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Otto H. Swank and Bauke Visser

EUROPEAN UNIVERSITY INSTITUTE
DEPARTMENT OF ECONOMICS

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OTTO H. SWANK

and

BAUKE VISSER

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Is transparency to no avail? Committee decision-making, pre-meetings, and credible deals.*

Otto H. Swank
Erasmus University Rotterdam
and Tinbergen Institute

Bauke Visser
Erasmus University Rotterdam
and Tinbergen Institute

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Abstract

Transparent decision-making processes are widely regarded as a prerequisite for the working of a representative democracy. It facilitates accountability, and citizens may suspect that decisions, if taken behind closed doors, do not promote their interests. Why else the secrecy? We provide a model of committee decision-making that explains the public's demand for transparency, and committee members' aversion to it. In line with case study evidence, we show how pressures to become transparent induce committee members to organize pre-meetings away from the public eye. Outcomes of pre-meetings, deals, are less determined, more anarchic, than those of formal meetings, but within bounds. We characterize deals that are self-enforcing in the formal meeting.

*A very early version of the theory developed in this paper can be found in *Transparency and Pre-meetings*, a TI discusssion paper (06-051/1). That paper is superseded by the current one. The discussion paper also presented a case study of the FOMC. The case study can now be found in Swank, Swank, and Visser (2008). We have benefitted from presentations at the Amsterdam Center for Law and Economics, Universitat Pompeu Fabra, Universitat Autònoma de Barcelona, NHH Bergen, EUI Florence, the third Banca d'Italia / CEPR conference on Money, Banking and Finance, the Workshop Optimal Monetary Policy and Central Bank Communication in Ascona, organized by the Bernouilli Center for Economics and KOF Swiss Economic Institute, the 2007 ASSET meeting in Padova, and at the Workshop on Behavioral Public Economics in Innsbruck. We are very grateful to Rudolf Kerschbamer, Francesco Lippi, Ellen Meade, Marco Ottaviani, Michael Raith, and Peter Norman Sørensen for their comments and questions. E-mail: SWANK@FEW.EUR.NL and BVISSER@FEW.EUR.NL. Part of this paper was written while Visser was a Fernand Braudel fellow at the EUI.

Keywords: Committee decision-making, reputational concerns, transparency, pre-meetings, deliberation, self-enforcing deals, coalitions

JEL codes: D71, D72, D82

1 Introduction

Transparent decision-making processes are widely regarded as a prerequisite for the working of a representative democracy. One reason is that transparency facilitates democratic accountability. Another reason is that when representatives make decisions behind closed doors, the citizens may suspect that their interests are not fully promoted. Why else the secrecy? Against the background of these potential advantages, it is hardly surprising that legislation tries to foster transparency. In the United States, the goal of the federal Government in the Sunshine Act is to "provide the public with information regarding the decisionmaking processes of federal agencies, and to improve those processes"[1]. At the state level, Open Meetings Laws allow citizens to attend deliberations, while Freedom of Information Acts regulate access to information on which past decisions are based.[2] Such legislation is not limited to the United States. As Prat (2005, p. 2) notes, "over thirty countries have passed Open Government codes, which establish the principle that a citizen should be able to access any public document".

However, it is not always clear that this type of legislation succeeds in safeguarding transparency. Stiglitz (1998) was shocked by the focus on secrecy in the Clinton administration when he served as the chairman of the Council of Economic Advisers. Roberts (2006) documents various ways in which governmental bodies in, among others, the United Kingdom and Canada have adapted to demands for more transparency, ranging from formal challenges through changes in record-keeping to outright failure to create records.

Moreover, even when a process is formally transparent, it is not always the case that the actual decision-making process is truly open. Illustrative in this respect is Greenspan's response to the pressure from U.S. Congress that the Federal Open Market Committee (FOMC) should become more transparent. He conjectured that the request of Congress would induce an important change: "[a] tendency would

[1] Special Committee, Administrative Conference of United States (1997), p. 421.

[2] The legislative declaration of the New York State Open Meetings Law states that "It is essential to the maintenance of a democratic society that the public business be performed in an open and public manner and that the citizens of this state be fully aware of and able to observe the performance of public officials and attend and listen to the deliberations and decisions that go into the making of public policy". The legislative declaration of the New York State Freedom of Information Law states that "the public, individually and collectively and represented by a free press, should have access to the records of government".

arise for one-on-one pre-meeting discussions, with public meetings merely announcing already agreed-upon positions or each participant to enter the meeting with a final position not subject to the views of others" (Greenspan, as quoted in Meade and Stasavage forthcoming, pp. 18-19). Indeed, the Special Committee to Review the Government in the Sunshine Act of the Administrative Conference of the United States concluded that there is widespread consensus that the Act has not achieved its goal. Rather than ensuring that committees actually deliberate in public with candor, the Act has had the effect that, generally, members reach decisions and prepare statements before the public meeting. In the words of one observer, "officials use public meetings to simply present carefully scripted statements memorializing decisions that in effect occured outside the public eye".[3] Such conclusions and observations are not limited to meetings ruled by the Government in the Sunshine Act. Cawley (1992) and Johnson (2004), among others, provide evidence that discussion was thwarted by the above mentioned state acts. Again, these consequences are not only observed in the United States. When discussing decision-making within the European Council of Ministers, Stasavage (2005) also points to the possibility that more transparency may lead to more backroom discussions or deals over lunch.

In this paper, we present a model that explains why the public is worried about closed decision processes; why it finds transparency appealing ; why decision-makers are averse to it; and why pre-meetings and scripted public meetings emerge. That is, we want to explain why "there remains an obsession with secrecy despite America's social consensus in favor of openness" (Stiglitz 1998, p.17). We then turn to two questions. First, suppose that formally a decision-making process is transparent, but that a decision is pre-cooked behind closed doors. What can we say about the decision being taken? Second, is there a difference between a decision reached in a closed process and one reached in a transparent process with pre-meeting? That is, is transparency to no avail, or does it improve or hurt the final decision reached?

We develop a model that describes a situation where on behalf of the public a committee has to make a binary decision, deciding for change or maintaining the status quo. At the moment the decision is made, the consequences of the project are uncertain. Each member has a private view of the consequences. The more likely it is

[3] See May (1997, p. 418). Randolph May was the chairman of the Special Committee.

that someone is competent, the more likely it becomes that a member's view provides an accurate picture of these consequence. A member does not know whether he is competent or not, only that he is competent with a certain probability. A crucial feature of our model is that a committee member would like to take the decision that is best from the public's perspective, but also cares about how the "market" perceives his ability to foresee the consequences of a decision. By the market we mean the person(-s) about whose belief regarding his competence a member cares.

The decision is made in two stages. In the first stage, the deliberation stage, members discuss their views. In the second stage, the voting stage, the committee makes a decision through voting. Initially, we assume that whether the decision taken was the correct one from the public's perspective is not immediately apparent once the decision has been taken. Decisions on large infrastructure projects are an example. Once the decision has been taken, it may take years if not decades to find out whether the construction of tunnels, ports, and railway lines unlock an area or should be considered a waste. Also the consequences of changes in, say, the financing of the health care sector, the curriculum of schools, or the composition of the Army only become known years after the decision has been taken. As the consequences in these cases are not immediately apparent, the market cannot assess the decision-making competence of a committee member on the basis of the quality of his forecast.

In a truly transparent decision process, the public observes the exchange of views thanks to, say, the presence of cameras or the publication of verbatim transcripts. We show that members share their views and make decisions that are optimal from a social point of view. This desirable behaviour provides an explanation for the demand for transparency. Our analysis also hints at an explanation for why committee members are averse to transparency, and want to deliberate in private. As the market does not learn the proper decision, it forms a perception of the members' decision-making abilities by comparing their statements. Disagreement signals lack of competence, as competent members view the consequences of the project in the same way. As a result, if the market believes the formal meeting is truly transparent, committee members have incentives to deviate by organizing a pre-meeting. A pre-meeting can be used to collect all opinions, determine what decision suits the public best, but conceal disagreement from the market by showing a united front

favouring the decision. By a pre-meeting, we mean a meeting without cameras and of which no minutes are kept, and that can be used, therefore, to freely exchange views. Lunches and dinners before official meetings are examples, but also a quick exchange in a colleague's office before entering the official, public, meeting.

We next assume that a secret pre-meeting is held and that the market is aware of this. We will refer to a transparent formal meeting preceded by a pre-meeting as an 'open' process. At first glance, one may think that an 'open' process is equivalent to a closed process in which the outside world does not know how a decision is reached. There are two subtle differences, however. First, in a formal closed process there are rules that stipulate how decisions are made. One important rule is the voting rule, which determines how many votes are required for a change. Pre-meetings often do not take place within a formal framework. No document states their terms of reference, nor the voting rule to be used. Instead, custom, a person's rhetoric, prestige, and seniority may play an important role during the pre-meeting. Second, deals made in pre-meetings have to be self-enforcing in the formal meeting. If, for example, in the pre-meeting members agree to form a united front and to vote for change, nobody should have an incentive to deviate from such an agreement in the formal meeting. To put it differently, deals made in a pre-meeting have to be credible.

