Geraats and Leitemo, 2004).

The claim that the practice in Norges Bank resembles an autocratically collegial committee is also consistent with the communication practice of the bank. According to Blinder and Wyplosz (2004), it is easy for an autocratically collegial committee to choose one member to speak on their behalf. In Norway, none of the external members speaks publicly about monetary policy, only the Governor and the Deputy Governor attend press conferences or give interviews and speeches on monetary policy issues. Remember that an autocratically collegial committee should find it easy to prepare a detailed statement to be issued shortly after the meeting. This seems to resemble the communication strategy in Norges Bank, where the statement is published at the same day as the monetary policy meeting. No minutes or voting records are released.31

As the board’s policy statement is published a few hours after the monetary policy meeting, big parts of it have been prepared in advance by the staff of Norges Bank. Deputy Governor Jan F. Qvigstad (2008) explains that when preparing this statement, the staff tries to follow the principle that all relevant aspects should be considered. The final statement is written after the meeting, and then the moments are weighted according to the importance that was attached to them by the Executive Board. The board also has meetings with the staff in the period before each monetary policy reports are published. They discuss the issues of relevance for the next interest rate decision; these discussions are also reflected in the statement. However, the contact between the staff and the board is probably less extensive than in the Swedish Riksbank, where all the committee members are full time employees.32

5.1.2 The Riksbank: individualistic committee

An individualistic committee is founded on the principle of individual accountability. In such a committee, each member not only expresses his or her own opinion verbally, but can also act on it by voting. The group’s decision is decided by a voting rule, usually by majority vote. Unanimity is not expected in this type of committee, and the committee members do not necessarily speak with one voice (Blinder and Wyplosz, 2004). The problem of making an

31 Protocols of the monetary policy meetings in Norges Bank are public after 12 years, but with this time lag these are of more historical interest.
32 As emphasized by Svensson 2009a. See also Apel, Claussen and Lennartsdotter, 2009
immediate statement is bigger with an individualistic committee, as the deliberations in this type of committee might not result in a consensus decision. However, in an individualistic committee, the views and arguments of individual members are part of the essential information that should be communicated.\(^\text{33}\)

As mentioned, the Swedish Riksbank’s Executive Board consists of six full time employed governors. The interest rate decision is a majority decision determined by voting. Every vote has the same weight, but if there is a tie, the Governor has the casting vote. All the members of the Executive Board issue independent statements on monetary policy. On this background, it is not surprising that the board is usually referred to as an individualistic committee. This impression is further emphasized by the communication practise followed in the Riksbank (see Sveriges Riksbank, 2008b). Minutes of the monetary policy meetings has been published since 1999, with a time lag of around two weeks. The minutes contain a review of the discussion, and information on how the individual Executive Board members’ voted on the final decisions. In 2007, the Executive Board decided that the minutes of the monetary policy meetings should contain the names of the members together with their contributions to the debate. Previously, names of individual members were only revealed in association with the votes. Now, the minutes are also informative of how all the members reasoned in the meeting. (www.riksbank.se, Apel, Claussen and Lennartsdotter, 2009).

5.1.3 A cacophony of voices?

When a committee decides on monetary policy, the members will, from time to time, unavoidably disagree on certain aspects of the decision. The members may have different views on the economic outlook, the relative importance of inflation versus the output gap and the balance of inflationary risks. There is also uncertainty in the economic data upon which the policy decisions are based. Several authors point to the problems that may possibly arise if the public acquires access to these differing views, and if the committee speaks with too many voices (Blinder and Wyplosz, 2004, Blinder et al., 2008, Cukierman, 2009). This is typically a problem for an individualistic committee.

\(^{33}\) Such information may be a leading indicator for the future policy of the central bank, see for example Gerlach-Kristen, 2004.
According to Blinder et al (2008), cacophony is especially damaging if the disparate voices carry conflicting messages about future policy. In such a case, central bank transparency and communication can degenerate into central bank cacophony. If we count the effects on expectations as one of the benefits achieved from transparency, this benefit might be outweighed by the costs of leaving the public and the market confused rather than enlightened.

In accordance with the above, Alex Cukierman (2009) claims that there are considerable downsides to speedy publication of all the arguments raised in the monetary policy deliberations (in the form of minutes). Such publication might give the public an impression that monetary policy is more uncertain than it really is. Assumably, the public will be exposed to the conflicts in the monetary policy committee\textsuperscript{34} to a disproportionate degree, as the media has a tendency to highlight conflicts and controversies. However, this problem is also closely related to the verbal communication of the monetary policy committee members in between the policy meetings. This is not the focus of my thesis. Therefore, I will just briefly mention that Ehrmann and Fratzscher (2007) have investigated the effects of the different (verbal) communication policies that follow from different institutional frameworks. They find some evidence that the strategy followed by the European Central Bank (ECB), a collegial approach both in communication and in decision making, makes the monetary policy surprises somewhat smaller than the approach followed by the Bank of England. Bank of England combines a collegial communication strategy and highly individualistic decision making.

The Riksbank has sought to deal with this problem by deciding that, normally, no information about the repo-rate decision (signaling) will be conveyed before monetary policy meetings. The reason for this is that signaling, for practical purposes, could move the policy decision to a point in time before the final policy meeting. Alternatively, individual board members could signal for themselves, and this in turn could result in a cacophony before each meeting (for more, see Svensson, 2009b).

\textsuperscript{34} He claims that this is the case even if one can argue that people are “rationally inattentive”; this means that people are constrained in their ability to acquire and process information.
5.1.4 Summary: why the different strategies?

Qvigstad (2008) argues that the rationale for being transparent is to provide relevant and clear information to the public. He thinks that a collegial committee does this best, as publishing the individual views of the committee members entails risk of cacophony. As Blinder et al (2008) emphasize; there is a danger that too many disparate voices might confuse rather than enlighten, especially if the messages appear to conflict.35

Another part of Norges Banks explanation for its transparency regime is that the external members of the Executive Board are part-time members, and have full time jobs outside of the bank. Voting records would make the members individually accountable for their votes and their assessment. This could place a workload on the external members that is not consistent with being part-timers (Qvigstad, 2008). In addition, this is not consistent with having group accountability, as in a collegial committee.

Proponents of releasing voting records and minutes, argue that these are important for reasons of democratic legitimacy and public support of the central bank.36 However, as there seems to be consensus that voting records (if they are published) should be attributed, there is more disagreement on the desirability of attributed minutes. This could stem from concerns that attribution can have negative effects on the incentives of the monetary policy committee members. The resulting decision might not be the best from the public’s point of view. In the next section, I will discuss how transparency might affect the incentives of the members of a monetary policy committee. This section will introduce the reader to why there are different opinions on the desirability of extensive procedural transparency.

35 See also Qvigstad, 2009 for an introduction to Norges Banks views on transparency
6 Herding in a transparent decision making process

As pointed out by Blinder et al (2008), publishing minutes does not necessarily mean that all of the committee members’ contributions to the debate and deliberations are revealed to the public. This is because the minutes go through several rounds of editing and revision. In the following, however, I will assume that the minutes are not substantially sanitized or edited (i.e. in order to make the members’ views and arguments look good), such that the public actually will get a good insight into the monetary policy meeting. This probably resembles the minutes published from the Riksbank.37

In the following, I will look at different versions of a model that describes a situation where, on behalf of the public, a committee has to choose between change and maintaining status quo. Here the choice is between changing the interest rate and keeping it at the current level. My starting point is Scharfstein and Stein’s (1990) model of herd behavior and investment. It is modified following Swank and Visser (2007), Visser and Swank (2007) and Meade and Stasavage (2008) to make it applicable for analyzing a decision making process in a monetary policy committee. This is a simple model world where there are only two states of the economy, two types of monetary policy committee members and two possible actions.

6.1 The model

The point of departure here is a committee of \( n \) members \( i \in I = \{1, \ldots, n\} \) that has to decide whether they want to maintain the status quo, \( X = 0 \) or to implement change, \( X = 1 \). This binary problem can be transferred to a monetary policy meeting where the committee members have to decide between keeping the interest rate unchanged and changing it. To accommodate the model further to a monetary policy decision making process, following Meade and Stasavage (2008), I assume that the decision making process is as follows:

A. The state of the economy \( \mu \) is realized and not observed.
B. Private signals \( s_i \) are realized. \( s_i \in \{s^b, s^g\} \)

37 See Svensson 2009a for an introduction to how these are made
C. The communication stage. In sequential order, each member sends a “message” about their signal \( m_i \in \{ m^g, m^b \}. \) \( m_i = m^g \) indicates that the members signal was \( s^g \) and hence that change is appropriate.

D. The voting stage. Each committee member votes on \( X, v_i \in \{ v^g, v^b \}. v_i = v^b \) denotes that member \( i \) votes against change.

