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by Philipp Maier

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## **Abstract**

More than 80 central banks use a committee to take monetary policy decisions. The composition of the committee and the structure of the meeting can affect the quality of the decision making. In this paper we review economic, experimental, sociological and psychological studies to identify criteria for the optimal institutional setting of a monetary committee. These include the optimal size of the committee, measures to encourage independent thinking, a relatively informal structure of the meeting, and abilities to identify and evaluate individual members' performances. Using these criteria, we evaluate the composition and operation of monetary policy committees in various central banks. Our findings indicate that e.g. the monetary policy committee of the Bank of England follows committee best-practice, while the committee structure of other major central banks could be improved.

*JEL classification: C92, D70, E58*

*Bank classification: Central bank research; Monetary policy framework*

## **Résumé**

Dans plus de 80 banques centrales, les décisions relatives à la politique monétaire sont prises en comité. Or, la composition de ce dernier et la structure de ses réunions peuvent influencer sur la qualité du processus décisionnel. Au terme d'une analyse des études économiques, expérimentales, sociologiques et psychologiques consacrées à la question, nous définissons les critères qui caractérisent le cadre institutionnel optimal d'un comité de politique monétaire : taille idéale; mesures favorisant l'indépendance des points de vue; structure relativement informelle des réunions; et moyens de distinguer et d'évaluer les contributions individuelles des membres. À partir de ces critères, nous comparons la composition et le fonctionnement des comités de politique monétaire de plusieurs banques centrales. Nous en concluons que les pratiques suivies par la Banque d'Angleterre sont supérieures à celles de plusieurs autres grandes banques centrales, qui gagneraient à améliorer la structure de leurs comités.

*Classification JEL : C92, D70, E58*

*Classification de la Banque : Recherches menées par les banques centrales; Cadre de la politique monétaire*

# 1 Introduction

In recent decades, central banks have undergone substantial transformations. One of the elements of the ‘quiet revolution’ (Blinder 2004) in central banking has been a change in the way monetary policy decisions are taken: the ‘dictatorial central bank governor’ of the past has increasingly been replaced by committees taking monetary policy decisions. Today more than 80 central banks take monetary policy decisions in a committee, and no country has ever replaced a monetary committee by a single decision-maker (Mahadeva and Sterne, 2000). Committee decision-making in central banks mimics a trend set elsewhere: juries, not individual jurors, must decide guilt or innocence; parliament, not individual lawmakers, must decide upon bills; and medical operations of members of the Royal family or Presidents are typically not carried out by a single doctor, but by a team.

We view the structure of the monetary policy committee as an important part of the overall institutional framework of the central bank. The structure and composition of a committee can affect the outcome of the meeting and, possibly, the quality of decisions. Improvements to the decision-making process can have similar effects as making a central bank more transparent, as both can make monetary policy more predictable. Consequently, following best-practices in setting a framework for monetary policy decisions can result in an environment where inflation expectations are better anchored or anchored at lower levels.<sup>1</sup> Against this backdrop, we review empirical and experimental studies in the fields of economics, psychology and sociology to identify recommendations for setting up a committee ‘optimally’. Our focus lies on issues relevant for monetary policymaking in central banks, but clearly this discussion applies for other types of committees as well. This complements the work of Fujiki (2005), who provides a selective review of theoretical models, and the studies by Sibert (2006) and Vandebussche (2006). In addition, we provide detailed data on the setup of monetary committees in central banks.<sup>2</sup> Using these criteria we then analyse the institutional setup of monetary policy committees in various central banks in the world.

To preview the conclusions, we find that some central banks have taken measures to potentially increase the effectiveness of their monetary committees. A vast majority of central banks, however, could probably improve their commit-

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<sup>1</sup>Chortareas et al. (2001) find that higher transparency is correlated with lower inflation.

<sup>2</sup>This extends the work of Mahadeva and Sterne (2000) and Wyplosz et al. (2003).

tee framework, by e.g. making it possible to identify and evaluate individual contributions to counter free-riding on information provided by others.

We proceed as follows. In the next section we outline the main benefits and ‘costs’ of taking monetary decisions by committee. We identify a number of criteria for ‘good’ committees, and use them to evaluate real-life monetary committees in section 3. The final section summarises our main conclusions.

## 2 The impact of committees on decision-making

Consider a central bank with a clear target and instruments suitable to achieve the target. Also, the central bank is independent in its use of instruments, i.e. effectively shielded from outside pressure.<sup>3</sup> As it is impossible to foresee all contingencies, the central bank retains a degree of discretion (otherwise monetary policy could be set by a computer). The central bank’s success will depend on the quality of its decisions. And if these decisions are taken by a committee, the structure of the committee will matter.

My experience as a member of the FOMC left me with a strong feeling that the theoretical fiction that monetary policy is made by a single individual ... misses something important. In my view, monetary theorists should start paying attention to the nature of decision making by committee...’ (Blinder, 1998, p. 22).

We define the monetary policy committee as the body taking monetary decisions.<sup>4</sup> Ideally, we can think of the monetary policy committee as a group of people sharing information and taking a decision together, on the basis of the information reviewed (and revealed).

Assume that all committee members genuinely want the committee to take good decisions, i.e. to take socially optimal decisions. However, the committee operates in a uncertain environment, as e.g. the state of nature or the state of the economy is not readily observable. Hence, committee members need to gather, share and discuss information, on which the group decision will be based. Figure 1 shows how a group decision is taken. On the right we show how at each of these

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<sup>3</sup>In the words of Goodfriend (2005) assume that an ‘overarching guidance’ exists that supplements formal central bank independence and that enables the central bank to use its monetary policy power efficiently to stabilize the economy.

<sup>4</sup>When referring to the body taking monetary policy decisions we use the terms ‘monetary (policy) committee’, ‘committee’ or ‘group’ interchangeably. The discussion will primarily focus on the monetary policy aspect, as this is the most visible aspect of central banking.

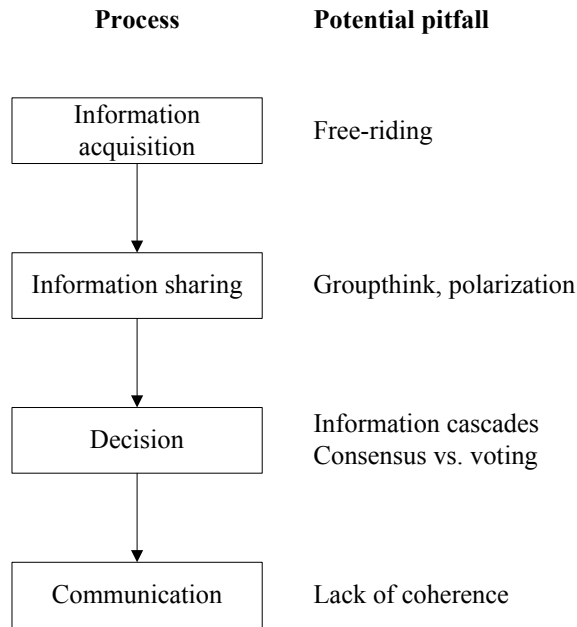


Figure 1: Decision making and potential pitfalls

stages group processes might interfere in the decision-making process. Examples of such processes include adoption of extreme preferences (polarization), the need to achieve consensus, or free-riding on information provided by others (Kerr, MacCoun and Kramer 1996). The structure of the committee can either facilitate taking good decisions, e.g. by providing incentives to be well-prepared – or induce frictions, because e.g. the committee is too large to allow for a genuine exchange of views.