To study the credibility of a deal made in the pre-meeting, we analyze committee members' incentives to break the deal in the formal meeting. We argue that the only motivation to break the deal is to prevent a distorted decision. Moreover, we show that breaking a deal damages one's reputation. A direct implication is that only members who care relatively little about their reputations may want to break the united front. A coalition of members can break a deal in the formal meeting either by voting against the pre-cooked decision in the voting stage or by breaking the united front in the deliberation stage. A somewhat obvious, but important, result is that breaking the deal must alter the final decision. The loss in reputation has to be compensated by the benefit of a better decision. Hence, the coalition should be sufficiently large to break the deal in the voting stage. Relatedly, if a member breaks the deal in the deliberation stage, a sufficiently large coalition must respond to this by voting against the agreed decision. Committee members may be willing to vote against the agreed decision, because once a member has broken the united front in

the deliberation stage, the reputational benefits from a distorted decision are lower. Out-of-equilibrium beliefs play an important role in members' decisions whether or not to support a deviating member. In general, the more distorted is the pre-cooked decision, the stronger is a member's incentive to deviate in the formal meeting or to support a deviating member. The formal meeting thus limits the deals that can be made in the pre-meeting.

Is transparency to no avail? Would it be better to leave a decision-making process closed, such that deliberation and voting in the formal meeting remain hidden from the public eye? The potential benefits of transparency are not realised due to the emergence of pre-meetings. However, the public can only benefit from the fact that deals that are struck in the pre-meeting have to be self-enforcing in the formal meeting, as it tempers the enthusiasm for unwarranted decisions. The realised benefits depend on the degree to which the person who is able to dictate a deal cares about his reputation, and the presence of members who care sufficiently little about their reputations to break distortionary deals. If the powerful member in the pre-meeting cares less about his reputation than the decisive voter of the formal meeting, self-enforcing deals are characterized by smaller distortions. However, if power in the pre-meeting falls in the hands of a member who cares considerably more about his reputation than the decisive voter of the formal meeting, pre-meetings can cause serious damage.

The next section discusses the related literature. Section 3 presents the model, and sections 4-7 contain the analysis. A number of extensions are discussed in section 8. In section 8.1, we examine committee members' incentives to shun the pre-meeting. There are two important differences between skipping a pre-meeting and deviating in the formal meeting. First, by skipping the pre-meeting, a member does not learn the views other members hold. It will therefore be unclear whether it is worth to skip the pre-meeting. Second, staying away from a pre-meeting forces a member to anticipate what kind of deal the other members will make in his absence. Skipping a pre-meeting only makes sense if it weakens the incentives of the other members to distort the decision. We show that this is not always the case. In section 8.2, we examine the incentives to organize a pre-meeting if the public does observe the consequences of the decision. A statement that is confirmed by reality boosts a member's reputation, while a refuted statement hurts it. The inclination

to organize a pre-meeting is still felt. A pre-meeting allows each member to form a better opinion and thus increases the likelihood of seeing his public statement confirmed by the actual consequences. Finally, in section 8.3 we show that a truly transparent process may lead to posturing if members know their own and each others' levels of competence. This posturing leads to a distorted decision. A pre-meeting remains a useful tool to hide conflicting views.

2 Related Literature

Our paper contributes to the literature on the costs and benefits of transparent decision-making processes. There is a long history to the debate on transparency in the political science literature on democracy, see Stasavage (2007) for a concise overview. As transparency is needed for accountability and may increase the legitimacy of decisions taken, it has typically been viewed as beneficial. Gersbach and Hahn (2004) show that real transparency may lead committee members to act more in line with the principal's interests to increase his reappointment chances. Besides, transparency facilitates the proper selection of committee members over time. Gersbach and Hahn (2007) show that transparency provides incentives to members to exert more effort to become informed. Recently, economists and rational choice political scientists have focused on the possibility that transparency induces committee members to distort their behaviour (see, for example, Fingleton and Raith (2005), Stasavage (2007), and Levy (2007)). The typical context is a voting model in which a member will use his vote not only to influence the final decision, but also to signal his type so as to increase the chances of reappointment. This posturing may result in the member acting in accordance with what the principal believes is the right action, rather than taking an action that he truly believes will further the interests of the principal.[4] Levy (2007) finds that a closed process leads members

[4]The finding that a principal does not necessarily benefit from information on the action taken by an agent who wants to maintain a reputation for competence is also presented in Prat (2005) in a single agent framework. Other implications of transparent processes have also been studied. Perry and Samuelson (1994) assume that open-door negotiations allow constituents to intervene if they are apprehensive about the way the negotiations are evolving. Such is not possible in case of closed-door negotiations, and this may well be beneficial. Patacconi (2007) argues that the requirement to publish information that is used in political decision-making gives rise to information manipulation by politicians who care about re-election.

to favour the conventional decision, i.e., the decision that is a priori more likely or the one that requires the least unequivocal support. This decision acts as a safe haven as it obscures how members actually voted. This conformism bias disappears in case of a transparent process. Our paper is to the best of our knowledge the first to analyse the change of the locus of committee decision-making (the emergence of pre-meetings) due to transparency, and its consequences for the quality of group decision-making.

The issues of transparency in general and transparent decision processes in particular have been debated extensively in the realm of central banking.[5] Before 1993, the Federal Open Market Committee (FOMC) of the U.S. Fed deliberated and voted in closed meetings. In 1993, this changed as the result of pressure of U.S. Congress on the FOMC to become more transparent. First, the FOMC had to publish verbatim transcripts with a five-year time lag starting in 1993. And second, it was forced to publish such transcripts about past meetings, i.e., about meetings of which members at the time thought that they would be closed. Meade (2005) gathered voice and vote data from these transcripts. Using this data, Meade and Stasavage (forthcoming) argue that transparency has strengthened the incentives to herd at the FOMC. Swank, Swank and Visser (2008) find evidence that it has shifted the locus of the real debate, away from the formal FOMC meetings to pre-meetings. Either hypothesis predicts, correctly, that the change in 1993 should lead to a substantial drop in *observed* differences in both opinion and votes cast. But only the analysis by Swank, Swank and Visser (2008) can explain why after 1993 deliberation became more scripted.

This paper also contributes to the literature on deliberation in committee decision-making. Coughlan (2000) is one of the first to show how the possibility of even minimal communication changes the role of voting rules.[6] Austen-Smith and Feddersen (2002) and Visser and Swank (2007) argue that the choice of voting rule should balance the quality of deliberation and the alignment of interests of the decisive voter with those of the public.[7] Dessein (2007) and Wernerfelt (2007) consider the way in which the committee structure affects the intensity and quality of delibera-

[5] Geraats (2002) provides a taxonomy of dimensions in which a central bank can be transparent.

[6] See also Geradi andYariv (2006).

[7] Meirowitz (2004, 2005) compares the effectiveness of debate and transfers in inducing information revelation.

tion.[8] Ottaviani and Sørensen (2001) study the influence of herding on the quality of debate, and the desired order of speech. The present paper has in common with the latter paper and with Visser and Swank (2007) that it argues that there are severe limitations as to what an outside observer can learn from publicly observable deliberation about privately held opinions. It is different from either because of its focus on pre-meetings.

3 The Model

On behalf of the public, a committee of n persons, $i \in I = \{1, ..., n\}$ has to decide between maintaining the status quo, $X = 0$, and implementing a project, $X = 1$. By normalization, status quo delivers a payoff equal to zero. If the project is implemented, the project payoff to each member (and the public) equals $p + \mu$. The parameter p is the ex ante expected payoff from $X = 1$. The stochastic term μ captures that the state of the environment, and therefore the payoff from $X = 1$, is uncertain. We assume that $\mu \in \{-h, h\}$, with equal prior probability. Moreover, we assume that (i) $p < 0$, implying that the committee has a bias against project implementation; (ii) $p + h > 0$, implying that the socially optimal decision depends on the state.

At the beginning of the game, each member $i \in I$ receives a private signal $s_i \in \left\{s^b, s^g\right\}$ about μ. A signal refers to a member's assessment, forecast or view of μ (b is bad and g is good). Whether this signal is informative depends on a member's ability. Each member can be smart, sm, or dumb, db. The prior probability that a member is smart equals π. A smart member has a fully informative signal about μ. His view on μ is flawless, $\Pr(\mu = h \mid s^g, sm) = \Pr\left(\mu = -h \mid s^b, sm\right) = 1$. A dumb member receives an uninformative signal: $\Pr(\mu = h \mid s^g, du) = \Pr\left(\mu = h \mid s^b, du\right) = 1/2$. He does not learn anything new about the expected value of the project. A member

[8] In the psychological literature on group decision making, group polarization, the phenomenon that individuals as a group may advise or take a decision that is more extreme than any member would advise or take individually, is viewed as the consequence of faulty deliberation. See Eliaz, Ray and Razin (2006) and Sobel (2006) for an economic approach to understand this phenomenon. Especially Sobel insists that polarization may be an outcome that is not only rational but even first-best.

does not know his own ability, only the probability with which he is smart, π.[9,10] The ex ante probabilities of μ and the prior probability π are common knowledge.

Preferences of committee members over the alternatives consist of two parts, one reflecting the public interest, and one reflecting reputational concerns. Specifically, member i's preferences are represented by:

$$U_i(X=1) = p + \mu + \lambda_i \hat{\pi}_i(\Omega_1) \quad (1)$$

$$U_i(X=0) = \lambda_i \hat{\pi}_i(\Omega_0), \quad (2)$$

where $\hat{\pi}_i$ denotes the posterior belief held by the market that committee member i is smart. We refer to this belief as member i's reputation. This reputation is based on observed and inferred information, Ω_X. The fact that the information set is indexed by the decision on the project, implies that the market observes at least this decision. It does not observe the state of the environment μ.[11] Depending on the way the decision-process is organized the market may also observe how the project decision is arrived at. The parameter λ_i measures how much committee member i cares about his reputation. Committee members may trade off project value and reputation in different ways, $\lambda_1 < \lambda_2 < ... < \lambda_n$. These weights are common knowledge. We use (1) and (2) with $\lambda_i = 0$ to represent the public's interest.