E. The state of the economy becomes public knowledge.

The stochastic term \( \mu \) captures the state of the economy. This state is one of two types; good \( (x_1) \) or bad \( (x_0), \mu \in \{ x_0, x_1 \}, \) with prior probability \( \alpha \) for the good state and probability \( (1-\alpha) \) for the bad state. For simplicity, I will assume \( \alpha = 1/2 \). The best policy action \( X \) matches the realization of the state \( (X = 1 \) is best when \( \mu = x_1 \). After the members have sent their messages and voted, a voting rule decides what action is chosen.

Each member possesses a private signal about the state of the economy: \( s_i \in \{ s^b, s^g \}. \) The term “signal” refers to an assessment, forecast or view of the economy (superscript \( b \) is bad and \( g \) is good). There are two types of members; with prior probability \( \theta \) a member is “smart” and receives an informative signal about the state of the economy. With prior probability \( (1-\theta) \) a member is “dumb” and receives an uninformative signal (noise), \( t_i \in \{ sm, du \}. \) In this context, to be “dumb” means that the committee member gives inaccurate predictions of the state of the economy. This is not necessarily due to him being more intellectual challenged than his fellow members are, it could be because he has less resources available when assessing the economy (“receiving a signal”). Here we have:

\[
\begin{align*}
(i) \quad & \Pr(s^g | \mu = x_1, sm) = \Pr(s^b | \mu = x_0, sm) = \rho \\
(ii) \quad & \Pr(s^g | \mu = x_0, sm) = \Pr(s^b | \mu = x_1, sm) = q \\
(iii) \quad & \Pr(s^g | \mu = x_1, du) = \Pr(s^g | \mu = x_0, du) = z
\end{align*}
\]

As they are uninformative, the dumb member’s signals are uncorrelated. However, as Scharfstein and Stein (1990), I can assume that the smart members’ signals are correlated with the coefficient \( \sigma \). If \( \sigma = 1 \), this means that two smart members will receive exactly the same signal given the state of the economy. Thus, the probability that two smart members both get a good signal when the state of the economy is good, is \( \rho \). If one member is smart and one member is dumb, their signals are drawn independently from a binomial distribution.

\[38 \text{ g denotes good and b denotes bad.}
\[39 \text{ Such as time, data, models, help and staff.}
\]
If both are dumb, their signals are also drawn independently, and the probability that two dumb members receive the same signal is $z^2$. As $\rho > z^2$, if two members say the same thing, it more is likely that they are smart. In addition, the smart member’s prediction errors are also correlated. This is nothing more than saying that nobody knows everything about the systematically unpredictable factors affecting the future state of the economy. Hence, communicating the wrong signal is not as bad when others make the same mistake.

The ex ante distribution of signals is the same for both smart and dumb members. This means that both are equally likely to receive a good signal, such that the signal is uninformative of type: $Pr(s^g | sm) = Pr(s^g | du)$. This means that $z = ap + (1-a)q$.\(^{40}\)

From the outset, I assume that neither the members nor the public know if they are smart or dumb. By application of Bayes’ law and using that the ex ante distribution of signals is the same for both smart and dumb members, we can calculate the probabilities that the state of the economy is good, when the member receives a good and a bad signal:

\[
\text{(iv)} \quad \gamma_g = Pr(x_1 | s^g) = \frac{[\rho \theta + z(1-\theta)]}{z} \alpha; \text{ and } \\
\text{(v)} \quad \gamma_b = Pr(x_1 | s^b) = \frac{[(1-\rho) \theta + (1-z)(1-\theta)]}{(1-z)} \alpha
\]

If only considering which decision is most likely to be right, the member should communicate that he wants change if he receives a good signal, and not if he receives a bad signal, as $\gamma_g > \gamma_b$. \(^{41}\)

I will follow Scharfstein and Stein (1990) in that

\[
\text{(vi)} \quad q = (1-\rho) \\
\text{(vii)} \quad \rho > 1/2 \\
\text{(viii)} \quad z = 1/2
\]

In this setting, the preferences of a committee member can consist of two parts; he can derive utility both from choosing the right decision and from having a reputation of being smart. \(^{42}\) In

\(^{40}\) $Pr(s^g | sm) = aPr(s^g | \mu = x_1, sm) + (1-a)Pr(s^g | \mu = x_0, sm)$ and $Pr(s^g | du) = Pr(s^g | \mu = x_1, du) = Pr(s^g | \mu = x_0, du) = z$ gives us that $z = ap + (1-a)q$ must hold for $Pr(s^g | sm) = Pr(s^g | du)$ to hold.

\(^{41}\) $Pr(x_1 | s^g) = Pr(s^g | x_1) Pr(x_1) = Pr(s^g | x_1, sm) Pr(sm) + Pr(s^g | x_1, du) Pr(du) Pr(x_1) = \frac{\rho \theta + z(1-\theta)}{(\rho \theta + z(1-\theta))a + (q \theta + z(1-\theta))(1-a)} \alpha = \frac{x^2}{\rho \theta + z(1-\theta)} \alpha$. The last equality follows from inserting for $z = ap + (1-a)q$.

\(^{42}\) The herding literature can be divided into a strategic and a non-strategic branch. In the non-strategic branch, the agents’ payoff depends only on whether they choose the wrong or the right action. In the strategic branch,
this case, member $i$’s preferences can be represented by the following state dependent utility functions:\footnote{In the following, I will assume that the committee members are risk neutral.}

\begin{align*}
(1) \quad & U = X + \lambda_i \theta^*(\Omega_i) \quad \text{if} \quad \mu = x_i \\
(2) \quad & U = (1 - X) + \lambda_i \theta^*(\Omega_i) \quad \text{if} \quad \mu = x_0
\end{align*}

$\theta^*$ denotes the posterior belief held by the public that committee member $i$ is smart, this is a measurement of member $i$’s reputation. This reputation is based on observed and inferred information, represented by $\Omega_X$. This information set is indexed by the decision $X$, because public observe at least the outcome of the process.\footnote{In the context of monetary policy making, this is not something that can be taken for granted. For example, the Federal Reserve did not publish their decision on the policy rate on the day of the policy meeting until 1994 (see Goodfriend, 1986, for an introduction to the arguments used by the Federal Reserve to defend this policy).} The parameter $\lambda_i$ that measures how much committee member $i$ cares about his reputation. Swank and Visser (2007) use (1) and (2) with $\lambda_i = 0$ to denote the public’s utility. For now, I assume that the members have homogenous preferences as to their reputation, $\lambda_i = \lambda$ for all members.

After the members have decided if they want change or not, the public update their beliefs $\theta^*$ about their type. They can evaluate the members’ performance based on two pieces of information: 1) whether they made the right decision, and 2) the member’s behavior, i.e. what messages they send during the communication stage and if this is similar to or different from that of the other members. If we assume that the smart member’s predictions and hence their prediction errors, are correlated, the public use this in their evaluation of the members’ abilities.

As Scharfstein and Stein (1990) emphasize, a common factor in the smart members’ predictions about the economy, can reduce the effectiveness of the decision making process.\footnote{They show this in a model where the agents care only about their reputation, not about making the right decision.} This is because the committee members can manipulate their communication to bias the public’s inference on their ability. If a member mimics the behavior of other members, this suggests that he has received a signal that is correlated with their signal. This makes it more likely that he is smart. In addition, if a committee member communicated a signal that does not match the true state of the economy, he might not be judged as harshly if his colleges do the same. This behavior gives rise to an uninformative herding equilibrium. Committee
member B herds if he sends the same message as committee member A, irrespective of his own private signals.

As I will show, even if we assume that smart members’ signals are drawn independently, there can still be herding behavior in a committee if one of the committee members is publicly known to be smart. Mimicking this member increases the probability that your message matches the true state of the economy.

6.1.1 A known expert speaks first

Meade and Stasavage (2008) use a similar model to the one above to show that when a known expert speaks first and transparency is imposed on the decision making process, herding can be the result. They assume that the monetary policy committee consists of three members $i \in I = \{A, B, C\}$.