To expose the main elements of group decision-making more clearly, we abstract from strategic considerations or analysing the merits of different decision rules.<sup>5</sup> This allows us to focus on our main objective, namely analysing how individuals behave when taking a decision together.

## 2.1 The benefits of committee decision-making

The virtues of committees can be summarised as follows: first, if every member of a committee exerts effort to become informed, committees can gather more information than individual decision-makers. Better information can lead to

<sup>5</sup>An extensive overview is given in Mueller (2003).

better decisions. Second, even if all committee members have identical information, they need not reach the same (individual) conclusion. This is because committee members typically have different skills, different backgrounds and preferences, different abilities to process data and to extract useful information. Third, if information may contain errors, a committee can pool signals and reduce uncertainty. Fourth, committees provide an ‘insurance’ against extreme preferences.

**Information gathering** Committee members can possess different information sets. Central bankers might e.g. have links to key sectors in the business community (Goodfriend 2005) or to international fora, from which they gain private information. This holds in particular if banks have regional branches. Also, within a central bank, committee members might have different functions, e.g. one being in charge of (domestic) research, one in charge of financial supervision etc. Group discussion enables participants to share information, such that the committee as a whole can access a larger pool of information than any one person acting alone (Shaw 1981).

**Information processing** Individuals differ in terms of their ability to process information. Homo economicus is an efficient calculating machine, homo sapiens is not (Blinder 2006). Diverse groups can outperform individuals or homogeneous groups in solving problems (Hong and Page 2004).<sup>6</sup> Surowiecki (2004) provides an example of a weight-judging competition, where members of a crowd placed wagers on the weight of an ox. The average guess of 787 contestants was 1,197 pounds. Impossible as such a guess might seem, the crowd was essentially correct: the actual weight of the ox was 1,198 pounds. Blinder and Morgan (2005) and Lombardelli et al. (2002) show that groups outperform individuals in an experiment designed to mimic monetary policy when the state of the economy is uncertain.

Applied to monetary committees, variations in information-processing skills can result, for example, from employing different economic models to evaluate the state of the economy, or from different methods for making forecasts (Gerlach-Kristen 2006). Pooling knowledge leads to better forecasts and potentially better decisions.

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<sup>6</sup>Odean (1998) cautions on the value of ‘expert knowledge’ when experts are individuals. He reports that physicians, nurses, lawyers, engineers, entrepreneurs, and investment bankers typically overestimate their own knowledge. However, the *average* prediction of experts – i.e. if their knowledge is pooled together – is likely to be correct (Surowiecki 2004).



**Removing noise from signals** Consider the following stylised setting (Sibert 2006): A committee of  $n$  members has to take a binary decision. Prior to the meeting, every committee members receives a private signal about which alternative is best. Suppose that by assumption the private signals are uncorrelated, informative, but ‘noisy’ – i.e. although the signals are on average more likely to be correct than incorrect, there is a certain probability that the signal is wrong. Assuming that all members vote according to the signal they receive, and that decisions are taken by simple majority, the probability that the correct alternative is chosen goes to one, as the committee size increases. This result is the famous Condorcet jury theorem (1785): If decisions are taken by majority, the committee is more likely to pick the best option than any of its members (i.e. a committee is more than just the sum of its parts). Lastly, in an experimental study, Kocher and Sutter (2005) show that groups are not smarter decision makers *per se*, but that they learn faster than individuals.

**Insurance** Much as a careful investor would not put all his eggs in one basket, having policy set by a group rather than by a single central banker keeps policy from going to extremes (Waller 2000). Hence, committees can provide an ‘insurance’ against strong individual preferences. Also, letting a committee decide – as opposed to having a single monetary decision maker – provides a certain ‘protection’ for the Governor (and all other committee members), who otherwise might be subject to substantial personal pressure (Goodhart 2000). This ‘protection’ helps to promote independence and facilitates frank discussion of opinions.

**Implications** An important implication of the first two elements is that to reap the full benefits of committee decision-making, its members should be heterogeneous. An optimal committee consists of people that share information to jointly maximise the information available to the group.

Some qualifications apply: first, information gathering and information processing is assumed to be costless (and effortless). Hence, the optimal committee would be infinitively large. As we show below, once we allow for costs associated with information gathering, there is likely to be an ‘upper limit’ for the optimal committee size.

Second, the insurance argument assumes that individual preferences are stable, and that group membership does not introduce biases in judgment. This, however, is not the reality. The next section shows that there are powerful rea-

sons to believe that committee membership may affect individual preferences or judgment.

## 2.2 The costs of committee decision-making

### 1 Large committees do not work

Output of real world committees is not always as good as one might expect, given the capabilities of the individuals who comprise them. This holds in particular for large committees. The key difference between individual and group decision making is the exchange of information. However, information exchange in group decision making is often done poorly (Stasser 1992). For instance, when information acquisition is costly, group members have incentives to free-ride. An appropriate committee structure, however, may alleviate these issues.

**Free-riding** Free-riding or shirking refers to behaviour where individuals do not exert their full effort in contributing to the group's performance. Shirking can most easily be measured in simple additive tasks, such as pulling a rope.<sup>7</sup> Assuming that there are no co-ordination problems and that individuals' effort does not depend on the size of the group, group output should rise linearly as additional group members are added. However, if individuals tend to shirk when they are part of a group (and more so the larger the group), then group performance will be a concave function of the number of members. A vast number of studies have found evidence for shirking across a range of additive tasks such as clapping and shouting (Sibert 2006).

In a committee context, shirking exists because revealed information becomes a public good. Suppose the correct decision depends on the (unobservable) state of the economy. A member observes a signal if he expends effort (the signal is a random draw from a normal distribution with known variance). There is no conflict over objectives, but information is a public good, which is costly to obtain (such 'costs' can include reading briefing material distributed prior to the meeting). Hence, each member would prefer to become informed rather than have the committee be completely uninformed; however, each member's most preferred option is for the *other* members to expend effort becoming

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<sup>7</sup>An additive task is one wherein the group's performance is the sum of individual performances. A disjunctive task is one wherein the committee's performance depends on its most competent member (e.g. problem-solving).