In this paper we discuss three decision processes: a closed process, a transparent process, and an 'open' process. Both a closed and a transparent process consist of a single formal meeting in which the decision on the project is made in two stages, a deliberation stage followed by a voting stage. We explain the difference between a closed and a transparent process shortly. In case of an 'open' process, this formal meeting is preceded by a pre-meeting. We describe the way we model the pre-meeting in section 7.1. Here we describe the two stages of the formal meeting. In the deliberation stage, each member sends a message, $m_i \in \{m^b, m^g\}$. By this we mean that a member presents an analysis of μ. In this paper, we assume that a member truthfully reveals his signal when discussing with other members,

[9] "Dumb" may mean "less smart". What matters for the results is that a smart member has a higher likelihood of correctly assessing the state of the economy than a dumb one.

[10] In section 9.3, we study the situation in which members know their abilities.

[11] In section 9.2, we discuss the situation in which μ is observed.

i.e. $\Pr(m_i = m^g|s^g) = 1$ and $\Pr\left(m_i = m^b|s^b\right) = 1$. As these members are experts, claims will be verifiable at least to some extent, in the sense that a member cannot claim everything. Members can ask pertinent and probing questions while participating in the meeting. The underlying idea is that, as in Dewatripont and Tirole (2004), deliberation may make information hard. Any conflict between members is then limited to the voting stage, and the voting rule governs how this conflict is resolved. In Visser and Swank (2007), we analyse in detail the effects of strategic information manipulation in a closed decision process. We show how the voting rule determines both the identity of the decisive voter and the quality of the deliberation. Although members cannot fool each other, we assume that they can fool the market. This may be because the market does not participate in the decision process, but merely observes (the outcomes of) the decision process, or because they are less expert than the committee members. Other committee members can verify claims, but the market cannot.

In the second stage, the voting stage, members vote on the project, $v_i \in \left\{v^b, v^g\right\}$, where $v_i = v^b$ ($v_i = v^g$) denotes that i votes against (in favour of) $X = 1$. In this stage, the signals $\underline{s} := \{s_1, ..., s_n\}$ are common knowledge. Thus, a voting strategy of member i equals $\Pr(v_i = v^g|\underline{s})$. We assume that messages are sent simultaneously. A motivation for this assumption is that members prepare their analyses or statements before the meeting. We also assume that votes are cast simultaneously to exclude the phenomenon of herding. The decision on X depends on the formal voting rule f. The project is implemented if and only if the number of favourable votes is at least f.

As said, independent of the decision process, the public observes the decision. In a closed process, the public does not observe the actual deliberation and voting. The committee is, however, free to communicate information on deliberation and voting that took place in the meeting to the outside world. In a transparent and an 'open' process, the public does observe the deliberation and voting that took place in the formal meeting.

4 Building Blocks

4.1 The first-best decision rule

The first-best decision rule, the rule that maximizes project value, requires that the committee, once all members have revealed their signals in the deliberation stage, implements the project if and only if the number of positive signals, denoted by k, is sufficiently large. Let $\mathsf{E}(\mu \mid k)$ denote the expected value of μ conditional on k (out of n) positive signals. Furthermore, let $\overline{k}^{FB}$ be the threshold value such that $p + \mathsf{E}(\mu \mid k) > 0$ for $k \geq \overline{k}^{FB}$ and $p + \mathsf{E}(\mu \mid k) < 0$ for $k < \overline{k}^{FB}$.

Definition [First-best Decision Rule] The first-best decision rule requires that the committee, once members have truthfully revealed their signals, implements the project if and only if $k \geq \overline{k}^{FB}$.

To ensure that the committee operates in an interesting environment, we assume that $p + \mathsf{E}(\mu \mid n) > 0$ holds, as otherwise implementation would never be in the public's interest. The determination of $\overline{k}^{FB}$ is a statistical matter. As $p < 0$, the optimal decision rule is characterized by $\overline{k}^{FB} > \lceil (n+1)/2 \rceil$, where $\lceil x \rceil$ denotes the smallest integer larger than x. The stronger is the bias against project implementation, the higher is $\overline{k}^{FB}$.

4.2 Signals and reputations

The relationship between the distribution of signals and the updated belief that a member i is smart plays an important role in our analysis. We present two simple results that will be used throughout the paper. Recall that competence is defined such that smart members always receive the same signal; conflicting signals are a sure sign that at least one member is dumb. Assume that the market knows (or can deduce) the distribution of signals, $\underline{s} = \{s_i, s_{-i}\}$, where s_{-i} denotes the signals of all members but i. Let $k(s_i) \in \{0, \ldots, n-1\}$ be the number of members whose signals coincide with the signal of member i. The following result is immediate.

Result 1. If the market observes all signals, member i's reputation is increasing in $k(s_i)$. The more members received the same signal as i did, the higher is i's

reputation.

Second, suppose that the market does not observe who received what signal, but does deduce how many positive signals k (and therefore negative signals $n-k$) the committee received in total.

Result 2. If the market does not know $\underline{s}$, but can deduce k, every members' reputation is highest if the degree of signal concurrence is maximal, ($k = n$ or $k = 0$), and decreases the less concurrence there is, i.e., the more k approaches $(n+1)/2$ from either side.

Note that both results would still be valid if one were to define dumb as less smart, see footnote 9.

4.3 Equilibrium concept

In case the decision process consists of a formal meeting only, the equilibrium concept to be used is straightforward. In the formal meeting, voting is preceded by deliberation. When members vote, the messages (i.e., signals, given our assumption of truthful revelation) are common knowledge. We therefore use the concept of subgame perfect equilibrium. Voting behaviour by a member that maximizes expected utility given this member's information is sometimes referred to as sincere voting. Rational voting requires behaviour to be such that expected utility is maximized given one's information *and* conditional on one's vote being pivotal (i.e., to change payoffs) [see Coughlan (2000) for a discussion about the difference between sincere and rational voting)]. In the typical voting game that is studied in the literature, this difference is important as voting is not preceded by deliberation. Here, however, a member cannot deduce additional information on other members' signals by making his vote conditional on being pivotal. Therefore, the sincere voting strategy is a subgame perfect equilibrium voting strategy. In what follows, we focus on such voting strategies. We do not consider signal independent voting behaviour.

The equilibrium concept to be used in the analysis of an 'open' proces, in which the formal meeting is preceded by a pre-meeting, will be discussed in section 7.1.

Finally, note that market perceptions of ability levels enter *directly* into a member's utility function. This is true for any model with reputational concerns.[12] We require the updated beliefs, $\hat{\pi}_i(\Omega_X)$, to be obtained using Bayes' rule, wherever possible. As a result, beliefs, and therefore payoffs, are determined relative to a specific equilibrium. This will be of special importance when we study 'open' processes.

5 Closed decision-making process

In this section we explain why the public may be worried about the quality of the decisions in case of a closed decision-making process. In such a process, it is not observed how the final decision is reached. The decision itself is observed and whatever the committee decides to tell the outside world concerning the reasons to take this decision. We show that this leads to poor accountability and possibly to deviations from the first-best decision rule.

The fact that $p < 0$ implies that, if the committee follows the first-best rule and if the public only observes the final decision X, the reputation each member commands is higher in case of implementation than in case of maintaining the status quo, $\hat{\pi}\left(X = 1; \overline{k}^{FB}\right) > \pi > \hat{\pi}\left(X = 0; \overline{k}^{FB}\right)$, as the average degree of signal concurrence is higher in the former than in the latter case. This follows from Result 2. The market can infer from $X = 1$ that $k \geq \overline{k}^{FB} > \lceil (n+1)/2 \rceil$, and therefore that the degree of signal concurrence did not fall below some lower bound. From $X = 0$, the market infers that either many (or all) signals concurred and were negative, or there was considerable conflicting evidence and signal concurrence was therefore very low (k close to $\lceil (n+1)/2 \rceil$). The latter inference dilutes the reputation of each member in case of $X = 0$.

As implementation commands a higher reputation than the status quo if the committee were to use the first-best decision rule, committee members face a trade-off when the amount of evidence favoring implementation falls short of the threshold value. The temptation to deviate is felt most strongly if the number of positive private views falls just short of warranting project implementation, $k = \overline{k}^{FB} - 1$. In this case, the costs from deviating in terms of expected project loss are the

[12] For a general discussion of games in which beliefs directly enter the utility function, so-called psychological games, see Geanakoplos, Pearce and Stacchetti (1989).

smallest, $p + \mathsf{E}\left[\mu|\overline{k}^{FB} - 1\right]$. The gains in terms of reputation for member i are $\lambda_i\left(\widehat{\pi}\left(X = 1; \overline{k}^{FB}\right) - \widehat{\pi}\left(X = 0; \overline{k}^{FB}\right)\right)$. Define

$$\overline{\lambda} := -\frac{p + \mathsf{E}\left[\mu|\overline{k}^{FB} - 1\right]}{\widehat{\pi}\left(X = 1; \overline{k}^{FB}\right) - \widehat{\pi}\left(X = 0; \overline{k}^{FB}\right)}. \tag{3}$$

For $\lambda_i \leq \overline{\lambda}$, member i does not want to deviate from the first-best rule. Hence, if $\lambda_n \leq \overline{\lambda}$, no member wants to deviate. As soon as $\lambda_n > \overline{\lambda}$, there is room for conflict about the decision to be supported. Members may deviate by voting for implementation even though $k < \overline{k}^{FB}$.