As opposed to above, the committee members know something about their abilities; they know that member A is smart. This could be because he is the chair of the committee and/or governor of the central bank and hence has a large staff at his hands when evaluating the economy or a long experience with forecasting. A smart member’s view on the economy is not flawless here, hence $1 > \rho > 1/2$. Members B and C also know the prior probability that they are smart ($\theta$) and hence the expected accuracy of their private signal: $\pi = \theta \rho + (1 - \theta)z = \theta \rho + (1 - \theta)0.5$. Here, Meade and Stasavage assume that the member’s signals are drawn independently. They also assume that in expectation, B and C jointly are more informed than A. This implies that their joint expected accuracy is higher than the odds that A receives an accurate signal:

\[(i) \quad \left(\frac{\pi}{1 - \pi}\right)^2 > \left(\frac{\rho}{1 - \rho}\right)^{46}\]

Meade and Stasavage also assume that in the communication stage, A speaks first, then B and then C. The same order applies in the voting stage. In the voting round, simple majority is sufficient to ensure that changing the interest rate gives a positive expected utility for both the committee members and the public.

\[^{46}\left(\frac{\pi}{1 - \pi}\right)^2\] is the posterior odds for member B or member C receiving an accurate signal. From (ix) we see that the posterior odds that both B and C are right is larger than the odds of A being right alone.
Given this, there always exists equilibria where member A reports his signal truthfully and B and C then mimics his message, regardless of their own assessment of the economy. This gives an *uninformative* equilibrium. Since B and C send the same message regardless of their private signals, there is no additional information in their messages. The committee will base their decision only on A’s private signal and the correctness of the decision depends on the accuracy of A’s signal. As explained, this is inefficient as the joint expected accuracy of two member’s signals is higher than the accuracy of one members signal. After an uninformative communication stage, several things could happen in the voting stage. B or C could follow A’s vote or they can vote according to their own signals. In either case, the outcome will be inefficient because the committee members do not base their voting on all the available information about the state of the economy. This is the undesirable result from herding.

The possible *informative* equilibrium is that A and B report their signals truthfully, and C reports the truth if this message is pivotal to the decision. This will be informative because the members base their decision on enough information; remember that two members are more likely to receive the accurate signal than one. They do not need more information to determine what the most probable state of the economy is. At the voting stage, the rule that produces the best expected policy outcome for the committee members is to vote for $x = 1$ if $x_1$ is most likely to be the state of the economy, given the outcome of the communication stage. When voting is unanimous, as is the result under the informative equilibrium here, it does not matter whether the voting record is public or not. Here, when the members reveal their private signals in equilibrium and the public have access to attributed minutes, there is no other information that the committee members could base their voting on, that would change the public’s inference on their ability. As I will show, what matters the most here, is whether the public can base their inference on individual messages or on the final decision.

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47 This is also a pooling equilibrium, where all the members send the same message, regardless of their private signals. For this to be an equilibrium B and C each have to anticipate that the other will mimic A.

48 If telling the truth would make the other committee members change their belief about which state of the economy is most probable, that is if members A and B say different things in the communication stage. This is optimal for C because we have assumed $(\pi_1 - \pi)^2 > (\rho_1 - \rho)^2$; and hence this behavior will maximize Cs policy- and reputational payoff.

49 This is also a semi-pooling (semi-separating) equilibrium, where A and B send messages in accordance with their private signals, but C will mimic them if his message is not pivotal.

50 This result is partly due to that the committee members have homogenous preferences.
Given these incentives at the voting stage, the question is whether player B will have incentives to reveal his true signal in the communication stage, even if it differs from the signal communicated by A. Player B is the focus of the analysis here, because it’s easy to see that if A and B say the same thing, then C has a clear incentive to mimic their messages, no matter what his private signal is. His message will have no impact on the final decision, given the incentives in the voting stage, and he knows that it is more probable that A and B are right even if his own signal differs (see appendix A). There is no informative equilibrium where all committee members unconditionally report their true signal. However, it is possible to have an equilibrium where A and B always report the truth about their signal and C reports his true signal if A and B communicate different signals.

If B’s signal is the same as what A says, then it is clear that B has incentives to reveal his true private signal. If B has received a different signal than member A, he faces a tradeoff between the gains from expected policy payoff and the expected reputational payoff. He knows that even if A is smart, his signal can be misleading. However, A is more likely to be right than he is. If C receives the same signal as B, they are more likely to be right. But B also knows that C will not reveal his true signal if B does not. If B mimics A, this is also what C will do.

Let us say that member A communicates message \( m^A \). Here, I will assume that A will reveal his true signal, as he is already known to be smart and derives utility from making the right decision. This implies that \( m^A = s^A \). If B’s private signal differs, he has to consider his expected gain from being right against the possibility that A is wrong and hence that they will make the wrong decision. If \( s^A \neq s^B \) the prior probability that the state is as A reports, is (by Bayes’ rule):

\[
\Pr(\mu = s^A|s^A, s^B) = \frac{\rho(1-\pi)}{\rho(1-\pi)+(1-\rho)\pi}
\]

B knows that if he sends the same message as A, then C will mimic them and they will all vote for the same action. This entails a risk that they choose the wrong thing given the true state of the economy. The public will update their belief on B being smart based on the correctness of his message:

\[
\Pr(\mu = s^A|s^A, s^B) = \frac{\rho(1-\pi)}{\rho(1-\pi)+(1-\rho)\pi}
\]

The second equality follows from inserting for \( \pi = \theta \rho + (1-\theta)z \) and \( z = 1/2 \).
If B chooses to mimic A, this will imply the following expected utility:

$$\pi + \lambda \left\{ 1 - \frac{\rho(1-\pi)}{\rho(1-\pi) + \pi(1-\rho)} \right\} \frac{\rho\theta}{\rho\theta + 0.5(1-\theta)} + \left[ 1 - \frac{\rho(1-\pi)}{\rho(1-\pi) + \pi(1-\rho)} \right] \frac{(1-\rho)\theta}{(1-\rho)\theta + 0.5(1-\theta)}$$

The first part of this expression is the expected payoff from making the right decision. The second part is the expected reputational payoff from being perceived as smart. It consists of the payoff in case they choose the right action and in case they choose the wrong action, multiplied by respectively the prior probability that committee member A is right and the probability that he is wrong.

If B instead reports his true signal, then his expected utility is:

$$\pi + \lambda \left\{ 1 - \frac{\rho(1-\pi)}{\rho(1-\pi) + \pi(1-\rho)} \right\} \frac{\rho\theta}{\rho\theta + 0.5(1-\theta)} + \left[ 1 - \frac{\rho(1-\pi)}{\rho(1-\pi) + \pi(1-\rho)} \right] \frac{(1-\rho)\theta}{(1-\rho)\theta + 0.5(1-\theta)}$$

As long as the expected utility from telling the truth is bigger than the utility from herding, B will reveal his private signal on the state of the economy. This is the case if the following equality is satisfied:

$$\pi - \frac{\rho(1-\pi)}{\rho(1-\pi) + (1-\rho)\pi} > \lambda \left\{ 2 \left[ \frac{\rho(1-\pi)}{\rho(1-\pi) + \pi(1-\rho)} - 1 \right] \frac{\rho\theta}{\rho\theta + 0.5(1-\theta)} - \frac{(1-\rho)\theta}{(1-\rho)\theta + 0.5(1-\theta)} \right\}$$

He reveals his signals truthfully if he does not care too much about his reputation. If reputational concerns are sufficiently strong, however, then the informative equilibrium cannot be sustained. Which action he chooses is dependent on $\lambda$, the accuracy of A’s predictions ($\rho$) and the expected accuracy of his own private signals ($\pi$ and $\theta$). The size of $\lambda$ can depend on a number of factors, such as job opportunities, age and timing. If the member has a short time left of his period in the monetary policy committee, he might be more eager to ensure that he leaves the committee with a reputation of making good predictions on the economy.

In a closed decision making process, the public can update their beliefs about B’s ability only on the basis of what the committee decides to do. This implies that B no longer faces the tradeoff between revealing his true signal (and maximize expected policy payoff) and

\[52\] $\Pr(sm|\mu = s^A) = \frac{\Pr(\mu = s^A|sm)Pr(sm)}{Pr(\mu = s^A)} \frac{(1-\rho)\theta}{\rho\theta + 0.5(1-\theta)}$

\[53\] $\Pr(\mu = s^A|s^A, s^B) + \lambda(Pr(\mu = s^A|s^A, s^B) Pr(sm|\mu = s^B) + [1 - Pr(\mu = s^A|s^A, s^B)] Pr(sm|\mu \neq s^B)]$
mimicking A’s message (as this maximizes expected reputational payoff). Now, both policy- and reputational payoff depend on choosing the right action \( X \). Under private deliberation, if both A and B reveal their true private signals, then member C will continue to have incentives to reveal his signal if it is pivotal to the decision, as above. Again, the focus is on B’s incentives to reveal his true signal, even if this contradicts the message sent by A. If B reveals his true private signal, his expected policy payoff now depends on the accuracy of C’s private signal, as this will be pivotal to the decision if B and A report different signals. Meade and Stasavage show that for reasonable parameter values, B will always choose to report his true signal.