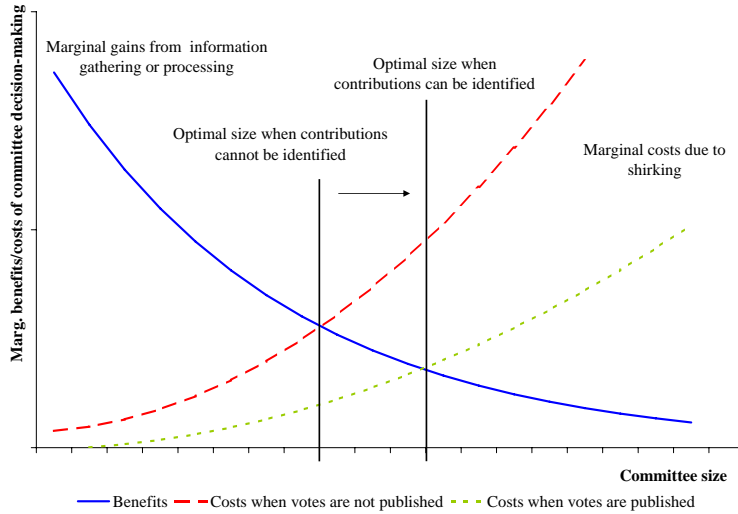


Figure 2: Optimal committee size

informed, while he free rides (Sibert 2005).

Shirking becomes more important as committee size increases: the larger the group, the less noticeable it is if one member does not sufficiently participate in the decision-making or if he is poorly informed. Hence, if the size of the committee increases, the (marginal) costs arising from shirking increase. At the same time, the additional benefits from more people being able to process information are getting smaller, the larger the committee (see graph 2).

There are two ways of dealing with shirking.

- Limiting the size of the committee.
- Creating incentives to discourage shirking.

Shirking is reduced when individual contributions can be identified and evaluated. For instance, relay team swimmers swim laps faster when individual times were made public, but slower when they were not (Williams, Nida, Baca and Latané 1989). Similar results are found for brainstorming tasks (Harkins and Jackson 1985). Croson and Marks (1998) experimentally examine how information affects behaviour. All group members can contribute towards a public good, but participants receive varying amounts of information about contributions made by others (the public good can be compared to information in a committee context). Revealing anonymous information about other contributions

leads to a significant decrease in contributions. When individual contributions are clearly identifiable, average contributions increase.<sup>8</sup>

Applied to the central banking context, an institutional device to discourage free-riding is the publication of the discussion in the form of minutes. An alternative possibility could be that prior to the meeting, each committee member privately notes his preferences and the main arguments for the upcoming decision. This forces individuals to become informed. Again this information could be published in the minutes.

**Inertia** A common criticism of committee decision-making focuses on the difficulties to reach a decision:

‘Had Newton served on more faculty committees at Cambridge, his first law of motion might have read: A decision-making body at rest or in motion tends to stay at rest or in motion in the same direction unless acted upon by an outside force’ (Blinder 1998).

Riboni and Ruge-Murcia (2006) formalise this notion. They show that if the *status quo* is the ‘default option’ in situations where the committee cannot agree, monetary policy tends to be too inertial. However, these authors require a number of strong assumptions to generate inertia, such as that the committee is not able to take a majority decision (there is an even number of committee members). In practice, many central banks (such as the ECB) have provisions that in the event of a tie, the Governor’s vote counts double. Also experimental evidence indicates that groups are not more inertial than individuals (Blinder and Morgan, 2005).

An important factor contributing to inertia is if committees are not ‘internally transparent’. By this we mean that not every committee member is forced to reveal his position (i.e. whether he votes A or B). Such ambiguities can result in consensus-oriented committees. Also voting committees need only to convince fewer members to change policy (at the margin ‘50 +  $\epsilon$ ’ percent is sufficient), whereas consensus-oriented committees need to convince more than 50 percent of the group members. Simulations show that building consensus can delay the decision making (Gerlach-Kristen 2005). We return to this issue when we discuss consensus versus voting in committees.

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<sup>8</sup>A study that comes relatively close to monetary policy analysis is Henningsen, Cruz, Miller (2000): 189 persons worked either alone or in 4-person or 8-person groups. Each participant was asked to read information for the purpose of making a future individual or group decision. Individuals who anticipated working alone recalled more of what they had read.

**Optimal committee size** As the optimal committee size depends on behavioural considerations, purely theoretical studies (e.g. Fujiki, 2005) cannot provide a definite answer. The experimental literature does give some guidance: Slater (1958) had 24 groups of 2-7 male undergrads who were given analytical problems to discuss. He asked the group members whether their group was too large or too small. Groups of five did best.

Oakley et al. (2004) find that with only two people on a team, there may not be a sufficient variety of ideas, skills, and approaches to problem solving for the full benefits of group work to be realized. Also, conflict resolution can be problematic in a pair: whether right or wrong, the dominant partner will win most arguments. On the other hand, if a team has more than five members, at least one is likely to be relatively passive. As monetary policy is a relatively complex, disjunctive task, the benefits from having a large committee might be very important. Hence, the optimal committee size might be moderately larger than these studies suggest. Sibert (2006) concludes that monetary policy committees should probably have at least five members, but they should not be much larger. Beyond seven to nine members, the participation of members decrease and members become less satisfied, and groups of over twelve people find mutual interaction difficult.<sup>9</sup>

**‘Hub-and-spoke’ committees and rotation** The monetary policymaking bodies of the central banks representing the two largest currency areas in the world – the U.S. Federal Reserve and the European Central Bank – have clearly more than 10 members.<sup>10</sup> They are also set up in ‘hubs’ (i.e. the FED Board in Washington and the ECB in Frankfurt) and ‘spokes’ (the regional FEDs or the national central banks of the euro area members countries).

- The Federal Open Market Committee (FOMC) comprises the seven Board members and the President of the Federal Reserve Bank of New York. Of the other eleven regional FED Presidents only four have the right to vote.

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<sup>9</sup>As an aside, the literature on microbanking also suggests that small group sizes (3-10 people) work best, e.g. because small groups can monitor each others’ effort better (Morduch 1999).

<sup>10</sup>In their defense, it has been noted that for a large currency area, the committee might benefit from regional representation: ‘If an economy is complex... then it might be useful to have the views of the key sectors represented on the policy committee’ (Goodfriend 2005). From a practical perspective, improvements in data collection and better economic statistics may reduce the need for regional or sectoral representation. For the euro area national representation might also be an important issue, e.g. because it may facilitate communication (Wellink et al., 2002).

- The ECB Governing Council consists of five ECB Board members, plus all euro area National Central Bank Governors (currently 12).