Recall that we focus on sincere voting strategies. Then, with implementation requiring f favourable votes, member $d = n + 1 - f$ casts the decisive vote. If k is such that he votes favourably, so do all members $i > d$ who are more willing to give up project value for a strengthened reputation. As a result, the project is implemented. If k is such that he votes against, so do all members $i < d$ who care less about their reputation, implying that the required majority is not attained and the status quo is maintained. That is, the decisive member d determines whether the implementation is distorted, and, if so, the extent of the distortion. Proposition 1 characterizes the equilibrium.

Proposition 1 *Let the decision-making process be closed. Suppose the voting rule is f, implying that $d = n + 1 - f$ is the decisive voter. Then equilibrium behaviour is as follows.*

(i) If member d cares little about his reputation, $\lambda_d \leq \overline{\lambda}$, member d votes $v_d = v^g$ if and only if $k \geq \overline{k}^{FB}$. The other members vote $v_i = v^g$ if and only if k satisfies $p + \mathsf{E}\left[\mu|k\right] + \lambda_i\widehat{\pi}\left(X = 1; \overline{k}^{FB}\right) > \lambda_i\widehat{\pi}\left(X = 0; \overline{k}^{FB}\right)$. The first-best decision rule is the equilibrium outcome.

(ii) If $\lambda_d > \overline{\lambda}$, then one of the following holds.

(ii–a) [pure equilibrium strategies] The equilibrium is characterized by a threshold value $\bar{k}_d$ satisfying

$$p + \mathsf{E}\left[\mu|\bar{k}_d\right] + \lambda_d\widehat{\pi}\left(X = 1; \bar{k}_d\right) \geq \lambda_d\widehat{\pi}\left(X = 0; \bar{k}_d\right) \tag{4}$$

$$p + \mathsf{E}\left[\mu|\bar{k}_d - 1\right] + \lambda_d\widehat{\pi}\left(X = 1; \bar{k}_d\right) < \lambda_d\widehat{\pi}\left(X = 0; \bar{k}_d\right). \tag{5}$$

Because $\lambda_d > \overline{\lambda}$, $\bar{k}_d \in \left\{\lceil (n+1)/2 \rceil, ..., \overline{k}^{FB}\right\}$. *Member* i *votes* $v_i = v^g$ *if and only if* k *satisfies* $p + \mathsf{E}[\mu|k] + \lambda_i \widehat{\pi}\left(X = 1; \bar{k}_d\right) \geq \lambda_i \widehat{\pi}\left(X = 0; \bar{k}_d\right)$. *As a result, the project is implemented if and only if* $k \geq \bar{k}_d$.

(ii–b) [mixed strategy equilibrium strategies] The equilibrium is characterized by a threshold value $\bar{k}_d$ *and* $\gamma_d \in (0,1)$, *a probability. The pair* $\left(\bar{k}_d, \gamma_d\right)$ *satisfies*

$$p + \mathsf{E}\left[\mu|\bar{k}_d\right] + \lambda_d \widehat{\pi}\left(X = 1; \bar{k}_d, \gamma_d\right) = \lambda_d \widehat{\pi}\left(X = 0; \bar{k}_d, \gamma_d\right), \tag{6}$$

where $\bar{k}_d \in \left\{\lceil (n+1)/2 \rceil, ..., \overline{k}^{FB}\right\}$. *Member* d *votes* $v_d = v^g$ *with probability one if* $k > \bar{k}_d$; $v_d = v^g$ *with probability* γ_d *if* $k = \bar{k}_d$; *and* $v_d = v^b$ *if* $k < \bar{k}_d$. *Members* $i \neq d$ *vote* $v_i = v^g$ *if and only if* k *satisfies* $p + \mathsf{E}[\mu|k] + \lambda_i \widehat{\pi}\left(X = 1; \bar{k}_d, \gamma_d\right) \geq \lambda_i \widehat{\pi}\left(X = 0; \bar{k}_d, \gamma_d\right)$. *As a result, the project is implemented if and only if* d *votes favourably.*

To see that the sincere voting strategy is an equilibrium strategy for i, assume that all other members follow this strategy, and that reputations are given. In the voting stage, k is common knowledge. Without loss of interesting generality, focus on the case of pure strategies. Then, for a given value of k, it is a best reply for i to vote favourably if and only if doing so gives him more than voting against implementation, $p + \mathsf{E}[\mu|k] + \lambda_i \widehat{\pi}\left(X = 1; \overline{k}^{FB}\right) > \lambda_i \widehat{\pi}\left(X = 0; \overline{k}^{FB}\right)$.

To understand why there are two types of equilibria in case of $\lambda_d > \overline{\lambda}$, note that (5) says that for given posterior beliefs $\widehat{\pi}\left(X = 1; \bar{k}_d\right)$ and $\widehat{\pi}\left(X = 0; \bar{k}_d\right)$ consistent with $\bar{k}_d$, member d prefers to maintain the status quo in case the number of positive assessments equals $\bar{k}_d - 1$. He therefore does not mix in case of $k = \bar{k}_d - 1$. In case (ii–b), the situation is different. Now for given beliefs that are consistent with implementation with probability one for $k \geq \bar{k}_d$, member d would like to implement for $k = \bar{k}_d - 1$. But if the posterior beliefs were based on the committee implementing with probability one for $k \geq \bar{k}_d - 1$, then he would like to refrain from implementing if $k = \bar{k}_d - 1$. As a result, there is a probability γ_d with which the project is implemented in case of $k = \bar{k}_d$, with $\left(\bar{k}_d, \gamma_d\right)$ characterized by (6).

Essentially, with the a priori unconventional decision (project implementation as $p < 0$) being the more attractive from a reputational point of view, the committee is inclined to implement the project too often. The distortion is limited because the associated reduction in project value should be compensated by a higher reputation

in case of implementation. In equilibrium, then, the a priori unconventional decision remains the less likely decision.

So far, we have assumed that the market evaluates members' level of ability on the basis of the final decision only. What additional information, if anything, would members like to make public once the decision has been taken? With the decision taken, both the proponents and the opponents have an interest in showing a united front to the outside world in support of the decision as revealing disagreement would signal lack of competence and thus hurt reputation. Of course, the market sees through this behaviour, and ignores any additional information the committee provides.

The upshot is that in a closed process, accountability is poor, and for $\lambda_d > \overline{\lambda}$ the public is rightly concerned about the quality of the decision reached.

6 Transparency

Now suppose that the committee is required to deliberate and vote in public. Recall that we assume that members truthfully reveal their signals. Hence, once messages have been sent, the market can update its belief about i's ability by determining the extent to which i's message coincides with messages sent by the other members (see Result 1). At the beginning of the voting stage, the reputation of each member is fixed, and the number of positive signals k is common knowledge. Hence, i votes for implementation if and only if $k \geq \overline{k}^{FB}$. That is, members agree as to the decision on the project for each value of k. This makes the voting rule immaterial.

Proposition 2 *Suppose the decision process is transparent. Then, there is an equilibrium, in which the project is implemented if and only if it is first-best to do so. The voting rule is immaterial.*

Consequently, the existence of an equilibrium that gives rise to the first-best decision on the project makes the public's demand for transparency understandable. Note, however, that accountability – an accurate impression of what members think – is guaranteed by our assumption of truthful revelation. Is truthful revelation part of an equilibrium in which members could misrepresent their private information? To see that it is, assume members truthfully reveal their signals and vote sincerely.

Suppose member i deviates in the deliberation stage. His misrepresenting his signal may not influence the decision on X, but if it does, it reduces expected project value. Moreover, it will certainly reduce his expected reputation as it is more likely that a majority of other members has received the same signal rather than the other signal. This is the case because members are smart with probability π, and therefore signals are correlated in the sense that $\Pr\left(s_j = s^b | s_i = s^b\right) > \Pr\left(s_j = s^g | s_i = s^b\right)$. Hence, i does not want to misrepresent his private information.

The above suggests that transparency is in the public's interest. However, a caveat is in order. As the market bases its assessment of a member's ability on the degree to which a member's statement coincides with those of others, each member's reputation benefits from a united front. The prospect of commanding a high reputation induces a member to find out what other members intend to say. In fact, if the market believes the meeting is truly transparent, members have a mutual interest in deviating by sharing information in a pre-meeting before the formal, 'transparent' meeting. Given that reputation depends on the degree of concurrence among members, every member would benefit from secretly meeting before the formal meeting, determine what decision on the project is first-best, and then show a united front supporting that decision in the formal meeting. Such a deviation would be costless in terms of project value, and improve each member's reputation.

7 Pre-meeting Deals

An analysis of a formal meeting that consists of deliberation followed by voting, and that is preceded by a pre-meeting is a complex matter. In the following subsection, we explain our approach.

7.1 How to model pre-meetings?

7.1.1 Definitions

A pre-meeting emerges because of the desire of members to show a united front in support of a decision. We therefore view a pre-meeting as resulting in a deal concerning how to act and what to "decide" in the formal meeting. Below, we use

the superscript d to indicate that the values of the decision variables are those that are part of the deal.