Thus, Meade and Stasavage (2008) conclude that when a smart committee member speaks first in a transparent decision making process, the other committee member will not dissent if they care strongly about their reputation. The result is herding and an uninformative equilibrium. This means that the committee can end up voting for the wrong action from public’s point of view. They do not base their decision on all available information on the true state of the economy. In a related paper, Ottaviani and Sørensen (2001) also show that when a committee member who is known to have high expertise speaks first, subsequent speakers may have incentives to mimic the expert.54

### 6.1.2 Empirical tests of the Federal Reserve

Meade and Stasavage test their hypothesis using a dataset based on deliberations of the Federal Reserve’s Federal Open Market Committee (FOMC). In 1993, it was decided that full, attributed transcripts of the FOMC deliberations would be made public with a five-year lag.55 However, there also exist transcripts from meetings before this, as the Federal Reserve staff had kept unedited transcripts of the meetings since 1976. The authors therefore compare the behavior of committee members before 1993, when they believed that their remarks during the monetary policy meeting were private, and after 1993, when they knew that all statements would eventually be made public.

This dataset is unique, as usually it is hard to make before and after comparisons of an increase in transparency, as there is no data on the agent’s actions before transparency was

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54 However, even if they show that when the expert speaks early, less qualified members will not dissent, regardless of their private information, they also find that if several junior experts initially express an agreement, experts that are more senior may become themselves unable to signal their private information credibly.

55 These are available from the Federal Reserve’s website.
imposed. Here, however, the introduction of transcripts gives the possibility to investigate a “natural experiment”. The available data material can be used to test the effect of known transcription, and hence the effect from the members knowing that their contribution to the debate will eventually be made public. In this context, the deliberations on the committee before 1993 will serve as the “control group” and the deliberations after 1993 as a “treatment group” (for an introduction to natural experiments, see for example Stock and Watson, 2007).56

To test the effect of transcripts, Meade and Stasavage examine the 64 FOMC meetings from 1989 to 1997, all of which Alan Greenspan chaired. In these meetings, the discussions were divided into two stages. In the first stage, the committee members presented their general views on the economy, while in the second stage they discussed policy options (these two stages correspond to the communication stage). The second stage culminated in a formal vote, where the chair voted first (this corresponds to the voting stage). The first member to deliver his policy proposal was Greenspan. Meade and Stasavage ask whether the publication of transcripts will make the other members of the committee more inclined to agree with Greenspan’s policy proposal. In his context, he can be considered a known expert, and he is a known expert that speaks first.

Meade and Stasavage use a dataset based on the transcripts, that codes voiced preferences for the short-term interest rate57 by the committee members. They use a binomial indicator for voiced agreement (0) or disagreement (1) with Greenspan’s policy proposal as the dependent variable in a logit estimation. The right-hand side variables are indicator variables58, including a dummy for known transcription, and variables controlling for the economic environment.59 The purpose is to find the effect transcription has on the probability to disagree with the expert.

56 Here, it is worth to mention that in addition to the attributed transcripts, there are also published edited, unattributed minutes from the policy meetings of the FOMC. These are released with a much shorter time lag. However, here we are interested in the effect of the identifiability of the members’ contributions to the debate.
57 Formally, the Federal Reserve targeted the borrowed reserves over much of the sample, but the authors still focus on the interest rate
58 BPVOTER is a dummy for voting bank presidents, NonVOTER is a dummy for non-voting bank presidents, TAPExBPVOTER and TAPExNonVOTER are interaction terms. The last term reflects that the authors believe that the probability to disagree if you are a non-voter increases when the transcripts will be published.
59 This includes real time forecasts for the current output gap (GAP) and consumer price inflation (CPI), the forecast error for productivity growth (PROD) that is a proxy for economic uncertainty, one year ahead forecasts for real GDP and inflation by the private sector (FVCPI and FVGDP) that is a proxy for forecast uncertainty.
In a random utility setting, the latent variable here is the utility from dissenting with Alan Greenspan. According to the theoretical framework above, this utility is increasing in the prior probability of making the right decision and decreasing in the expected reputational payoff from mimicking the expert. If the latter is sufficiently high compared to the payoff from making the right decision, this might imply that the committee members will choose not to dissent with the expert, even his private information tells him that the expert is wrong (hence the dependent variable in the regression is zero).60

Meade and Stasavage find that the transcript variable (the dummy labeled TAPE) has a significant negative effect on the probability that a member will disagree with Greenspan. This could imply that when the committee members know that their contributions to the debate (their “messages”) will be made public, they are less likely to reveal their private information if this contradicts the message sent by Greenspan. The result remains significant both when using simple logit estimation and when using random effects logit estimation. The last estimation is done to control for individual-specific effects, as a quarreler leaving the committee can also cause a drop in disagreement.

Figure 5 Results of the general logit estimation by Meade and Stasavage (2008)

<table>
<thead>
<tr>
<th>Dependent variable: VOICEPREF</th>
<th>General ‘Tape’ Equation*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Logit estimation</td>
</tr>
<tr>
<td></td>
<td>Coefficient</td>
</tr>
<tr>
<td>TAPE</td>
<td>−1.52</td>
</tr>
<tr>
<td>VOTER × TAPE</td>
<td>0.65</td>
</tr>
<tr>
<td>NonVOTER × TAPE</td>
<td>1.02</td>
</tr>
<tr>
<td>EXPdiff × TAPE</td>
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</tr>
<tr>
<td>CPI</td>
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</tr>
<tr>
<td>GAP</td>
<td>0.07</td>
</tr>
<tr>
<td>FVWP1 × TAPE</td>
<td>−0.63</td>
</tr>
<tr>
<td>FVWP2 × TAPE</td>
<td>−1.55</td>
</tr>
<tr>
<td>FVWP3 × TAPE</td>
<td>−1.35</td>
</tr>
</tbody>
</table>

| Sample start year           | 1990         | 1990     |
| No. obs.                    | 931          | 931      |
| Prob > Chi²                 | <0.01        | <0.01    |

*Constants included but not reported. Logit estimation performed using White standard errors.

(Meade and Stasavage, 2008)

EXPdiff is a variable that measures the members experience in the committee relative to Greenspan. This is included because Greenspan’s reputation and influence increased over the sample period.

60 For a more thorough review of the random utility framework and the latent variable setting, see for example Kennedy (2008).
6.1.3 A preliminary summary: The effects of career concerns

Meade and Stasavage’s (2008) assumption that the first member to speak is a known expert, probably stems from the type of committee that constitutes the departure of their study, and the empirical data they have available. Their theoretical and empirical models fit the FOMC under Alan Greenspan’s lead. For monetary policy committees where the modality is different, the tests discussed above might not deliver the same results, and another set of assumptions is needed. This means that the results reported by Meade and Stasavage might not be externally valid, as they cannot be generalized from the FOMC under Greenspan’s lead to other monetary policy committees or monetary policy makers. When it comes to the Swedish Riksbank, the above mentioned results are not directly transferable, as there seems to be less autocracy and focus on the chairman in the decision making process (confer the survey on Swedish monetary policy committee members below). In addition, the nature of the minutes differs, as the Swedish attributed minutes are published after about two weeks, while the American transcripts are published after five years. The financial press, the economic circumstances and characteristics of the typical committee members might also differ between countries and hence contribute to different effects from introducing attributed minutes.

In fact, Meade and Stasavage’s (2008) results might not even be applicable for the FOMC today, as the current chairman Ben Bernanke seems to have less of an autocratic leading style compared to Greenspan (Blinder, 2008). This illustrates how empirical results depending heavily on assumptions about the decision making process and characteristics of the committee members, cannot be used as general arguments against procedural transparency.

Swank, Swank and Visser (2008) also question the conclusions drawn by Meade and Stasavage. They claim that the drop in dissent is not caused by known transcription, but rather by the fact that the committee members began to engage in pre-meetings before the formal, transparent meeting. I will review their theory below, along with a few other papers showing how experts with career concerns will behave in a transparent decision making process. Not all of them assume that a known expert speaks first; still they find that career concerns can cause the agents to abstain from using their private information. As explained, Scharfstein and
Stein (1990) find that herding can appear even when the agents do not know anything about their own or the other agents’ abilities.  

6.1.4 Pre-meetings

Like Meade and Stasavage (2008), Swank, Swank and Visser (2008) have discussed how the decision to publish verbatim transcripts has changed the nature of the deliberations at the Federal Open Market Committee. As explained previously, Meade and Stasavage argue that this has strengthened the incentives to herd in a sequential decision making process. Swank, Swank and Visser, on the other hand, focus on how the transcription has shifted the focus of the real debate away from the formal meeting to informal pre-meetings.  