Both central banks have adopted a rotation system to limit the number of voting members – i.e. the right to vote rotates following a pre-determined sequence.<sup>11</sup> An implicit understanding of this system is that non-voting members hardly ever participate in the discussion.

In principle, rotation is a useful device to increase the amount of information without compromising on the group size. Note, however, that a potential danger of such a system is that if committee members interests’ are not fully aligned, voting members might exploit the non-voting members. Bosman et al. (2004) show that committee members might be trapped in a ‘prisoner’s dilemma’, i.e. everyone votes for options that maximize his or her own advantage. Such individualistic voting behavior can result in the committee taking worse decisions than if every member had just voted for the option that maximises the group’s benefit.

## 2 Instability of preferences and groupthink

An important assumption underlying committee benefits is that membership in a group does not change members’ prior beliefs or preferences. Economists typically downplay the influence of others on our preferences, and emphasize people’s autonomy. In contrast, sociologists and social-network theorists describe people as embedded in particular social contexts. Influence from others is inescapable. The more influence members of a group exert on each other, the more likely it is that group members’ preferences align (Surowiecki 2004). Research in social and cognitive psychology has devoted considerable effort to showing that human judgment is imperfect (Kerr et al. 1996).

Are committees any less – or more – subject to judgmental biases than individual decision-makers? Several hundred studies demonstrate that belonging to a committee polarizes its members. For example, groups are more likely to support failing projects (Whyte 1993). This could imply that monetary policy set by a committee is overly biased against inflationary pressures, or less likely to correct past mistakes (note that in this case the failure to correct past mistakes is not due to inertia, but to biased, polarised views).

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<sup>11</sup>The ECB rotation scheme will become effective once new member countries beyond the current 12 introduce the euro. Details are given in European Central Bank (2003).

A particularly harmful form of group polarization occurs when committee members stop paying sufficient attention to alternatives, because they are striving for consensus. This is also called groupthink (Janis 1973). The following factors have been identified as leading to groupthink (Sibert 2006):

- Insulation from outsiders;
- Lack of diversity in viewpoints;
- Leaders actively advocating solutions.

Key to avoiding groupthink is independence, i.e. to encourage committee members to think for themselves. Encouraging independence has two positive effects (Surowiecki 2004): first, it avoids errors in judgment becoming correlated.<sup>12</sup> Second, independent committee members are more likely to gather new, additional information or interpret existing information differently. This might lead them to question the group consensus and thus, ultimately, limit groupthink (Morck 2004).

An institutional arrangement to avoid groupthink is to appoint committee members with different personal backgrounds. Clearly, members of a monetary committee should have some knowledge about what monetary policy can achieve. However, a committee consisting of only economists (possibly with degrees from a small handful of universities, which aligns their way of thinking even more) or only central bankers is more likely to exhibit groupthink than a more diverse group. Similarly, having external members on the committee – i.e. members not working at the central bank, like academics or business representatives – might help.

Note, however, two caveats: First, if group members are ‘too independent’, the monetary committee may run the danger of speaking with too many voices when communicating externally. The monetary committee should be individualistic enough to reap the benefits of diversity, yet collegial and disciplined enough to project a clear and transparent message. Second, while diversity is likely to have a positive impact on group processes, it may be detrimental for the conduct of monetary policy, if the composition of the group impedes the central

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<sup>12</sup>Errors in individual judgment do not wreck the collective judgment, as long as these errors are not systematically correlated (i.e. all pointing in the same direction). Note, however, that the collective decision might be biased if the signals are correlated, e.g. because all committee members base their judgment on the same forecast. This underlines the importance of independent information gathering.

bank's independence. Such a situation can occur when a monetary committee is dominated by government officials, who may care about their re-election. This bears the risk that despite the central bank being formally independent, its policy nevertheless reflects electoral constraints.

### 3 How the meeting should be structured

**Avoiding information cascades** A different institutional device to counter groupthink is related to how meetings are structured. Assume a committee taking a binary decision (Bikhchandani, Hirshleifer and Welch 1992). Prior to the meeting, each member receives an independent signal. The chairman makes the first proposal. If the first person after the chairman has received a similar signal, he will support him. If not, he might flip a coin. The important issue is that if the second person chooses to support the proposal, the third person has strong incentives to agree to the proposal, too: even if he received a different signal prior to the meeting, having observed (on the basis of their voting behaviour) that the first two persons have both received the other signal, it is safer to assume that his own signal is wrong. Similar considerations hold, of course, for all other committee members.

In other words: the 'hurdles' to expressing a contrary view increase as more members have previously voiced identical opinions. Such a group process is called an 'information cascade'. In an experimental setup, Anderson and Holt (1997) show that wrong initial signals can start a chain of incorrect decisions that is not broken by correct signals received later. Repeated information cascades can lead to groupthink. Milgram (1974) shows that individuals may have an innate psychological predisposition to obey authority. If the chairman (or the person to speak first) is a very powerful or 'authoritarian' person, the tendency for conformity may be even higher. In another experiment Milgram et al. (1969) put a single person on a street corner and had him look up at an empty sky for sixty seconds. Of the passing pedestrians, only a tiny fraction stopped. When the psychologists put five skyward-looking men on the corner, four times as many people stopped to gaze at the empty sky. When the authors put fifteen men on the corner, 45 percent of all passers-by stopped. Applied to committee decisions, this experiment illustrates that it can be very difficult to withdraw from a consensus, once it has gained sufficient momentum (i.e. support from other group members).

The fundamental problem with information cascades is that choices are made



sequentially, instead of all at once. There are two ways to avoid information cascades: first, to promote independent thinking among committee members. Independence can be promoted by not making the meeting structure too formal. For instance, it is preferable that not the same person always gets to open the discussion, or that the same person always makes the interest rate proposal. A device to implement this is not to have a fixed order for speakers. Alternatively, one might consider removing the sequential element of the decision-making by letting all people decide simultaneously. One way of doing this is to vote.

**Consensus or voting?** A long-standing debate among central bankers is whether a committee should use voting or operate consensus-based. *A priori* there is no reason to believe that either of the two options always delivers better results. Voting has the advantage that every group member has to reveal its preference. Also voting can act as a device to reduce free-riding, in particular if individual voting patterns are published. A similar arrangement can, however, be implemented in a consensus-oriented approach, when the contribution of individual committee members is identifiable.

Several disadvantages of voting have been mentioned. First, members on the losing side can become dissatisfied (particularly if they are regularly losing), or ‘winning’ members can become concerned with maintaining group harmony (Janis 1973). This could lead them not to vote sincerely. Second, if individual voting patterns are published, external pressure on committee members might increase.<sup>13</sup> Lastly, group members might be concerned about appearing ‘competent’. This might discourage asking questions challenging the conventional wisdom. This needs to be taken seriously, as e.g. the study of Schweiger et al. (1986) shows that ‘dialectical inquiry’ and playing the ‘devil’s advocate’ can greatly improve the decision.<sup>14</sup> Hence, it is important that the discussion is frank and open. This concern could be dealt with by publishing a detailed transcript of the discussion, but not mentioning names.