Definition [**Deal Strategy and Deal**] A *deal strategy* is characterized by a pair $\left(\bar{k},\gamma\right)$, with $\gamma \in (0,1]$ and $\bar{k} \in \left\{\lceil (n+1)/2 \rceil, \ldots, \bar{k}^{FB}\right\}$. It determines for each $k \in \{0,\ldots,n\}$ a deal. A deal is a non-binding agreement to show a united front to support either implementation or the status quo in both stages of the formal meeting:

$$\begin{cases} \text{If } k > \bar{k}, \text{ then} & & X^d = 1 \text{ and } \forall i : \left(m_i^d, v_i^d\right) = (m^g, v^g) \\ \text{If } k = \bar{k}, \text{ then,} & \text{with prob } \gamma, & X^d = 1 \text{ and } \forall i : \left(m_i^d, v_i^d\right) = (m^g, v^g) \\ \text{If } k = \bar{k}, \text{ then,} & \text{with prob } 1-\gamma, & X^d = 0 \text{ and } \forall i : \left(m_i^d, v_i^d\right) = \left(m^b, v^b\right) \\ \text{If } k < \bar{k}, \text{ then} & & X^d = 0 \text{ and } \forall i : \left(m_i^d, v_i^d\right) = \left(m^b, v^b\right). \end{cases}$$

A deal results from applying the deal strategy to a given number k of positive signals. Part of the deal is for all members to support wholeheartedly the decision, both verbally and in voting, in the formal meeting. A pre-meeting is therefore a face-saving device. If all members stick to the deal, then the market observes either (m_I^g, v_I^g) or $\left(m_I^b, v_I^b\right)$, where m_I^x (v_I^x) denotes that all members $i \in I$ report m^x (vote v^x), $x \in \{g,b\}$, in the formal meeting.

Members may be unhappy with the deal struck in the pre-meeting. Any room the formal meeting offers to deviate from the deal struck in the pre-meeting may be exploited by a member or group of members who feels cajoled into that deal. For a deal (strategy) to be self-enforcing, it should prescribe equilibrium behaviour. As at the end of the pre-meeting, k is common knowledge, the formal meeting that starts is a subgame. As before, the voting stage is also a subgame. For a deal strategy to be self-enforcing it should prescribe for each value of k behaviour that is subgame perfect for each member i, in both stages of the formal meeting.

During the pre-meeting, members may have seen each other's reactions to the dictated deal, and may be able to tell who is pleased or unhappy with the deal. Moreover, some time may elapse between the pre-meeting and the formal meeting. It then seems natural to assume that coalitions can form of members who are dissatisfied with the deal reached. If implementation requires less than unanimity, no unilateral deviation in the voting stage of the formal meeting can change a deal

to implement the project, but a concerted action of a sufficiently large coalition can. Let C denote a coalition. Of course, C may be a singleton. We focus on deal strategies from which no coalition wants to deviate in any subgame, and call such strategies coalition-proof subgame perfect equilibrium strategies.[13] The natural payoff comparison that rules whether an equilibrium is coalition-proof is between a member's payoff in case of the imputed equilibrium on the one hand and the payoffs he would obtain as part of the deviating coalition on the other.

Definition [**Self-enforcing Deal Strategy**] A deal strategy $\left(\bar{k}, \gamma\right)$ is self-enforcing if it is a coalition-proof subgame perfect equilibrium.

We address the following questions. What conditions should hold for a deal strategy to be self-enforcing? Which stage in the formal meeting imposes tighter conditions for a deal to be self-enforcing, the deliberation stage or the voting stage? Does a self-enforcing deal strategy always exist? If the member who is decisive in the formal meeting were to dictate his prefered deal strategy in the pre-meeting, would that strategy be self-enforcing? Is transparency to no avail? Before answering these questions, we need to clarify two further issues.

7.1.2 Who or what determines the deal strategy?

The first issue is what happens if conflicts arise in the pre-meeting as to the decision to be supported in the formal meeting? In a formal meeting such conflicts are mediated by the voting rule. No such conflict resolution mechanism is prescribed in a pre-meeting. As indicated in the introduction, many different factors may determine what deal is struck - custom, charisma, seniority etc. Bargaining weights or different extensive form bargaining games may capture some of these elements. But it could also be that the pre-meeting simply uses the same voting rule f that characterizes the formal meeting. Moreover, it is not immediately clear that the

[13] There exist at least two definitions of strategy profiles from which no coalition wants to deviate. Aumann's (1959) strong equilibrium requires that no coalition, taking the actions of the other players as given, can deviate in a way that benefits all of its members. Bernheim, Peleg and Whinston (1987) definition of coalition-proof equilibrium requires that only coalitions should be considered that are themselves immune to further deviations by subcoalitions. As will become clear, this difference is unimportant in our set up, see the next footnote.

market can know these factors nor how they play out in a given group of people. Sometimes decisions are made in committees the members of which form a tightly knit group with the market, as when, say, a committee of cardio-thoracic surgeons takes decisions on practice guidelines on behalf of a health organization. In such a situation, the market, i.e., other cardio-thoracic surgeons, may well understand how members, colleagues really, will interact. In other instances, however, the market will be more distant from the members. To avoid adding a layer of uncertainty that does not qualitatively change our findings, we make two modelling assumptions. First, we identify a deal strategy with a member j, of whom we will say that he 'dictates' the deal. That is, the deal strategy that is used, and therefore the deal that is the outcome of the pre-meeting, is best from member j's perspective. Second, we assume that the market knows who this member j is. Our focus on self-enforcing deal strategies is then equivalent to a focus on a set $J \subseteq I$ of dictators whose dictated deal strategies are self-enforcing.

Assume that a self-enforcing deal strategy exists, i.e., there is a $j \in J$. The next Result establishes that the decision on X is the same as if j were the decisive voter in a closed meeting.

Result 3. Suppose the decision process is 'open'. If $j \in J$ dictates a deal strategy that is self-enforcing, then the decision on X and the ex post reputations of all members are the same as when j is the decisive voter in a closed process.

This follows from the fact that if j's deal strategy is self-enforcing, the market either observes (m_I^g, v_I^g) or $\left(m_I^b, v_I^b\right)$. In equilibrium, the market knows the pair $\left(\bar{k}_j, \gamma_j\right)$, and so ex post reputations equal $\widehat{\pi}\left(m_I^g, v_I^g; \bar{k}_j, \gamma_j\right)$ and $\widehat{\pi}\left(m_I^b, v_I^b; \bar{k}_j, \gamma_j\right)$, respectively. But observing (m_I^x, v_I^x) is equivalent to observing $X = x$, for $x \in \{0, 1\}$. Therefore, $\widehat{\pi}\left(m_I^x, v_I^x; \bar{k}_j, \gamma_j\right) = \widehat{\pi}\left(X = x; \bar{k}_j, \gamma_j\right)$. Note that the right hand side is the ex post reputation in case j is the decisive member in a closed process, see Proposition 1. The statement of the Result is then immediate.

To ease exposition and without loss of generality, we assume that a deal dictated by member j results from a mixed-strategy deal strategy. Hence, if it is

self-enforcing, the parameters $\left(\bar{k}_j, \gamma_j\right)$ satisfy

$$p + \mathsf{E}\left[\mu|\bar{k}_j\right] + \lambda_j \widehat{\pi}\left(m_I^g, v_I^g; \bar{k}_j, \gamma_j\right) = \lambda_j \widehat{\pi}\left(m_I^b, v_I^b; \bar{k}_j, \gamma_j\right). \tag{7}$$

Whoever dictates the terms of the deal strategy in the pre-meeting, if the strategy is self-enforcing, it satisfies two conditions. First, implementation commands a higher reputation than maintaining the status quo. Second, if there is a distortion, it is in the direction of unwarranted implementation.

7.1.3 Out-of-equilibrium beliefs

The second issue deals with out-of-equilibrium beliefs. To check whether a deal strategy is self-enforcing, one has to establish that no deviation exists that makes the deviating coalition better off. Now recall our earlier remark that the fact that market perceptions of ability levels enter directly into a member's utility function is particularly important in an 'open' process. With beliefs defined in equilibrium, establishing the conditions such that an imputed deal strategy is indeed an equilibrium strategy requires out-of-equilibrium beliefs about ability off the equilibrium path. A deviation from a deal by a coalition $C \subset I$ inevitably leads to a broken front, and therefore to out-of-equilibrium beliefs. When contemplating whether to stick to the deal or to deviate from it, members have to contemplate how the market interprets lack of unison.

Out-of-equilibrium beliefs will be based on a number of premises. It is useful to distinguish two sorts of out-of-equilibrium behaviour. Some out-of-equilibrium behaviour merely implies a deviation from the united front *without* any effect on the eventual decision, so $X = X^d$. For example, if $X^d = 1$, and implementation requires simple majority, both the united front (m_I^g, v_I^g) and a deviation from it, $\left(m_I^g, v_{I\setminus i}^g\right)$, lead to implementation. Or, if $X^d = 0$, and implementation requires unanimity, both a united front in favour of the status quo $\left(m_I^b, v_I^b\right)$ and a united front in favour of implementation from which one member deviates $\left(m_I^g, v_{I\setminus i}^g\right)$ guarantee that $X^d = X = 0$. The first premise prevents members from playing (cheap talk) games that do not change the eventual decision on the project, but are merely meant to fool the public and to command a higher reputation.

Premise 1 Suppose out-of-equilibrium behaviour is such that $X = X^d$. Then members' reputations are lower than in case of a united front supporting X.

This premise allows us to concentrate on the interesting case in which out-of-equilibrium behaviour does affect the final decision, $X \neq X^d$. This may be due to behaviour in either stage of the formal meeting. Behaviour and the relevant premises concerning out-of-equilibrium beliefs are discussed in the next section.