They refer to anecdotal evidence indicating that after the introduction of public transcripts, Alan Greenspan pressed for unanimity and consensus in the decision making, and, moreover, that he took the initiative for one-to-one pre-meetings. As I will show, the purpose of engaging in pre-meetings is to agree on what to “decide” in the formal, transparent meeting. If this is the case, the estimator of the effect of known transcription captures the effects on the incentives to engage in pre-meetings, instead of the effects on the incentives to dissent with the expert. Both cases will give a drop in dissent, but for slightly different reasons. However, the committee members’ wish to appear smart is the background for both propositions. Swank, Swank and Visser’s theory is also supported by the fact that both they and Meade and Stasavage (2008) find that the deliberations of the FOMC were characterized by more pre-prepared statements and less interruptions after 1993. They claim that this finding is more consistent with a tendency to engage in pre-meetings than a tendency to herd.

Swank and Visser (2007) look more theoretically at what happens if a committee can shift the deliberation from public to private venues. Their assumptions about the decision making process differs from the model I presented above. They assume that messages are sent and

61 Their result is based on that there is some correlation between the smart members’ signals. Ottaviani and Sørensen (2000) show that a in a moderated version of Scharfstein and Stein’s (1990) model, herding can happen even without this correlation.

62 This theoretical argument is in line with Willem H. Buiter’s (1999) fear that publication of attributed minutes will diminish the usefulness of the deliberations. Members would come to the meeting with prepared positions or statements and that there would be no scope for open-minded discussions of alternative courses of action. The real discussions would be moved elsewhere, defeating the purpose of the publication of minutes.

63 Mostly taken from the books by the former Federal Reserve governors Alan S. Blinder and Laurence H. Meyer.

64 His reasons for doing this is suggested to be that he wanted “his” FOMC to look good.
that votes are cast simultaneously. Another crucial assumption in their model is that the members’ abilities are unknown. The public and the members only know the probability with which they are smart, $\theta$.

However, the public can no longer assess the ability of a committee member based on the members’ predictions about the economy. Swank and Visser assume that it is not apparent whether the committee members assessments of the economy were correct ($\mu$ is unknown). This may be a reasonable assumption, at least in the short run, because of the uncertainty that is present in much of the forecasts and real time datasets used by the central bank in the decision making process.  

65 Nevertheless, there are other sources of information for the public; smart members always receive the correct private signal, hence $\rho = 1$. This means that the smart members’ messages are perfectly correlated. Even if the public does not know for sure what was the right decision, they know that the more members that send the same message, the higher is the probability that they are smart and hence that their prediction about the economy is correct.  

66 Once the communication stage is over, the members’ reputation cannot change, because minutes are published. They do best if they stick to the rule that they should change the interest rate only if this is the best decision, given the most probable state of the economy, which they will know after the communication stage. Hence, they will vote for the action that most probably is right given the members’ messages.

At first sight, it may seem like transparency, in the form of minutes and voting records, will guarantee that the committee members reveal their true signals in the communication stage and make the best decision from the public’s point of view. If the minutes show that there are dissenting messages, this indicates that at least one member is dumb. Hence, the more members that communicate the same message, the better a member’s reputation will be. If the other members reveal their private information, then a member will maximize his expected reputation by also revealing his signal.  

65 There is also uncertainty in the information used by the public and the market when assessing the monetary policy decisions.

66 This will give both good reputational payoff and good policy payoff.

67 If you tell the truth you either are right or you have a 50 per cent chance to be right ($= \pi \rho + (1 - \pi) * 0.5$). If you don’t, you either have a 50 per cent chance to be right, or worse: you are wrong($= \pi * 0 + (1 - \pi) * 0.5$).
However, as the public updates its inference on a member’s ability using the degree of concurrence, each member’s reputation is hurt by the absence of a united front. The committee members seem to have a mutual interest in sharing information away from the public’s eye, as this will increase their reputational payoff. They can arrange a pre-meeting before the formal, “transparent” meeting. In the pre-meeting, the committee members reveal their private signals, and from these determine what the best decision is. The pre-meeting results in a deal on how to act and what to “decide” in the formal meeting. Part of the deal is that all members have to support the decision reached, both in the communication stage and in the voting stage of the decision process. This strategy will maximize both the reputational payoff and the policy payoff for all members.

Such a construction of a seemingly united front does not promote accountability, as the public will not know what the members based their agreement on. In addition, a pre-meeting can result in distorted decisions. To disguise disagreement, the members might choose the decision that demands the highest concurrence of votes (depending on the voting rule), even if this is not the action that should have been chosen given the available information on the state of the economy. For instance, if a change in the interest rate requires unanimity, choosing this action signals that the members received the same signal. Distorting the decision is however costly, so the committee members are willing to do so only if they care sufficiently about their reputation (λ) (Visser and Swank, 2007).

6.1.5 Antiherding

As opposed to the theories presented above, some theories show that career concerns induce agents to “antiherd” instead. One definition of this phenomenon is that B antiherds if he communicates something different than A, after receiving the same signal as A reports, and follows his own signal after receiving a signal which is different from A’s report (Effinger and Polborn, 2001). Effinger and Polborn (2001) show, in an investment manager setting, that if A communicates his private information, then B can have incentives to contradict A, even if his private signal indicates that A is right.

68 As another decision might be better when measured in policy payoff.
69 Swank and Visser (2007) also remind us that the committee members have to endorse the deals made in the pre-meeting in the formal, transparent meeting. In general, the more distorted the decision from the pre-meeting is, the stronger is a member’s incentive to deviate from the pre-meeting deal in the formal, transparent meeting. The formal meeting thus limits the scope of the deals that can be made in the pre-meeting. In this sense, transparency is beneficial, as it moderates the enthusiasm for unjustified, “bad” decisions.
As the above discussion shows, a common assumption of the herding literature is that the expert’s payoffs depend not only on whether they choose the right action, but also on other measures such as reputation. Effinger and Polborn assume that an expert’s value not only depends on his reputation, but also on how many other able experts are competing with him. Hence, an expert is most valuable if he is the only able expert, which makes it tempting for B not to reveal that he received the same information as A. This type of antiherding is only attractive if there is at least some probability that the public cannot recognize who was right and who was wrong. This presupposes that the state of the economy $\mu$ will not be publicly known. However, antiherding can also be the result in the model above if we assume that the dumb member’s signals are more correlated than the smart member’s signal. This assumption is not intuitively realistic. Just think of the case where the smart member’s assessment of the economy is always correct; $\varrho = 1$. In such a scenario, the smart members will always receive the same signal.

If the committee members have no private information about their own ability, they have incentives to herd. However, Avery and Chevalier (1998) show that if the agents have sufficient private information about their own abilities, they can have incentives to antiherd. The purpose of this behavior is to signal that they are smart. A herding agent will obtain private information about his ability over time, if we assume that the real state of the economy is eventually observable. Avery and Chevalier show that in their model equilibrium, agents with positive information about their abilities attempt to demonstrate their self-confidence by antiherding.

A key feature of this model is that smart agents’ signals are perfectly correlated. If they receive different signals, at least one of them must be dumb. Hence, in the antiherding equilibrium, if agent B that has positive information on his own ability, he will deviate from A’s message if his signal is not the same as the one A communicates. According to the theory above, where he has little information on own abilities, he would instead mimic A.70 This theory suggests that agents may herd early in their careers and diverge later. Moreover, the model predicts that in some cases even agents with negative information about their abilities will choose to antiherd. If they do not, they can be recognized for having no independent information. Several empirical investigations (see for example Lamont, 2002) of herding behavior have shown that young agents herd more than their older counterparts do.

70 Here, he will agree with A if their signals concur.
These theories of herding over the career give a hint on how the results in the baseline model can evolve over time; the behavior of the agents might change when they know more about the accuracy of their own signal, and hence their own type. After attending several monetary policy meetings, they will probably learn more about their own ability as well as the accuracy of the models or data they use. The effect of this could be, as shown, that they choose to antitherd when they have positive information on own prediction abilities.

6.2 Summary: the effects of procedural transparency

This chapter has shown how the combination of committee members that worry about their reputation and extensive procedural transparency can have adverse effects on the deliberations in a committee. If the public gets insight in the decision making process, and hence can identify each member’s assessments of the economy and their recommendation for the interest rate, the committee members may have incentives to ignore their private information and manipulate their communication. The purpose of this behavior is to bias the public’s inference on their ability. The committee members want to signal that they are smart and able policy makers.

The phenomenon described above is known as herding. It refers to a situation where it is most rational for a committee member to mimic the behavior of other members, even if this can result in a bad decision. Different assumptions about the decision making process can give rise this result. As shown, known correlation between smart members signal or a smart committee member speaking first in the deliberations, can both lead to a herding equilibrium. Some theories also assert that career concerns can give rise to antiherding, where the aim of the signaling is to stand out as the only smart member.