How well consensus-oriented committees perform depends on whether the committee is evidence-based or verdict-based (Surowiecki 2004): Evidence-based juries spend time to sift through the evidence and explicitly contemplate alterna-

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<sup>13</sup>This concern has been particularly emphasised in the European context, where National Central Bank Governors might be subject to political pressure in their home country (Issing 1999). Another concern about publication of votes is that market participants might use them to predict individual members’ voting patterns.

<sup>14</sup>In their purest forms dialectical inquiry uses debates between diametric sets of recommendations and assumptions, whereas devil’s advocacy relies on critiques of single sets of recommendations and assumptions (Schweiger, Sandberg and Ragan 1986).

tive explanations before they take a vote. Verdict-based juries see their mission as reaching a decision as quickly as possible by taking a vote before any discussion (and the debate concentrates on getting those who do not agree to agree). If evidence-based, the consensus-oriented approach may encourage members more to engage in a discussion than voting. Pressure to reach a consensus quickly, as in verdict-based juries, often leads to poor choices (Priem et al., 1995).

Lastly, Blinder (2006) highlights the danger that voting may pose difficulties for communication. Voting highlights differences in opinion, even if in practice they are relatively small. A consensus-oriented approach may make it easier when addressing the public: ‘If the result is a cacophony rather than clarity, that may confuse rather than enlighten the markets and the public’ (Blinder 2006).

### **2.3 Implications for committee design**

Committees can offer the classic benefit of diversification: a higher mean with a lower variance. To function properly, the committee should have an overarching framework, i.e. a clearly defined target and freedom to adjust its instruments in order to achieve that goal. But additional arrangements may be required to facilitate information sharing and aggregation, and avoid polarisation of group members.

Table 1 summarises the main design implications of the preceding discussion. First, the body taking monetary decisions should be small enough to allow for an exchange of views. Second, encouraging group members to act and think independently is crucial to avoid polarization and groupthink. Having group members with different personal backgrounds – i.e. different nationalities or different professions – might help. Lastly, the literature offers no clear preference for voting or consensus – both can work well, provided that arrangements exist to identify and evaluate individual contributions to avoid shirking.

## **3 Monetary policy committees in practice**

Before we review how real-life monetary committees operate, we should stress that committees organised very differently can nevertheless take good decisions. Each central bank operates differently, and different traditions may justify different setups. However, on the basis of the studies reviewed we would argue that the likelihood for committees to consistently take good decisions is higher if the setup of the committee follows the lines we outline below.

Issue	Criteria for good committees
<i>Clear objectives and independence</i>	
	* Clearly defined goal and efficient instruments;
	* High score of central bank independence
<i>Size of the monetary policy committee</i>	
	* Not much larger than 5 members
	* Rotation can lead to better information and limit the group size
<i>Measures to avoid free-riding</i>	
	* Possibility to identify and evaluate individual contributions
<i>Polarization and groupthink</i>	
	* Encouraging group members to think for themselves;
	* Different personal backgrounds
	* Having a mix of internal and external members
	* No fixed speaking order to avoid information cascades

Table 1: Criteria for ‘good’ committees

### 3.1 Clear objectives and independence

Information about central banks’ objectives and their degree of independence is published in Mahadeva and Sterne (2000) and Wyplosz et al. (2003).

The results from Mahadeva and Sterne (2000) indicate that of the 94 central banks in their sample, 77 can be classified as having instrument independence.<sup>15</sup> 79 central banks take decisions in a committee. The most common committee size is between 5-10 members (see figure 3). 43 committees reach a decision by consensus and 36 through formal voting (see figure 4).

Regarding the clarity of objectives, 90 had monetary stability as a legal objective. About 95 percent of these central banks have operationalized this objective by translating it into a definition of price stability, an inflation target or a monitoring range – which is an improvement over 1990, when only 57 percent had an explicit nominal target or monitoring range.<sup>16</sup>

### 3.2 The structure of the monetary policy meeting

For this section we looked at speeches from senior bank officials, information on central bank websites, and responses to a brief questionnaire we sent out to

<sup>15</sup>Their score ranges from 0 (no instrument independence) to 1 (full independence). 77 have a score of 0.66 or more, indicating that the central bank is the ‘leading body’ to set monetary policy. Note that the number of observations differs between figure 3 and figure 4, as not all central banks have committees or disclose their size.

<sup>16</sup>Note that in the 1990s, many central banks had explicit exchange rate targets or target ranges.

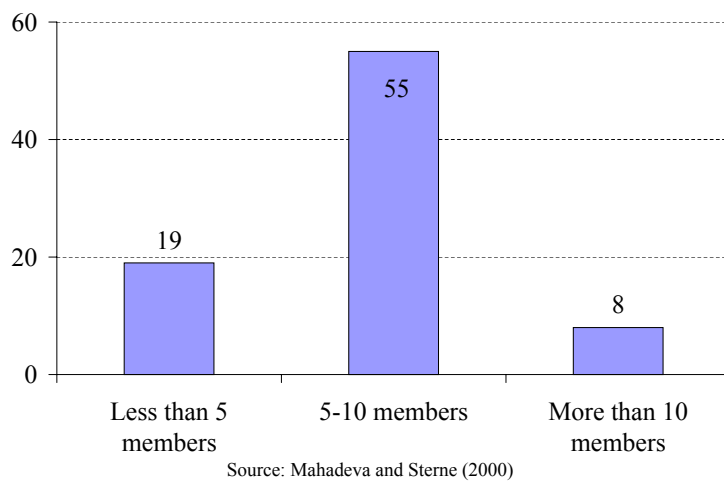


Figure 3: Size of the monetary policy board

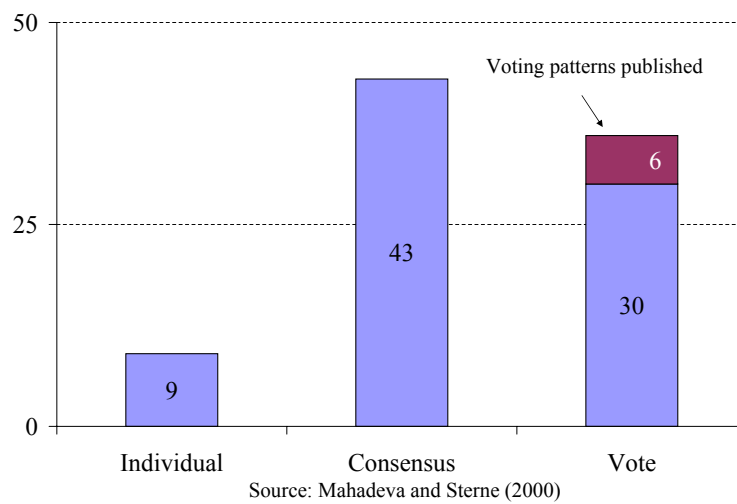


Figure 4: Monetary policy decision procedures

central banks to find out how their committee meetings are structured. Table 2 lists key elements of monetary policy committees of selected central banks in 2006. We report the following:

- Clear objective and central bank independence (column 1 and 2) to assess whether the committee has a clear task and instrument independence to achieve its goals. The score for central bank independence ranks from 0 (not independent) to 1 (fully independent).<sup>17</sup>
- The size of the monetary policy committee (column 3). This allows checking whether the committee is too big. Where available column 3 reports the number of external and internal members in brackets (external members are not working for central banks, internal members are central bankers). Together with the information about personal backgrounds of committee members given in column 4, this serves as an indication of the diversity of the committee.
- Column 5 reports whether decisions are taken by consensus (C) or voting (V); column 6 shows whether (individual) votes are published. This information is a proxy for the degree to which individual contributions can be identified and evaluated – i.e. for the degree to which the committee setup discourages shirking.
- The remaining columns summarise information on measures to counter information cascades and groupthink. Column 7 provides information about the organisation of the meeting, column 8 reports who makes the interest rate proposal, and column 9 reports if the governor has been on the losing side of a vote (the idea here is that an authoritarian governor is never on the losing side of a vote). Lastly, column 10 provides how committee members are encouraged to act and think independently.

It is apparent that many central banks have very diverse monetary committees, staffed with central bankers, academics, and representatives of the business community or ministries (see figure 5).<sup>18</sup> Another apparent feature is that few central banks have fixed speaking orders, but at the same time, few central banks have institutional mechanisms to effectively encourage independent

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<sup>17</sup>The information in columns 1 and 2 is taken from Mahadeva and Sterne (2000), exceptions are the target values for the Dominican Republic and Madagascar. This information has been collected from the central banks' websites.

<sup>18</sup>The figures 5-7 are based on information contained in table 2.

Table 2: Monetary policy committees in practice

Country	Clear target	CBI <sup>a</sup>	MPC Size <sup>b</sup>	Background <sup>c</sup>	C/V <sup>d</sup>	Votes <sup>e</sup>	Organisation of the meeting	IR proposal <sup>f</sup>	Governor lost <sup>g</sup>	Independence
Aruba <sup>h</sup>	No	-	7 (0/7)	CB	C	-	No fixed speaking order, informal meeting	-	-	Unknown
Australia	Yes	0.7	9 (7/2)	CB, academics, business community	C (V)	No	No fixed speaking order	Governor	No	Free discussion encouraged
Bahamas	Yes	0.0	8 (0/8)	CB	C	No	No fixed speaking order	Research department	?	Unknown
Brazil	Yes	N/a	9 (0/9)	CB	V	Yes/No	First round of discussion has a fixed speaking order	Dep.-Gov's Mon. Policy and Econ. Policy	?	Members are allowed to make own evaluation of scenarios and risks
Canada	Yes	1.0	6 (0/6)	CB	C <sup>i</sup>	No/No	No fixed speaking order	Staff	-	Board member receive advice from independent advisors
Chile	Yes	1.0	5 (0/5)	CB	V	Yes/No	Voting: oldest to newest member, then Vice-Governor, then Governor	Chief of Research	No	Members present own analysis
Croatia	Yes	1.0	14 (8/6)	CB, professionals in monetary, financial, banking and legal matters	V	No/No	No fixed speaking order	Governor	No	No special strategies (but only experts become a member)
Czech public	Yes	1.0	7	CB, academics, business community	V	Yes/No <sup>j</sup>	Rules exist, but room to raise other issues	Staff	?	Members need no encouragement to think individually.

Continued on next page...

Table 2 – Continued

	No	-	9 (6/3)	Governor, academics, business community, ministers	V	No/No	Relatively fixed <sup>k</sup>	Economic department	Yes	Free speech, limited formalities, knowledge that discussions are internal
Dominican Republic	No	-	9 (6/3)	Governor, academics, business ministers	V	No/No		Economic department	Yes	Free speech, limited formalities, knowledge that discussions are internal
Euro area (ECB)	Yes	1.0	18 (0/18)	CB (different nationalities)	C (V)	No	Chief starts the discussion	Chief Economist	-	Governors briefed by own staff (who use different models etc.)
Guatemala		1.0	8 (7/1)	Governor, academics, business community	C (V)	Yes/No	No fixed speaking order, any person can raise any issue	Staff	?	Unknown
Haiti	No	-	14 (0/14)	CB	C/V	No	Fixed order for presentations, later anyone can raise any issue at any time	No formal rule	Yes	Everyone is free to raise questions of interest regarding monetary policy
Hungary	Yes	1.0	9-11(7-9/2)	CB, academics, private or public sector	V	Yes/Yes	No fixed speaking order	Any member	Yes	Members express own views without restrictions, even in the media.
Iceland	Yes	0.3	3 (0/3)	CB	C	No	Unknown	Governor	?	Unknown
India	Yes	1.0	6 (4/2) <sup>l</sup>	CB, academic, business community	V	No	Fixed order, preceded by a presentation from Staff.	Any board member	No	Individuals can give their own opinion
Japan	No	1.0	9 (0/9)	Governor, academics, business community, ministers	V	Yes/Yes	Speaking order changes every meeting	All board members	No	Voting induces members to think individually
Kazakhstan	Yes	0.7	9 (3/6)	CB, government officials	V	No	Unknown	Unknown	?	Unknown
Madagascar	No	-	7	CB	C	No	No fixed speaking order	Staff	No	Each department makes his own report

Continued on next page...

