



## Communication in a monetary policy committee

Jan Marc Berk\*, Beata K. Bierut

*De Nederlandsche Bank, PO Box 98, 1000AB Amsterdam, the Netherlands*

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### ABSTRACT

We model monetary policy decisions as being taken by a group of heterogeneous policy makers, organized in a committee. Intuitively, when MPC members disclose and discuss the arguments behind their view on the interest rate, the quality of the collective decision should be higher compared to merely taking a simultaneous vote. We show that in some cases this intuition need not be correct. We also find that communication is a relatively effective way to implement the 'knowledge pooling' argument in favor of collective decision-making, compared to expanding the size of a committee. Moreover, decision-making with internal communication appears generally more robust in situations when heterogeneity of members is not adequately captured by decision-making rules.

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### 1. Introduction

Judging from a survey held in the late 1990s (Fry et al., 2000), a large majority of central banks nowadays delegates policy decision-making responsibilities to monetary policy committees (henceforth: MPC). When members convene for the MPC meeting, they communicate with each other. This process of internal communication is an important characteristic of real-life committee decision-making such as by the FOMC in the US or the ECB Governing Council in the euro area (De Nederlandsche Bank, 2000; Goodfriend, 1999). Interaction among MPC members involves an exchange of views regarding the current and future state of the economy, the transmission mechanism and the appropriate interest rate decision. Communication thus implies an exchange of information that increases the total knowledge available to the MPC (Berger et al., 2008). However, communication also implies augmenting one's initial views with those heard from others. The latter might be qualitatively less than the former, so the impact of communication on the collective decision is not clear a priori.<sup>1</sup> The paper aims to investigate the conditions under which communication within a committee<sup>2</sup> improves the quality of the collective decision, which we assume is taken by simple majority voting.<sup>3</sup> By doing so, we are able to provide a theoretical rationale for some of the results found in the recent empirical literature on MPCs, such as Chappell et al. (2005), Gerlach-Kristen (2003a, 2003b, 2009) and Meade and Sheets (2005).

Our findings indicate that an exchange of views within monetary policy committees will, in general, be beneficial for the quality of decision-making even though it increases correlation in members' voting behavior. Hence, we contradict the results of Ladha (1992), who

\* Corresponding author. Tel.: +31 205243912; fax: +31 205242512.

E-mail address: [j.m.berk@dnb.nl](mailto:j.m.berk@dnb.nl) (J.M. Berk).

<sup>1</sup> This is especially the case in the absence of mechanisms that allow for an ex ante verification of the quality of views expressed. Such mechanisms, e.g. learning or reputation effects, could arise in repeated game settings. As we use a single shot game-theoretic set-up (see the next section), we sidestep these issues.

<sup>2</sup> Our focus is on communication internal to a committee. This is in contrast to the literature on central bank (and MPC) communication with the public.

<sup>3</sup> See Riboni and Ruge-Murcia (2010) for a study using different voting protocols. Useful reviews of the economics literature on monetary policy making by committees include Fujiki (2005), Gerling et al. (2005) and Sibert (2006).

— on statistical grounds — argued that a high positive correlation of votes above a certain threshold can substantially reduce the accuracy of a simple majority decision (in the limit, the majority will even do worse than an average voter). We show that an exchange leading to a single view on the correct decision yields a collective outcome inferior to the simultaneous simple majority voting only when decisional skills are very unevenly distributed among committee members. In other cases, communication increases the quality of monetary policy and is more effective doing so, the lower the average of MPC members' skills. Finally, we compare two ways of enlarging the pool of knowledge available to a committee of a given size: adding extra members (and having the committee vote without communicating internally) or allowing the members to share their views before voting. The latter approach appears to be more efficient.

The structure of the paper is as follows. We start, in Section 2, by briefly describing our analytical framework. In Section 3, we formalize the effects of communication on the quality of the collective decision taken by an MPC consisting of members with identical skills. An MPC consisting of members with heterogeneous skills is considered in Section 4. Section 5 concludes.