In addition, the combination of career concerns and procedural transparency can induce the committee members to engage in pre-meetings, and hence move the true deliberations to closed, informal settings.

In the above, I have assumed that minutes are attributed, because of the focus of this thesis and the practice in the Riksbank. If I instead had looked at unattributed minutes, which are published by several central banks, some of the effects might still prevail. For example, the purpose of a pre-meeting is to reduce disagreement and dissent in the transparent meeting,
because this signals that some members are “dumb”. Unattributed minutes, especially if combined with voting record, will also reveal disagreement. Hence, the incentives to engage in pre-meetings can still be present. However, some of the effects described here might not be as severe with unattributed minutes, and much of the information on how the monetary policy committee reasons and focuses on will still be available to the public. Even if the member’s contributions cannot be as easily identified, several of the positive effects of minutes are still present. Hence, when arguing for or against procedural transparency, it seems important to base the arguments on what type of procedural transparency you are discussing.
7 Experiences from the Executive Board in the Riksbank

In a unique survey from Sweden, Apel, Claussen and Lennartdotter (2009) have interviewed present and former (since 1999) Executive Board members in the Riksbank about their experience with the new monetary policy framework \(^{71}\) and the decision making process. \(^{72}\) The survey largely concerns themes from the theoretical literature (including the literature reviewed above), and may show how the committee members think the theoretical propositions match their own experiences. The results cannot be used as evidence on the success or failure of imposing procedural transparency on the monetary policy decision making process, but it can give a look into the incentives, experiences and opinions of the board members. It also illustrates the interaction of institutional arrangements and transparency- and communication policy.

7.1.1 Institutional framework

When comparing the results from this survey with the theories above, it is important to keep in mind the difference between the conventional theoretical modeling of a monetary policy decision making process and how it is done in practice. The theory focus, to a considerable degree, on a monetary policy meeting where the committee members present their arguments and the committee gradually reaches a conclusion through voting or deliberation. However, according to Apel, Claussen and Lennartsdotter (2009), the monetary policy decision making process in the Swedish Riksbank differs substantially from this. The process leading up to the monetary policy meeting lasts for weeks and involves several meetings between the staff and the Executive Board. It ends up in an interest rate decision and detailed forecasts for a number of macroeconomic variables (including the interest rate).

Several of the results in the survey, appear to be influenced by the design of the monetary policy decision making process. Lars E. O. Svensson (2009a), a member of the Swedish Executive Board, emphasizes that in the meetings preceding the final policy meeting, there is

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\(^{71}\) Inflation targeting and decision making in an individualistic committee combined with extensive transparency (releasing endogenous interest rate paths, publishing attributed minutes and voting records).

\(^{72}\) In total 13 persons, they received 12 answers. The 12 participants got a questionnaire that asked them to judge the relevance of particular statements (concerning different aspects of the decision making process).
discussion and a genuine exchange of views as minds are made up or changed. Therefore, in the discussion in the final, transparent meeting one should not expect too much spontaneity, but rather presentations of essential summaries and the reasons for the decisions by each member. The revision and correction of opinions and testing of the accuracy of private signals (in our model language) is done in advance. This implies that some of the doubts, counterarguments and dissents are not made publicly available. Assumingly, this process leading up to the monetary policy meeting might have similar effects as a pre-meeting.

In accordance with this, the survey shows that usually a majority of the board members has decided how to vote before the monetary policy meeting (see figure 6). They seldom change their mind. During the process leading up to the monetary policy meeting, most members also form a good idea of how most of their colleagues intend to vote. It is unusual for new information or arguments to appear at the monetary policy meeting.

Figure 6 The monetary policy committee meeting

![Figure 6. The MPC meetings.](Apel, Claussen and Lennartdotter, 2009)

It is common for central banks to work as the Riksbank. Forecasts and opinions are the results of a process leading up to a written report published at the same time as the policy rate decision. The conventional picture is usually better suited to describe for example, central banks where the members are located in different parts of the country, have their own staff etc.

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73 It is common for central banks to work as the Riksbank. Forecasts and opinions are the results of a process leading up to a written report published at the same time as the policy rate decision. The conventional picture is usually better suited to describe for example, central banks where the members are located in different parts of the country, have their own staff etc.
The survey also demonstrates another implication of the monetary policy process: even if the discussion within the Executive Board is considered important, the members’ possibilities of influencing each other’s assessments of the economy seem limited. Instead, the committee members find that the staff of the central bank plays an important role when they assess the current economic situation, the Swedish economy and the inflation target.

### 7.1.2 Dissent and voting patterns

Approximately one in three repo rate decisions has not been unanimous. However, despite having a different opinion (“private signal”) than the majority, members refrain from entering reservations. Seven of the twelve members answered that they had refrained from entering a reservation, even though they thought another decision would be better. Hence, the committee members are willing to compromise. The most important reason for doing this was that the majority decision was reasonably close to their assessment.

This element of collegiality could be driven by a wish to show a united front or it could be a result of herding behavior, as explained by the theory. However, the result can also stem from the members trying to reduce noise in the communication of monetary policy. In the survey, some members state that considerations of the public’s confidence in monetary policy, and a fear of unease in the financial markets, have been the background for the choice of not dissenting. On the other hand, the explanation could be as simple as the authors suggest; monetary policy is not an exact science; therefore, the member’s choose their battles carefully. Apel, Claussen and Lennartdotter, (2009) calls this the “bargaining margin” in the interest rate decisions. Because of this, the diverging opinions might not be well expressed in the minutes from the meeting.

Figure 7 (taken from Ecki, 2009) shows the occurrence of reservations against the majority decision, and how the repo rate has been changed. The size of the bars indicates how many board members that dissented, and if a bar is negative, this indicates that the dissenters wanted a lower repo rate than the majority (and correspondingly a higher rate if they a bar is positive). As pointed out by the author, at three of four occasions when the Governor’s vote has been deciding, the repo rate path has been changed in the next meetings. A possible explanation for this could be that differences of opinions will arise when there is high uncertainty about the state of the economy. This is also an indication of the empirical result previously shown by Gerlach-Kristen (2004) for the Bank of England’s monetary policy
committee, namely that voting patterns could be a leading indicator for future monetary policy.\textsuperscript{74}

Figure 7 Reservations and the Swedish repo rate, 1999 – Oct 2009

![Figure 7](image)

(Source: Ecki, 2009)

During the Executive Board’s first decade, every member but the governor had entered a reservation at least once. This can be explained by the fact that the governor holds the decisive vote if the outcome of the voting is even.

Nevertheless, the members were asked to stipulate the relevance of some explanations to why the governor has never been a minority. They did not support the proposition that the governor has more influence over the forecast and other materials on which the interest rate decisions are based. The members did not find it worthwhile to support the governor’s view for the reason of displaying unanimity. Neither did they think that the governor found it worthwhile to support the majority view in order to avoid being in the minority. In this context, it is interesting that the Executive Board members are particularly skeptic towards the hypothesis that the Governor, by virtue of being the chairman of the board, will influence the discussion, and hence the interest rate decision, to a large degree.

\textsuperscript{74} From the figure, it also seems like the assumption that the committee members face a binary choice when deciding on the interest rate, is realistic. When more than one person dissent the direction of their preferred policy is the same.
This result, combined with the fact that some dissent and counterarguments are probably lost already in advance of the policy meeting, makes it harder to evaluate whether there are elements of herding in the decision making process in the Riksbank. As indicated above, the institutional arrangements and the influence of the chairman in the Riksbank, seem to differ from the structures in the Federal Reserve under Alan Greenspan’s lead. This could imply that the effect of career concerns and procedural transparency combined, will differ from the propositions from Meade and Stasavage (2008) and Swank, Swank and Visser (2008).

One can see, from the statistics on the Swedish committee members’ voting, that some board members have entered more reservations than others have. There also seems to be a tendency for the members to dissent in the same direction every time, see figure 8. Relative to the number of meetings attended, Lars E. O. Svensson (a well-known scholar and expert in monetary policy issues) is the member who has dissented the most from the majority decision; he has entered reservations in 25 per cent of the meetings he has attended.75

Figure 8 Members’ votes in relation to majority decisions, 1999- Oct 2009

<table>
<thead>
<tr>
<th>Member</th>
<th>Same</th>
<th>Lower</th>
<th>Higher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Villey Bergström</td>
<td>59</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Urban Bäckström</td>
<td>44</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Karolina Ekholm</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lars Heikensten</td>
<td>66</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Kerstin Hessius</td>
<td>25</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Stefan Ingves</td>
<td>25</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lars Nyberg</td>
<td>88</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Barbro Wickman-Parak</td>
<td>15</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Kristina Persson</td>
<td>40</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Irma Rosenberg</td>
<td>42</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Eva Streber</td>
<td>62</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Lars E.O. Svensson</td>
<td>12</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Svante Öberg</td>
<td>23</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

(Source: Ecki, 2009)

These differences in the members’ voting pattern may be due to different views on the workings of the economy and on how the goal of price stability should be weighed against the goal of stable resource utilization. Alternatively, according to the theories discussed above, they may reflect how the members try to signal their abilities in assessing the economy. If agreeing with the majority is considered important, the members might refrain from

75 This result could be influenced by the fact that he joined the Executive Board in summer 2007 and hence that a large part of his term on the board so far has been during the financial crises. His four reservations came in the subsequent meetings from April 2009 to October 2009. He also dissented in the meeting in December 2009 (not counted here). He consequently wanted a lower interest rate than the majority during this period.
dissenting in most cases; refer the bargaining margin described above. Others might find it important to signal that they have independent information on the state and workings of the economy; refer the theory of antiherding described above.