7.2 Self-enforceability conditions

The point of departure is a deal strategy $\left(\bar{k}_j, \gamma_j\right)$ dictated by j. What conditions should it satisfy for it to be self-enforcing? There are two reasons why a member might be dissatisfied with a deal dictated by member j. First, members who are more concerned with their reputations than member j may prefer $X = 1$ to $X = 0$ for values of k smaller than $\bar{k}_j$. Second, members who care less about their reputations than member j might want to oppose a deal to favour implementation if the higher reputation this decision commands does not outweigh the loss in project payoff. A member considering obstructing the deal asks himself two questions: will I be successful, and how much does obstruction cost me? Suppose obstruction is effective, $X \neq X^d$. This requires breaking the united front.

Premise 2. Suppose a deviation is such that $X \neq X^d$. This deviation from the united front by a (coalition of) member hurts the reputation of every member.

This is a natural premise in a situation in which pre-meetings emerged to protect reputation by showing a united front. Lack of unison reveals that members received conflicting signals. This hurts the reputation of every member.
As a consequence, a member who cares more about his reputation than member j will not oppose a deal favouring the status quo as the reputational gains hoped for cannot be realized. Any deal to *maintain* the status quo is self-enforcing, and we can concentrate on possible deviations from deals $X^d = 1$ over which conflicts may arise among members. The next Proposition follows

Proposition 3 *A deal strategy dicated by member 1 is self-enforcing. Therefore, J*

is non-empty, $1 \in J$.

After all, if 1 dictates implementation everybody agrees; if he dictates the status quo, members may disagree, but will not oppose the deal.

Suppose $j > 1$. A member $i < j$ might be willing to accept the low reputation that comes from breaking a united front in favour of implementation. As all agree that for $k \geq \bar{k}^{FB}$ the project should be implemented, a deviation reveals at least that $k \in \left\{\bar{k}_j, \ldots, \bar{k}^{FB} - 1\right\}$. Does the identity of the deviator (perhaps as part of a coalition) matter? We think it is plausible that it does, not because a deviation by i provides direct information on his signal, but because members differ in their willingness to trade off reputation for project value.

Premise 3. Suppose member i deviates (perhaps as part of a coalition), and suppose that $X \neq X^d$. This deviation by i does not provide direct information on s_i, but provides information on k.
This is plausible, as i has participated in the pre-meeting and knows k.

Premise 4. Suppose a deviation is such that $X \neq X^d$. The public tries to infer information on the value of k and therefore on the degree of signal concurrence from the deviation, from any actions that members take next, and from the identity of the member(-s) deviating. A higher degree of inferred signal concurrence improves members' reputations.

Premise 4, in combination with Result 2 on page 14, means that the more the infered level of k approaches $\bar{k}_j$, the worse it is for reputation.

7.2.1 Self-enforceability in the voting stage

To analyse self-enforceability in the voting stage, assume that self-enforceability of the deal in the deliberation stage is unproblematic. If implementation requires f favourable votes, a coalition $C = \{1, \ldots, d\}$ including the decisive member $d = n + 1 - f$ can successfully block it. Given Premise 3, the fact that $1, \ldots, d$ are part of the coalition does not directly provide information on their signals. But Premise 4 implies that the market, when updating beliefs about members' abilities,

does take into account the fact that member d cares more about his reputation than any other member in the coalition. Suppose that member 1 prefers the status quo for a value $k' \in \left\{\bar{k}_j, \ldots, \bar{k}^{FB} - 1\right\}$. Then, it may still be the case that members $2, \ldots, d$ want to support implementation for k'. If also member d wants to oppose implementation, it must be the case that $k \leq k'$. That is, the larger is the coalition, the higher is the λ_i of the coalition member who cares most about his reputation, and the lower the values of k that the market infers from a deviation. There is therefore one major obstacle to forming a coalition. The larger is the coalition that deviates, the lower is the reputation of every member. Therefore, if member 1 on his own is not willing to break the united front, the formation of a coalition does not help. A larger coalition can only help to overcome lack of numbers, but does so by compromising every members' reputation.[14] The deal strategy is self-enforcing in the voting stage if member d is unwilling to be part of a coalition breaking the united front. Let $\widehat{\pi}\left(m_I^g, v_{I\setminus C}^g\right)$ denote the out-of-equilibrium belief the market holds if it were to observe that member d breaks the united front in the voting stage as part of a coalition C.

Proposition 4 *Suppose that coalitions can be formed, and that the voting rule is characterized by f. Suppose the deal is self-enforcing in the deliberation stage. The deal strategy $\left(\bar{k}_j, \gamma_j\right)$ is self-enforcing in the voting stage if and only if member $d = n + 1 - f$ is unwilling to be part of a coalition that breaks the united front,*

$$p + \mathsf{E}\left[\mu|\bar{k}_j\right] + \lambda_d \widehat{\pi}\left(m_I^g, v_I^g; \bar{k}_j, \gamma_j\right) \geq \lambda_d \widehat{\pi}\left(m_I^g, v_{I\setminus C}^g\right), \tag{8}$$

where $C = \{1, \ldots, d\}$.

To see this, note that the incentive to vote against implementation is felt most strongly in case of $k = \bar{k}_j$. Hence, if d does not want to deviate in a voting subgame for $k = \bar{k}_j$, then he supports implementation for all $k \geq \bar{k}_j$.

[14] Hence, any coalition with less than d members is ineffective, but damages reputation; any coalition with more than d members is effective, but damages reputation unnecessarily. A "cost-effective" deviating coalition will be stable and no subcoalition will want to deviate from it. The difference between Aumann's definition of coalition-proofness and the one of Bernheim et al., see the previous footnote, is therefore irrelevant in our context.

7.2.2 Self-enforceability in the deliberation stage

The main advantage of deviating in the deliberation stage relative to deviating in the voting stage is that an individual deviation in the former stage can act as a lever to induce widespread defection from the deal in the latter stage. For a dictated deal strategy to be self-enforcing in the deliberation stage, then, no coalition is either willing to break the united front in that stage, or the leverage of his deviant behaviour is too small. It is too small, if the decisive member $d = n+1-f$ continues voting favourably. We start the analysis considering deviations by an individual in the deliberation stage, and conclude this subsection with the result for coalition deviations.

Recall that deviations may only occur from a deal to implement a project with negative expected payoffs, $k \in \left\{\bar{k}_j, \ldots, \bar{k}^{FB} - 1\right\}$. To derive the condition that must hold for the deviation in the deliberation stage to have too little leverage, assume that a member $i < j$ broke the united front in the deliberation stage. This can be written as $m^g_{I\setminus i}$. After this exchange, committee members face a new situation: independent of the decision that is taken next on the project, the reputation of each member has been damaged relative to what it would have been had i stuck to the deal to support implementation. This follows from Premises 2 and 3: note that $\hat{\pi}\left(m^g_I, v^g_I; \overline{k}_j, \gamma_j\right)$ is based on the possibility that signal concurrence was high, with $k \in \left\{\overline{k}_j, \ldots, n\right\}$ equal, positive signals. A deviation by member i reveals that the actual number of positive signals fell short of some threshold value $\bar{k}^{dev}_i$, with $\bar{k}^{dev}_i \in \left\{\bar{k}_j + 1, \ldots, \bar{k}^{FB}\right\}$. Hence, after the deviation, the market knows that $k \notin \left\{\bar{k}^{dev}_i, \ldots, \bar{k}^{FB}, \ldots, n\right\}$, and this hurts members' reputations (see also Result 2 on page 14). After i's deviation, members have to decide what to vote. As the true value of k is common knowledge among the members, they will continue to vote sincerely in the subgame, taking into account the changes in reputations that they can command. Write $\hat{\pi}\left(m^g_{I\setminus i}, X\right)$, i.e., for a given decision X, reputation will not depend on the actual votes cast, see Premise 1. Premise 4 implies that the final decision does have an influence on reputations. In fact, $\hat{\pi}\left(m^g_{I\setminus i}, X = 1\right) > \hat{\pi}\left(m^g_{I\setminus i}, X = 0\right)$ as the decision to implement is taken for higher values of k than the decision to maintain the status quo. From this the market infers that implementation means, on average, more signal concurrence than status quo.

We are now ready to state the two conditions that should hold for the dictated deal to be self-enforcing in the deliberation stage.

Proposition 5 *Let the voting rule be characterized by f. The dictated deal strategy $\left(\overline{k}_j, \gamma_j\right)$ is self-enforcing in the deliberation stage if and only if for every member $i < j$ either of the following conditions is satisfied (i) defection is ineffective: member $d = n + 1 - f$ continues to vote for implementation if member i were to break the united front in the deliberation stage,*

$$p + \mathsf{E}\left[\mu|\overline{k}_j\right] + \lambda_d \hat{\pi}\left(m^g_{I\setminus i}, X = 1\right) \geq \lambda_d \hat{\pi}\left(m^g_{I\setminus i}, X = 0\right), \tag{9}$$

or (ii) defection would be effective but i finds it too costly,

$$p + \mathsf{E}\left[\mu|\overline{k}_j\right] + \lambda_i \hat{\pi}\left(m^g_I, v^g_I; \overline{k}_j, \gamma_j\right) \geq \lambda_i \hat{\pi}\left(m^g_{I\setminus i}, X = 0\right). \tag{10}$$

Note that the incentive to deviate is felt most strongly for $k = \overline{k}_j$. Hence, if self-enforceability is guaranteed for the subgame in which $k = \overline{k}_j$, then it is certainly guaranteed for $k > \overline{k}_j$.