## 2. Analytics

We use a single-shot game-theoretic set-up, more specifically a simple binomial simultaneous voting model (e.g. Austen-Smith and Banks, 1996), as adapted for the MPC context in Berk and Bierut (2010), where details can be found. We assume that MPC members' sole collective objective is to take the correct interest rate decision, conditional on the state of the economy. The latter can be in either of two states: economic conditions are such that a change in policy rates is required (which we label 'state  $a$ ') or not ('state  $b$ '). Members  $i = 1, \dots, n$  have to assess the state using available information. They have identical prior beliefs regarding the appropriate monetary policy stance. This prior belief may be modified by the evidence on the state of the economy presented in the meeting. We model the possibility that committee members interpret the evidence differently by assuming that this interpretation represents a private independent signal each member receives, which is imperfectly correlated with the true state of the economy. The higher the quality of this interpretation, the larger the probability that the member receives the correct signal. This translates directly into a higher probability of making the correct individual decision, i.e. voting for a change in interest rates (decision  $A$ ) in state  $a$  and voting for unchanged rates (decision  $B$ ) in state  $b$ <sup>4</sup>:

$$P(v_i = A|a) = P(v_i = B|b) = q_i \quad (2.1)$$

and consequently:

$$P(v_i = B|a) = P(v_i = A|b) = 1 - q_i. \quad (2.2)$$

We label the  $q_i$ 's as individual decisional skills. For an elaboration of this concept, which is akin to Blinder's (2007) 'mind-set', see Berk and Bierut (2009). See Vandenbussche (2006) for an elaborate motivation of focusing on skill differences rather than preference differentials.<sup>5</sup> When the skills  $q_i$  are independent, the conditional probability that decision  $d$  chosen by the committee's simple majority will be correct is<sup>6</sup>:

$$P(d = A|a) = P(d = B|b) = \sum_{\substack{S \subseteq N \\ s \geq \frac{n+1}{2}}} \prod_{i \in S} q_i \prod_{i \notin S} (1 - q_i) \quad (2.3)$$

where the sums are taken over all subsets  $S$  of the set of committee members  $N = \{1, 2, 3, \dots, n\}$ , such that  $s$  (the number of members in  $S$ ) is at least  $\frac{n+1}{2}$  (for simplicity, we assume that the committee's size  $n$  is odd). If the skills are homogeneous, i.e.  $q_i = q$  for all  $i = 1, \dots, n$ , the above simplifies to:

$$P(d = A|a) = P(d = B|b) = \sum_{s=\frac{n+1}{2}}^n \binom{n}{s} q^s (1-q)^{n-s}. \quad (2.4)$$

The above specification of the group decision-making problem can be linked to a stylized macroeconomic description of the central banker's problem in the following way. Assume that the central bank's committee loss function is given by:

$$L_t = E_t (\pi_{t+1} - \pi^*)^2 \quad (2.5)$$

<sup>4</sup> We assume that individual expertise  $q_i$  ranges between 0.5 and 1. For a discussion of the assumption of  $q_i > 0.5$ , see Ladha (1992). Note that this assumption implies that each member receives enough but incomplete information about the true state of the economy.

<sup>5</sup> There are alternative potential sources of heterogeneity between committee members, such as preferences, national backgrounds or particular views on the functioning of the economy, see, e.g., Spencer (2006a, 2006b). We decided to sidestep these sources in order to be able to derive analytical results. Moreover, in practice heterogeneity of preferences among MPC members is at odds with the fact that central banks nowadays have clearly specified objectives (like the ECB or the Bank of England).

<sup>6</sup> Note that our binomial set-up excludes the possibility of changing interest rates in the wrong direction, such as lowering rates when they should be raised. However, visual inspection of voting records of, for example, the MPC of the Bank of England reveals that dissents in the vast majority of cases point in the same direction.

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