This is an interesting area for more research. For example, it could be interesting to study whether the members’ age, previous career, experience on the board, reputation and socioeconomic background affect these results. However, it is hard to collect enough data to draw general conclusion based on this type of empirical investigations. In addition, as emphasized above, the effect of attribution and procedural transparency in itself is best measured if one can compare the committee member’s behavior before and after the change in policy. As explained in detail by Meade and Stasavage (2008), imposing attributed minutes does not necessarily entail a change in the voting pattern, even if it changes the characteristics of the deliberations. Hence, it is not necessarily enough to investigate whether the votes change. This does not imply that a survey cannot tell us anything new. For example, as emphasized by Apel, Claussen and Lennartsdotter (2009), the result that a majority of the members had refrained from dissenting, would be difficult to attain by other means than a questionnaire. Nevertheless, the question of whether this element of collegiality is enhanced by extensive procedural transparency, is better examined by a before and after analysis.

7.1.3 The effects of attribution

Figure 9 The effects of attributed minutes
The members of the Executive board were also asked to evaluate the use of attributed minutes, see the figure above. The statement that attributed minutes make the discussion better, received the most support.\textsuperscript{76} Again, the process leading up to the monetary policy meeting may have affected this result, as the members have had good practice presenting their arguments before the transparent meeting. The members that have experience with attributed minutes\textsuperscript{77} are also less concerned that attributed minutes will lead to much focus on the members, and not on the policy. One also has to take into account that the people that decided to introduce attributed minutes are the ones answering these questions. They were positive to the use of attribution from the outset. Figure 9 also shows that a majority believes that attributed minutes make the members invest more time and effort in the monetary policy preparations. (Apel, Claussen and Lennartsdotter, 2009). As explained previously, this is in line with the arguments used by those who suggest that minutes will make the committee’s deliberations and decisions better.

\textsuperscript{76} In this statement, “better discussion” does not necessarily imply that the discussion is more spontaneous or that there are more dissenting voices, it could also mean that the discussion is better because the members are more prepared for the meeting.

\textsuperscript{77} The two groups are divided into members who were serving on the board before and after the introduction of endogenous interest rate paths (February 2007), as this coincides somewhat with the publication of attributed minutes (June 2007).
8 Transparency in theory and practice: a summary

This thesis has explained some of the reasons why there has been a significant increase in the disclosure of information from central banks during the last decade (Geraats, 2009). The increase in central bank transparency can be explained by the economic benefits from central bank transparency, as it is an important and powerful part of the central bank’s toolkit. The right kind of transparency has the ability to move financial markets, to enhance the predictability of monetary policy decisions, and potentially to help achieve central banks’ macroeconomic objectives (see for example Blinder, 2008, Woodford, 2005). As more and more countries delegate the conduct of monetary policy to independent central banks, there are also democratic arguments for increasing central bank accountability. Transparency will help the public to monitor the policy makers.

However, the practice of central bank transparency varies to a large degree between countries, and the optimal design of monetary policy transparency is subject to debate. Here, the case of Norges Bank and the Riksbank is especially illustrative of the hottest debate topics. Even if the monetary policy framework is somewhat similar in Norway and Sweden – as they both practice flexible inflation targeting – their transparency regimes differ with respect to procedural transparency. As regards policy- and economic transparency, however, they are at the same level. Norges Bank and the Riksbank are amongst the most transparent central banks in the world when it comes to forward guidance, as they publish endogenous, conditional forecasts for the policy rate.

The arguments of the opponents of endogenous interest rate paths and extensive procedural transparency, as presented above, indicate that there is an optimal level of transparency. However, it is not an easy task to decide what design of transparency regime is the better. One has to decide what to count as the benefits and costs of transparency, and how to measure them. As Meade and Stasavage (2008) emphasize: their results on the effects of imposing transparency on a decision making process, cannot be used to make a general assessment of whether private deliberations are preferable or not. Their survey only looks at the committee members’ incentives to use and reveal their private information. To answer the more general question of the desirability of extensive transparency, one would have to weigh the possible costs of transparency against the benefits in terms of increased accountability and efficiency.
gains, as described by amongst others Sibert (2006), Anderson and Hofmann (2009) and Woodford (2005).

Full transparency is desirable in some stages of the monetary policy making process (for example when it comes to announcing the goals of policy and the actual monetary policy decisions), while in other stages of the process, the optimal level of transparency is likely to be intermediate. However, from a democratic point of view, a central bank that withholds any information regarding the different stages of the decision making process, should be obliged to explain this. Their reasons should be related to the fulfillment of their monetary policy task (Issing, 2005). And indeed, most of the arguments used to advocate an intermediate degree of transparency presented in this thesis, emphasize the negative effects that transparency can have on the monetary policy decisions and on the public’s expectations of future monetary policy and inflation.

**Effects on inflation expectations and efficiency**

The last decade, monetary policy has popularly been renamed “management of expectations”. Theory suggests that the more convincingly a central bank explains the reasons for its policy to the public, the more effective the monetary policy can and will be.

Empirical investigations of the credibility and predictability of the policies followed by Norges Bank and the Riksbank have found that (different types of) transparency reduces monetary policy surprises and noise, and moves market interest rates in the desired way. However, some studies, that use cross-country data, indicate that the beneficial effect of increasing general transparency is at its biggest when the increase comes from a low initial level. There are some indications (or perhaps mostly fears?) that too much information and communication from the central bank might confuse more than it enlightens.

**Effects on the decision making process**

The direct effects of procedural transparency on the decisions and deliberations in the monetary policy committees are hard to measure. Nevertheless, the theory (some of it reviewed above) says that extensive procedural transparency in the form of attributed minutes will have adverse effects on the deliberations in the monetary policy committee.
There is not much data available to test the effects of extensive procedural transparency. In this context, the data set from the FOMC is unique, as it provides data from before and after the introduction of verbatim, attributed transcripts. The data set showed that the probability that members dissented with Chairman Alan Greenspan, fell after the introduction of transcripts. The effect of this could be a stifled debate, and members that hide their private information. This, in turn, could result in worse monetary policy decisions, if one believe that a group that share their private information makes better decisions than an individual (as shown in the theoretical exposition above).

The survey from the Swedish Riksbank shows that the monetary policy committee members themselves do not find that the theory’s predictions are right. Quite on the contrary, they find that the discussions on the Board are even better after the introduction of attributed minutes.

**Legitimacy and democracy**

Another way to evaluate the benefits of transparency, is to consider the beneficial effects it has on democratic legitimacy and public support of the central bank. If the public knows what the central bank’s goal is and how it tries to reach it, it is easier for them to trust that the bank does its job. Transparency makes it easier to evaluate whether the bank reaches its targets, or, under the circumstances, why it does not reach them. Transparency also justifies the central bank’s independence. As emphasized by Governor Stephan Ingves (2007) in the Riksbank; as the central banks became independent, it was not compatible with good democratic tradition to remain closed and secretive. Increased transparency was considered a means of creating legitimacy for the new system among the public.

As explained above, both economic- and policy transparency and procedural transparency can and will have beneficial effects on the central bank’s legitimacy, and hence its credibility. However, these benefits are difficult to measure and weigh against other considerations. How do you measure the central bank’s legitimacy, and how do you compute this into a unit that can be compared to the costs from herding, for example? This is not something I will try to answer or conclude on here.
8.1 Conclusions

For now, using the policies of the Riksbank and Norges Bank as a point of departure, I have sought to provide the reader with an insight into some of the considerations that has to be taken into account when evaluating transparency policies. My focus has been two different aspects of central bank transparency policy, namely (i) transparency regarding the monetary policy meeting and (ii) transparency regarding future policy inclination. A tentative conclusion is, as in most reviews of central bank transparency, that neither the theories nor the practices of central bank transparency so far have rendered a clear conclusion as to the optimal design of transparency policy. This thesis have shown that what is regarded as optimal openness and communication is influenced by institutional arrangements, the general monetary policy framework and policy goals. Finally, the debate on optimal transparency is, to a large degree, influenced by the beliefs on the gains and costs of transparency.