Table 2 – Continued

	Yes	1.0	9 (2/7)	CB, business community	$C^i$	No/No	No fixed speaking order	Governor	No	No applicable
New Zealand <sup>m</sup>	Yes	1.0	9 (2/7)	CB, business community	$C^i$	No/No	No fixed speaking order	Governor	No	No applicable
Norway	Yes	0.7	7	CB, academics, business community	$C$	-	Governor starts the discussion, anyone can raise any issue	Governor	-	Committee members are expected to make own contributions
Oman	N/a	0.7	7	CB, business community, government officials			Unknown	Governor	?	Unknown
Poland	Yes	1.0	10	CB, academics with background in economics	$V$	Yes/No	No fixed speaking order	Each MPC member can make a proposal	Yes	Each member can share his judgment with others; no restrictions on views at the meeting
Switzerland	Yes	1.0	3 (0/3)	CB	$C (V)$	No	Relatively fixed speaking order	Monetary department	No	Committee members are briefed by different departments
Turkey	Yes	1.0	7 (1/6)	CB, one additional member with background in economics	$V$	No/No	No fixed speaking order <sup>n</sup>	Unknown	?	Free discussions
UK	Yes	1.0	9 (4/5)	CB and academics	$V$	Yes/Yes	No fixed speaking order, any person can raise any issue	Governor	Yes	Members make personal speeches and appear in Parliament
Uruguay	Yes	1.0	6 (0/6)	CB	$C (V)$	No	No fixed speaking order	Staff	?	?
US	No	1.0	12	CB (personal backgrounds are relatively diverse)	$V$	Yes/Yes	No fixed speaking order; Chairman probably dominates	Chairman	No	FED Presidents briefed by their own staff, but limited scope for dissent

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Table 2 – Continued

		<i>Countries with fixed exchange rate arrangements or currency boards</i>									
Belarus	Yes	-	10	CB	V	No/No	Speaking or- Staff	der fixed in the	?	?	?
Bosnia and Herzegovina	Yes	0.3	5 (0/5)	CB	C	No	Unanimous decisions	der fixed in the agenda	Governor	No	Unknown
Estonia	Yes	1.0	9 (0/9)	CB	C	No	No fixed speaking order	-	-	No	Every member can express his opinion
Singapore	Yes	1.0	12	CB, business community, government officials	C	No	No fixed speaking order	Economic policy dep.	-	-	Not applicable

<sup>a</sup> Score ranks from 0 (not independent) to 1 (fully independent)

<sup>b</sup> Total number of MPC members, number of external/internal members in brackets

<sup>c</sup> Background of committee members (CB=Central banker)

<sup>d</sup> Consensus (C) or Voting (v)

<sup>e</sup> Publication of the decision/Individual votes

<sup>f</sup> Who makes the interest rate proposal?

<sup>g</sup> Has the Governor lost a vote during the last 5 years?

<sup>h</sup> No formal monetary policy committee, the information related to the informal committee discussing monetary issues.

<sup>i</sup> Governor solely responsible

<sup>j</sup> Individual contributions can be identified with a 6 year delay

<sup>k</sup> Vice Governor opens and closes sessions, Finance Department is responsible for presenting open market operations proposals.

<sup>l</sup> Information applies to the Technical Advisory Committee. Note that its proceedings are to be ratified by the Central Board, of which Governor is the executive member

<sup>m</sup> Information applies to the informal advisory body

<sup>n</sup> Monetary policy decisions are taken in a three-stage voting process: first vote is whether term interest rates should be changed at all. The second and third stage decides upon the direction and the size of the change.

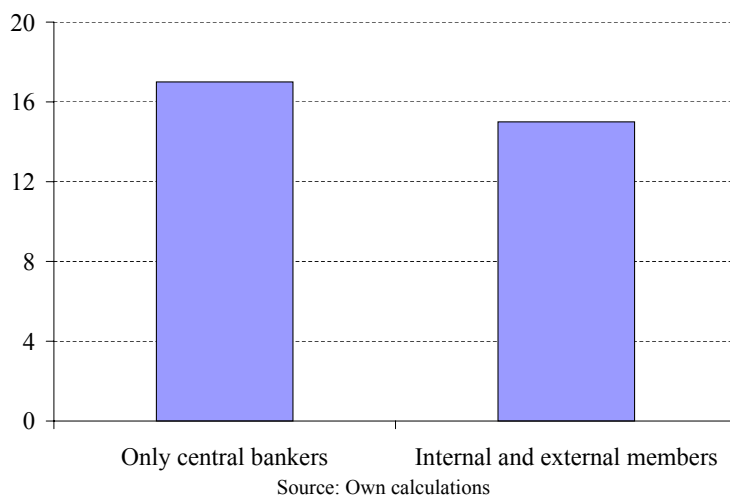


Figure 5: Diversity in monetary committees

thinking. Moreover, most central banks have fairly strict rules on who makes the interest rate proposal (see figure 6) – which, as indicated above, bears a severe risk of information cascades. And lastly, many central banks are reluctant to disclose whether the Governor has lost a vote during the last five years (see figure 7). However, some central banks provide that information, and it seems that among these, the Governor being on the losing side of a vote is clearly the exception.

Let us look more closely at some prominent central banks or at central banks with interesting institutional arrangements.

- In many ways the Bank of England’s committee structure follows best-practice: it has a clear goal, it is made up of diverse members (academics, business representatives, and central bankers) and it is not too big. Also individual contributions can be identified and evaluated, and its members are encouraged to think for themselves. Lastly, the Governor lost a vote in 2005, which indicates that he is not dominating the committee.
- The Bank of Japan is the only one to explicitly change the speaking order for every meeting. We view this as an effective measure to get informed and to limit information cascades. With 9 members the committee is also not too large, and every board member can make an interest rate proposal. However, it is exclusively staffed by central bankers (although some have

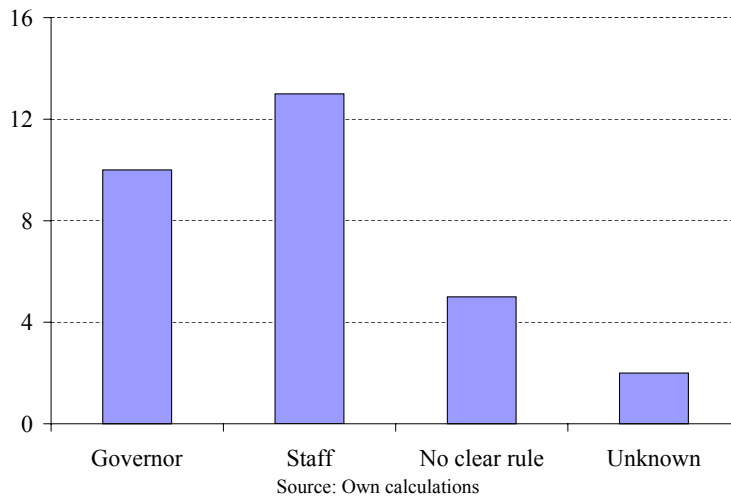


Figure 6: Who makes the interest rate proposal?