Which member $i < j$ limits most whether a dictated deal strategy is self-enforcing in the deliberation stage? We explain the two forces that are at play. Once member i has deviated in the deliberation stage, it is clear that $k \in \left\{\overline{k}_j, \ldots, \bar{k}^{dev}_i\right\}$. It follows from Premise 4, that the identity of the member deviating influences the perception of the market. The more the member who triggered the deviation in the deliberation stage cares about his reputation, the smaller is the value of k that would trigger deviation: $\bar{k}^{dev}_{i'} < \bar{k}^{dev}_{i''}$ for $i' > i''$. As a result, the more the deviating member cares about his reputation, the smaller the set $\left\{\overline{k}_j, \ldots, \bar{k}^{dev}_i\right\}$ becomes. What effect does this have on the difference in reputation $\hat{\pi}\left(m^g_{I\setminus i}, X = 1\right) - \hat{\pi}\left(m^g_{I\setminus i}, X = 0\right)$ that the decisive member d is facing in the voting stage?

Premise 5. If after the united front is broken the market deduces that $k \in K' = \left\{\overline{k}_j, \ldots, k'\right\}$ rather than $k \in K'' = \left\{\overline{k}_j, \ldots, k''\right\}$, with $k' < k''$, such that $K' \subset K''$, then $\hat{\pi}\left(K'', X = 1\right) - \hat{\pi}\left(K'', X = 0\right) > \hat{\pi}\left(K', X = 1\right) - \hat{\pi}\left(K', X = 0\right)$.

This premise says that the smaller is the range of possible values of k, the smaller

is the difference in reputation. This is plausible, as little variation in k leaves little room for variation in reputations.

Applying Premise 5 to a deviation in the deliberation stage, this means that the difference in reputation is smallest if member $i = j - 1$ deviates. Equation (9) says that once a deviation has taken place in the deliberation stage, the smaller this difference is, the more likely it is that d will maintain the status quo. That is, if member $i = j - 1$ deviates, he is most likely to be successful. But what about this member's inclination to deviate in the first place? Among the members $i < j$, he cares the most about maintaining the united front. It follows from (10) that this makes him an unlikely candidate deviator.

If no member is willing to break the united front in the deliberation stage individually, can a coalition of members successfully break the united front? That is, would a coalition deviation make it more likely that in particular member d opposes implementation in the voting stage? The answer is no. To see why, let $i_{\max}$ be the member of the coalition C who cares the most about his reputation. The market deduces the same information about k from the fact that $i_{\max}$ is part of a coalition as when he were to deviate on his own. This follows from Premise 4: the market tries to obtain as much information as it can from the identity of any deviating member. The fact that member $i_{\max}$ deviates narrows down the most the range of possible values of k. Whether he is deviating on his own or as part of a coalition is immaterial. As a result, the formation of a coalition does not make deviation more attractive.

Proposition 6 *If a deal strategy is self-enforcing in the deliberation stage because no member wants to deviate individually, then it is also coalition-proof in that stage.*

7.3 When is the temptation to deviate strongest?

For a deal strategy to be self-enforcing, it should be self-enforcing in both stages of the formal meeting. This raises the question as to which stage limits the set of self-enforcing deal strategies more, the deliberation stage or the voting stage. In the Appendix, we prove the following Proposition.

Proposition 7 *If a deal is self-enforcing in the deliberation stage, then it is self-enforcing in the voting stage, but the reverse may not be true.*

The result is driven by the fact that a unilateral defection in the deliberation stage may pave the way for a sufficiently widespread deviation in the voting stage, making it more attractive for the decisive member to deviate from the deal.

It seems plausible that if a deal that is dictated by j' is self-enforcing, then also a deal dictated by a member who cares less about his reputation is self-enforcing. In the Appendix, we prove that this is indeed the case.

Proposition 8 *The set of dictators whose deal strategies are self-enforcing is connected and equals* $J = \{1, ..., j^{\max}\}$*, with* $1 \leq j^{\max} \leq n$*.*

Of course, $j^{\max}$ is the highest value of j that satisfies the self-enforceability conditions (9) and (10). It can be that $j^{\max} = n$, meaning that anybody can credibly dictate a deal strategy.

8 Is transparency to no avail?

We have argued that transparency may prompt committee members to organize pre-meetings so as to pre-cook decisions. Does this mean that reforms that are intended to foster transparency are to no avail? To answer this question we compare the outcomes under a closed process and the outcomes under an 'open' process (i.e., a formal transparent meeting preceded by a pre-meeting).

The first immediate finding is that imposing transparency does not improve accountability as both a closed process and an 'open' process are characterized by members speaking with one voice. We therefore express the difference in outcomes between the two processes in terms of the size of the maximum distortion in the decision on the project that either process implies. Essentially, we compare $\left(\bar{k}_d, \gamma_d\right)$ in the closed meeting with self-enforcing deal strategies $\left(\bar{k}_j, \gamma_j\right)$ with $j \in J$.

The second finding is that as the pre-meeting is likely to be less structured, control is lost over the way conflicts of interests are resolved. In principle, every member could become the dictator. As a result, if $d + 1 \in J$, then transparency may aggrevate the distortion in the project decision.

A third finding is that transparency may alleviate the distortion in the project decision. The reason is that deal strategies in an 'open' process have to be self-enforcing. This imposes restrictions on decisions that do not apply to decisions taken

in a closed process. This has an important implication. It may be that the decision strategy $\left(\bar{k}_d, \gamma_d\right)$ of the decisive member in a closed process is not self-enforcing in an 'open' process, $d \notin J$. That is, using the voting rule f in the *pre-meeting* may not give rise to a self-enforcing deal strategy. Lack of self-enforceability results if there would be a member $i < d$ who is willing to break the united front in the deliberation stage, and if, once the united front has been broken, member d is willing to reject his implementation dictate. In the Appendix, we show that both conditions may be met.

Proposition 9 *Imposing transparency does not lead to improved accountability. It does give rise to uncertainty about the identity of the dictator. Using the voting rule of the formal meeting in the pre-meeting may not lead to a self-enforcing deal strategy. Then, the only deal strategies that are self-enforcing are less distortionary than the decision taken in the closed meeting.*

9 Extensions

9.1 Participation in the pre-meeting

So far we have assumed that all members attend the pre-meeting. In this subsection we argue that the incentive for an individual member to stay away from a pre-meeting is weak. The primary reason why a member would want to skip a pre-meeting is to reduce the likelihood that the decision on the project deviates from the one he deems best. The cost of staying away from a pre-meeting is a fall in reputation because the united front is possibly broken. Therefore, the analysis of the participation decision revolves around the trade-off between a less distorted implementation decision on the one hand, and a drop in reputation on the other.

One important factor that reduces the attractiveness of skipping the pre-meeting is its limited efficacy. If member i decides to skip the pre-meeting he only knows his own private view s_i, but not k. Conflict of interests about the deal need not have occurred in the pre-meeting. For example, if $k > \overline{k}^{FB}$ or $k < \bar{k}_d$, no disagreement arises. The benefits of staying away are then zero, whereas the cost in terms of a drop in reputation may be substantial. This lack of efficacy is a drawback that breaking the united front in the formal meeting does not have as the latter decision

can be conditioned on k.

Lack of efficacy is not the only reason why members' incentives to skip a pre-meeting are weak. By means of an example we show that member i's absence may aggravate distortions. Assume that if all members participate in the pre-meeting, the deal is characterized by $\left(\bar{k}_d, \gamma_d\right)$. Suppose member i holds a negative view, s_i^b, and deviates from the equilibrium by not attending the pre-meeting. Members who do join deduce from his absence that member i holds a negative view. They can therefore act in full knowledge of the total number of positive signals k. They also anticipate that i will state m_i^b in the formal meeting. Are they still indifferent between $X = 1$ and $X = 0$ for $k = \bar{k}_d$? A deal to support the status quo continues to yield $\hat{\pi}\left(m_I^b, v_I^b; \bar{k}_d, \gamma_d\right)$, as the public still perceives a united front. A deal to support project implementation now yields $p + \mathsf{E}\left[\mu|\bar{k}_d\right] + \lambda\hat{\pi}_i\left(m_{I\setminus i}^g, v_{I\setminus i}^g\right)$. The out-of-equilibrium belief of the public $\hat{\pi}_i\left(m_{I\setminus i}^g, v_{I\setminus i}^g\right)$ is based on the assumption that i did not attend the pre-meeting. This belief seems the most plausible one when focusing on a member's decision whether to skip the pre-meeting. The fact that member i is now identified with a minority signal hurts his reputation considerably, and further reduces the attractiveness of staying away from the pre-meeting. It also implies that the members who do attend the pre-meeting may command a higher reputation. On the one hand, the public realises that $m_{I\setminus i}^g$ implies $k \neq n$. This reduces their reputation, and makes it less attractive to have a deal that favours implementation in case of $k = \bar{k}_d$. On the other hand, as i is identified to be a member who held a negative view, the likelihood that any of the members who joined the pre-meeting held that minority view has gone down. This, in turn, strengthens their reputation and makes them more inclined to distort the decision. If the latter effect is stronger than the former, staying away from the pre-meeting effectively backfires on member i.[15]

[15] Such is the case for a committee with, e.g., $n = 5$, $k^{FB} = 5$, $\left(\bar{k}_d, \gamma_d\right) = (4, 0)$, and a value of π that is not too high. If everybody joins the pre-meeting, m_I^g may mean $k = 5$, which commands a very high reputation. For π not too high, it is however much more likely to mean $k = 4$. Conditional on $k = 4$, the likelihood that, say, member 2 is the outlier ($s_2 = s^b$ and $s_1 = s_3 = s_4 = s_5 = s^g$) is 1/5. Being an outlier hurts one's reputation considerably. Now suppose instead that $i = 1$ does not join the pre-meeting, and that those who do continue using $\left(\bar{k}, \gamma\right) = (4, 0)$ to strike a deal. If the public observes $m_{I\setminus 1}^g$, it then follows that $k = 4$ (rather than $k \in \{4, 5\}$) and that 2 is not an outlier. As a result, for not too high values of π, the reputation of member 2 is higher in case 1 does not join the pre-meeting than if he does.