Then, at last, there is a question that is not within the scope of this thesis, but that should be posed in this context, namely: Who should decide when there is “enough” central bank transparency? Who influences the emphasis to put on the different benefits and costs of the aspects of transparency, and how these should be measured? Without further investigation or deliberation, I will just conclude that one answer seems obvious to me, for reasons of incentives, democracy, control and legitimacy: it should not be the central bank alone.
References


Ehrmann, Michael and Marcel Fratzscher (2007): “Communication by Central Bank Committee Members: Different Strategies, Same Effectiveness?”, Journal of Money, Credit and Banking, 39, no. 2–3

Ekici, Bul (2009): “Executive Board voting – a summary of the first eleven years”, Economic commentaries (Sveriges Riksbank), no. 15


Goodfriend, Marvin (1986): “Monetary mystique: secrecy and central banking”, Journal of Monetary Economics, 17, no.1


Ottaviani, Marco and Peter Sørensen (2000): “Herd behavior and investment: Comment”, The American Economic Review, 90, no.3


Sibert, Anne (2006): “Central Banking by Committee”, International Finance, 9, no. 2


Webpages:
www.bankofengland.co.uk
www.ecb.int
www.federalreserve.gov
www.norges-bank.no
www.riksbank.com
Appendix A  Behavior of committee member C when his message is pivotal to the decision

Below is the expression for C’s posterior belief about the state if A and B do not send the same message and C receives the same signal as B (this derivation follows Meade and Stasavage (2008)):

\[(*) \Pr(\mu = m^A | m^A, m^B, s^C) = \frac{\Pr(m^A m^B s^C | \mu = m^A) \Pr(\mu = m^A)}{\Pr(m^A m^B s^C)} = \frac{\rho (1-\pi)^2}{\rho (1-\pi)^2 - (1-\rho)\pi^2} = \varphi \]

If C truthfully reveals his signal, his expected payoff is:

\[(**) (1 - \varphi) + \beta \left[ (1 - \varphi) \frac{\rho \theta}{\rho \theta + 0.5(1-\theta)} + \varphi \frac{(1-\rho)\theta}{(1-\rho)\theta + 0.5(1-\theta)} \right] \]

The first part of this expression is the probability that A is wrong, given the other members’ assessments, and the second part consists of the reputational payoff for C in case he is right and wrong, respectively. That is: \( \Pr(sm | \mu = m^C) = \frac{\Pr(\mu = m^C | sm) \Pr(sm)}{\Pr(\mu = m^C)} = \frac{\rho \theta}{\rho \theta + 0.5(1-\theta)} \) and \( \Pr(sm | \mu \neq m^C) = \frac{\Pr(\mu \neq m^C | sm) \Pr(sm)}{\Pr(\mu \neq m^C)} = \frac{(1-\rho)\theta}{(1-\rho)\theta + 0.5(1-\theta)} \)

The same logic applies if C does not reveal her signal. Then his expected payoff is:

\[(***) \varphi + \beta \left[ \varphi \frac{\rho \theta}{\rho \theta + 0.5(1-\theta)} + (1 - \varphi) \frac{(1-\rho)\theta}{(1-\rho)\theta + 0.5(1-\theta)} \right] \]

Given that \( \varphi < 0.5 \), which it is given that \( \left( \frac{\pi^2}{1-\pi} \right)^2 > \left( \frac{\rho}{1-\rho} \right)^2 \), then the expected payoff from revealing the true private signal is higher than the payoff from not revealing it, and hence, C will reveal his true signal when this is pivotal to the decision.
<table>
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<th><strong>Appendix B Different institutional arrangements</strong></th>
<th><strong>POLICY GOAL</strong></th>
<th><strong>POLICY INSTRUMENT</strong></th>
<th><strong>COMMITTEE STRUCTURE</strong></th>
<th><strong>APPOINTMENT OF COMMITTEE MEMBERS</strong></th>
<th><strong>VOTING RULE</strong></th>
<th><strong>MINUTES/TRANSCRIPTS</strong></th>
<th><strong>VOTING RECORDS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THE FEDERAL RESERVE</strong>&lt;br&gt;&lt;br&gt;Source: <a href="http://www.federalreserve.gov">www.federalreserve.gov</a></td>
<td>Maintain long run growth of the monetary and credit aggregates (...) promote the goals of maximum employment, stable prices, and moderate long-term interest rates.</td>
<td>The federal funds rate</td>
<td>Twelve voting members; the seven members of the Board of Governors and five of the twelve Federal Reserve Bank presidents.</td>
<td>The seven members of the Board of Governors are nominated by the President of the United States and confirmed by the U.S. Senate. The Chairman and Vice Chairman of the Board are chosen by the President from among the sitting Governors. They serve terms of four years and may be reappointed as Chairman or Vice Chairman until their terms as Governors expire.</td>
<td>Minutes are released three weeks after the policy decision. These are non-attributed. Attributed transcripts of the monetary policy meetings are released with a five year lag.</td>
<td>Attributed voting records are released together with minutes.</td>
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<td><strong>THE EUROPEAN CENTRAL BANK</strong>&lt;br&gt;&lt;br&gt;Source: <a href="http://www.ecb.int">www.ecb.int</a></td>
<td>Maintaining price stability, defined as a year-on-year increase in the Harmonized Index of Consumer Prices (HICP) of below 2 per cent over the medium term.</td>
<td>The key policy rate</td>
<td>The six members of the Executive Board, plus governors from the 16 national central banks of the euro area. The Executive Board consists of the President, the Vice-President and four other members.</td>
<td>All members are appointed by common accord of the Heads of State or Government of the euro area countries.</td>
<td>No minutes. The decision on the policy rate is published in a press release. Shortly afterwards, the President and the Vice-President of the ECB hold a press conference. After an introductory statement, they answer journalists’ questions.</td>
<td>No voting record is published</td>
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<td><strong>THE BANK OF ENGLAND</strong>&lt;br&gt;&lt;br&gt;Source: <a href="http://www.bankofengland.co.uk">www.bankofengland.co.uk</a></td>
<td>Price stability, defined by the Government’s inflation target of 2 per cent.</td>
<td>The policy rate</td>
<td>Nine members; the Governor, the two Deputy Governors, the Bank’s Chief Economist, the Executive Director for Markets and four external members appointed directly by the Chancellor.</td>
<td>Members serve fixed terms after which they may be replaced or re-appointed.</td>
<td>Each member votes on the interest rate level he believes is consistent with meeting the target. The decision is made on the basis of one-person, one vote.</td>
<td>Non-attributed minutes are published two weeks after the interest rate decision. They give a full account of the policy discussion, including differences of view.</td>
<td>The votes of the individual committee members are published together with the minutes.</td>
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<td><strong>THE RIKSBANK</strong>&lt;br&gt;&lt;br&gt;Source: <a href="http://www.riksbank.com">www.riksbank.com</a></td>
<td>Maintain price stability; keep inflation around 2 per cent per year, as measured by the annual change in the consumer price index (CPI).</td>
<td>The policy rate</td>
<td>Six full time employed governors</td>
<td>The members are appointed by the General Council, which in turn is appointed by the Swedish parliament. Members are appointed for a period of five or six years according to a rolling schedule. One of the Board members is appointed Governor of the Riksbank.</td>
<td>The Executive Board makes decisions collectively. The interest rate decision is a majority decision by voting. The Governor has the casting vote.</td>
<td>Minutes are published two weeks after the monetary policy meeting. If any of the members has a different opinion than the final decision, this is shown, together with the way in which the members have reasoned. Minutes are attributed.</td>
<td>Attributed voting records are published</td>
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<td><strong>NORGES BANK</strong>&lt;br&gt;&lt;br&gt;Source: <a href="http://www.norgesbank.no">www.norgesbank.no</a></td>
<td>Low and stable inflation. The operational target is annual consumer price inflation of close to 2.5 per cent over time</td>
<td>The policy rate</td>
<td>The Executive board consists of seven members. The Central Bank Governor and Deputy Central Bank Governor serve as chairman and deputy chairman of the board. The other five members are not employees of Norges Bank.</td>
<td>Members are appointed by the King in Council. The governor and the deputy governor can be appointed to full-time positions for a term of six years. The other five members are appointed for four-year terms.</td>
<td>No minutes. The decision is announced together with the release of the monetary policy statement. This statement provides an account of the main aspects of economic developments that have had a bearing on the interest rate decision and the Executive Board’s assessment.</td>
<td>No voting record is published.</td>
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