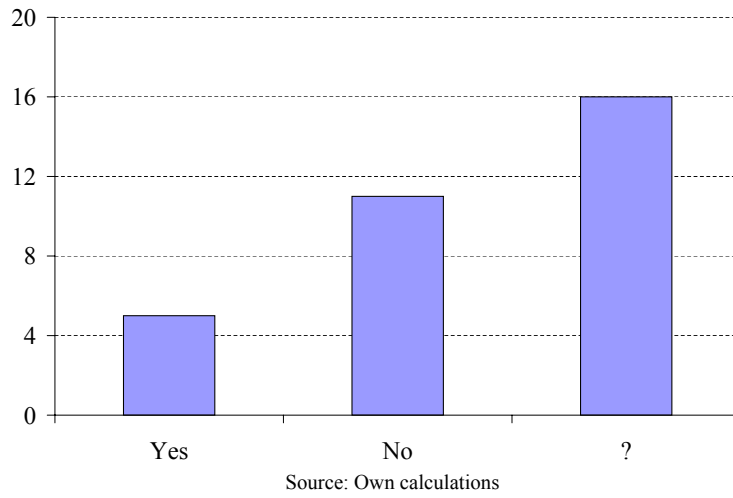


Figure 7: Has the Governor lost a vote during the last five years?

working experience as government officials or in the business community).

- The structure of the FOMC and the Governing Council of the European Central Bank (ECB) could be improved: Individual contributions cannot be clearly identified and both committees are probably too large. The FOMC also lacks an explicit inflation target, and internal and external transparency of the ECB is low (consensus decision-making and no publication of minutes or voting records). Moreover, it is likely that both committees were firmly led by its chairman (FOMC)<sup>19</sup> or its Chief Economist (ECB),<sup>20</sup> although that might change with recent personnel changes.

On the positive side: the fact that each of the national European central banks briefs its own Governor individually, and that each of them uses a different economic model, maximises the benefits from information gathering and processing. Similarly, the FED benefits from a ‘hub-and-spoke’ structure, which facilitates gathering and processing regional information. Also the ECB has a clear goal,<sup>21</sup> and both ECB Governing Council and FOMC comprise members with diverse backgrounds (all central bankers, but with different nationalities or with diverse past experience).

- The Bank of Canada has a clear objective, and the size of its MPC is probably optimal. However, individual contributions are not identified, and there are no outside members. On the positive side: although all get the same briefing material, board members also receive policy advice from a group of senior advisors, who are encouraged to think independently.
- The Central Bank of the Czech Republic makes it possible to identify individual contributions with a six year delay. This provides a compromise between allowing for the evaluation of individual performance, yet shield against external pressure.
- At the Bank of Israel, four departments have to prepare recommendations

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<sup>19</sup>Alan Greenspan has chaired the FOMC for about 18 years and has never been on the losing side of a vote. The transcript of the February 1994 FOMC meeting shows that a clear majority of the committee favoured raising the funds rate by 50 basis points. Greenspan, however, insisted not just on 25 basis points, but on a unanimous vote for that decision. He got both (Blinder 2006).

<sup>20</sup>The ECB’s Chief Economist traditionally starts the debate by giving an overview of recent economic developments. He is also the first to make an interest rate proposal (at the end of his exposition).

<sup>21</sup>The ECB is not an inflation targeter, but it has a relatively clear definition of price stability (inflation ‘below, but close to 2 percent’). This is the ECB’s overriding objective.

before the meeting *independently*. This forces each department to conduct its own analysis, which counters shirking and groupthink.

- An interesting feature of the Swiss monetary committee is that different group members are briefed by different departments. To some extent this could be viewed as a device to encourage independence. However, their speaking order is relatively fixed,<sup>22</sup> the committee has no outside members, and there is no way to (externally) identify and evaluate individual input for the discussion.
- The National Bank of Poland addresses information cascades by allowing each member to make interest rate proposals. Also the Chairman has been on the losing side of a vote on several occasions. Regarding accountability, neither individual votes, nor minutes are published. However, plans exist to modify the inflation report to make it ‘minutes-like’ (i.e. to provide a broad picture of the discussions and enabling outsiders to identify views of individual members).

## 4 Conclusions

Typically, reports released to the public to explain monetary policy decisions feature detailed discussions about the state of the economy. While such information is important for financial markets, our discussion suggests that availability of economic information alone is not sufficient to guarantee optimal decision-making. Well-structured institutional arrangements can ensure that committee members get informed and adequately process economic information, before taking a decision. Do real-life monetary committees feature such arrangements?

Our survey of the literature suggests that encouraging independent thinking and having members with different personal backgrounds may be useful provisions to avoid groupthink. The structure of the meeting should not be too formal (e.g. no fixed speaking order) in order to reduce information cascades. And if individual contributions can be identified and evaluated, free-riding can be eliminated.

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<sup>22</sup>After an informal debate between the members of the Board, their Deputies and economists who prepared the documents, the Chairman of the Governing Board (who is Head of monetary department) gives the floor to the heads of two other departments. Then he speaks again, although it is perfectly possible for any member to intervene again after one of his colleague has spoken. The Chairman of the Governing Board summarizes the arguments, repeats the decision and closes the debate.

We would like to stress that there is no ultimate model, and it is unlikely that one structure dominates all others on all aspects. Each solution also reflects local circumstances and traditions. However, our guidelines for the way monetary policy committees should be set up show that some central banks could probably improve their committee framework. By changing the way the monetary committee works, incentives are created for group members to actively participate in the discussion, to become informed and to reveal their information. As this is the basis for the gains that decision-making by committee can offer, having such institutional arrangements can contribute to the overall quality of the decisions. As this overview has shown, some central banks could reap more of the committee benefits if they had provisions to avoid free-riding or encourage ‘thinking outside the box’.

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## A Appendix

The following email was sent to 149 central banks listed on the BIS website to inquire about their committee structure. If a central bank is not listed in the tables in the main text, it did not respond to the questionnaire. In addition, we checked their websites and used personal contacts (where available) to verify that the information provides an accurate picture of the decision-making procedure.

Dear colleague,

I am currently investigating how central banks make monetary policy decisions. In many central banks monetary policy decisions are not taken by a single decision-maker, but by a committee. I am interested in how exactly the committee reaches a decision i.e. how the committee functions. I would also like to clarify that I am only interested in monetary policy decisions, not other central banking matters (e.g. payment systems).

I would kindly like to ask you the following questions:

1. How many people are directly involved in making the monetary policy decision in your central bank? I.e. if the decision is taken in a committee, how many members does the committee comprise?
2. Does the committee vote, or is the decision taken by consensus?
3. If the committee votes: Are votes published? Are individual votes published?

4. Are there ways to identify individual contributions to the discussion?
5. Do all committee members share similar background (i.e. are all central bankers), or are some of the members from the academic world or the business community?
6. Is there a fixed speaking order in the committee (for instance: alphabetical, or by rank), or can any person raise any issue at any time?
7. Who makes the proposal of how interest rates should be set?
8. Does the committee release minutes?
9. Provided that the Governor is a member of the committee: has he ever been on the losing side of a vote during the past 5 years?
10. Is individual thinking encouraged among committee members? How?

Please feel free to bring any other matters of relevance about the functioning of the monetary committee to my attention.

Kind regards,  
Philipp Maier