9.2 Consequences of final decision become observable

In this section we assume that the state of the environment becomes observable. This information can help in assessing a member's reputation. In the literature on reputational concerns, this assumption is sometimes made, see e.g. Ottaviani and Sørensen (2001) and Levy (2007). We show first of all that the public's demand for transparency can again be understood. Next, thanks to the observability of μ, the goal of a pre-meeting changes. With μ observable, a member's reputation is strengthened if he correctly forecasts the state of the environment. A pre-meeting helps in improving the quality of the forecast by basing it on additional information. Finally, we emphasize that not all members may want to deviate from a transparent meeting by gathering secretly before a formal meeting. Pre-meetings are therefore less likely to emerge.

If a member shares his private information in a transparent meeting, his reputation depends exclusively on the quality of the match between his private statement and the observed state of the economy. We write $\hat{\pi}_i(m_i, \mu)$:[16]

$$\hat{\pi}_i(m_i^g, \mu = h) = \hat{\pi}_i\left(m_i^b, \mu = -h\right) > \hat{\pi}_i\left(m_i^b, \mu = h\right) = \hat{\pi}_i(m_i^g, \mu = -h) = 0. \quad (11)$$

Because a member is competent with positive probability, it is more likely that his private view corresponds with the state of nature than that it does not. This implies that for a given view, and with beliefs as in (11), a member maximizes his expected reputation by sharing his information. As the decision on the project does not affect a member's reputation, there is no reason to distort that decision. Again, the public's demand for transparency can be understood.

The anticipation of possible reputational damage may induce a member to collect additional information before making a statement in public. Suppose members deviate from the transparent meeting by gathering in advance, and sharing their private views. If a majority of members holds positive views, $k > (n+1)/2$, a positive state of the economy is more likely than a negative. As a result, for given ex post beliefs (11) and speaking from a reputational perspective only, it is then in

[16] Note that $\Pr(m_i^g, \mu = h | t_i = sm) = 1/2$, $\Pr(m_i^g, \mu = h | t_i = du) = 1/4$, and $\Pr(m_i^g, \mu = -h | t_i = sm) = 0$. Using Bayes rule, one obtains $\hat{\pi}_i(m_i^g, \mu = h) = 2\pi/(1+\pi)$ and $\hat{\pi}_i(m_i^g, \mu = -h) = 0$.

every member's interest to report m_i^g in the formal meeting. That is, the purpose of a pre-meeting is not to feign concurrence, but for every individual member to improve the accuracy of his own public statement.

In case the state of the environment remains *unobserved*, transparency is hard to sustain as all members agree that a specific deviation is best: gather before the formal meeting to exchange private views, decide what decision is first-best given that information, and collectively support that decision in the formal meeting. This deviation yields the highest project payoff and the highest reputation for all. Matters are different in case the state is *observed* as conflicts may arise concerning the final decision. To see this, suppose members deviate from the transparent meeting by gathering in advance, and sharing their private views. For $k \geq \overline{k}^{FB}$, all members agree that both from a reputational perspective and from a project value perspective, supporting implementation is best. Similarly, if $k < (n+1)/2$, reputational concerns and project value concerns are perfectly aligned: all members favour the status quo. However, for $k \in \left\{(n+1)/2, \ldots, \overline{k}^{FB} - 1\right\}$, any member is on the horns of a dilemma. From a reputational perspective each member wants to favour implementation, but project value considerations dictate to maintain the status quo. Members differ in the way they evaluate these costs and benefits as they attach different weights to their reputations. The anticipation that a deviation from the transparent meeting may give rise to conflicts among members concerning the decision to support puts a brake on the formation of a pre-meeting.

Now suppose a pre-meeting of all n members does take place. Conflicts may arise for $k \in \left\{(n+1)/2, \ldots, \overline{k}^{FB} - 1\right\}$. From a reputational perspective, every member should put his money where his mouth is, and favour implementation both in the deliberation stage and in the voting stage. Doing otherwise, i.e., verbally expressing support for implementation but voting against, shows lack of conviction and costs reputation. Members who care little about their reputation may accept this lower reputation if unwarranted implementation is too costly and can be stopped in this way. The outcome of the pre-meeting is a deal. Any feasible deal is characterized by a threshold value $\hat{k}$, with $\hat{k} \geq (n+1)/2$, such that for $k \geq \hat{k}$, members state m_i^g and vote accordingly, v_i^g; for $k \in \left\{(n+1)/2, \ldots, \hat{k} - 1\right\}$, members state m_i^g but

vote v_i^b; and for $k < (n+1)/2$, each member states m_i^b and votes v_i^b.[17]. As before, the scope for an individual member to prevent a distorted implementation decision in the voting stage is limited. A deviation in the deliberation stage by a member i requires that this member cares little about his reputation, and that member d is willing to support his deviation in the voting stage. Out-of-equilibrium beliefs continue to play an important role.

9.3 Members know their abilities

So far, we have assumed that a committee member neither knows his own ability nor the other members' abilities. When committees regularly gather, this assumption is not plausible. It is then likely that at least some learning about abilities takes place. In this section, we consider a committee in which every member knows his own type and the other members' types. We maintain the assumption that the 'market' only knows the prior probability that a member is smart, π. All this is common knowledge. In particular, the market knows that among committee members ability levels are known. To ensure that our model describes an interesting situation, we assume that the view of a smart member may be flawed, and the view of a dumb member may be correct,

$$\begin{aligned} 1 &> \Pr(\mu = h | s^g, sm) > \Pr(\mu = h | s^g, du) > 1/2 \quad \text{and} \\ 1 &> \Pr\left(\mu = -h | s^b, sm\right) > \Pr\left(\mu = -h | s^b, du\right) > 1/2. \end{aligned}$$

The determination of the conditions under which implementation is first-best is a statistical matter that requires the appropriate weighing of members' views, see Nitzan and Paroush (1982). We assume again that μ is not observed by the market, and that $p < 0$ is such that, if all members are smart, implementation requires at least $(n+1)/2$ positive signals.

If a member knows his ability, he may use the transparent meeting to posture to make the public believe that he is more able than he knows he is. As a result, a transparent meeting may give rise to a distorted decision. To see this, suppose members share their views in the deliberation stage, and would stick to the first-best rule.

[17] Feasible deals can also be characterized by a mixed strategy characterized by a pair $\left(\hat{k}, \gamma\right)$.

As μ is not observed, the public bases a member's reputation on the degree of signal concurrence *and* on the decision on the project, as the decision contains information on the quality of the signals. For a given value of k, $\hat{\pi}(k, X = 1) > \hat{\pi}(k, X = 0)$, as on average a higher number of members is smart in case of implementation. By choosing $X = 1$ rather than $X = 0$, committee members may pretend that a high number of members is smart. However, deviating from the socially optimal decision requires cooperation among members or requires some norm regarding the specific conditions under which the project should be implemented. As a result, several equilibria exist. In some of them, members distort the implementation decision to feign that many members are smart. Hence, the assumption on whether or not members know their own and each others' abilities may affect members' incentives to distort the implementation decision under transparency. Members' incentives to posture may lead to incentives to distort the implementation decision.

The incentive to organize a pre-meeting does not change. As before, disagreement among committee members damages their reputations. By organizing a pre-meeting committee members can conceal disagreement. Moreover, reputational concerns may prompt committee members to make socially undesirable deals in a pre-meeting, and the formal meeting may put a limit to the extent to which such deals are distortionary.

10 Conclusion

If decisions are made behind closed doors, those who have delegated decision power may suspect that the decisions made are not in their interest. Why else the secrecy? Requiring transparency is then a logical reaction. Some case studies suggest that committees shy away from deliberating in transparent meetings. The real deliberation seems to move to a pre-meeting, where a deal is reached as to the decision to be unanimously supported in the formal meeting. In this paper, we have presented a theory that explains the public's worries about closed decision processes and the demand for transparency; the committee members' aversion to it; and the emergence of a pre-meeting. We have focused on pre-meeting deals that are self-enforcing in the formal meeting. Our analysis suggests that pre-meetings may partially nullify the benefits of transparency. However, the fact that members can choose to break

the united front in the formal meeting or decide not to take part in the pre-meeting puts limits on distortionary deals.

As far as we know, our paper presents the first formal analysis of the emergence and consequences of pre-meetings. We are aware that our analysis should be regarded as a first step to a richer model. We have not addressed several issues that seem to be relevant for understanding the role of pre-meetings in decision-making processes. Let us briefly discuss four of them. First, in our model committee members differ in one dimension, namely in the extent to which they are concerned about their reputations. In many applications, committee members also differ in their preferences concerning the desirability of the project. Introducing this aspect into our model may have an affect on members' incentives to support a deal in the formal meeting. If their preferences are known to the public, members do not need to use their behaviour to signal these preference. Behaviour can then be used to strengthen their perceived ability levels in line with the theory developed in this paper. If preferences are not known, a member must contemplate how his actions affect the public's beliefs about both competence and preferences. Our model can be used to integrate such concerns.

Second, we have assumed in this paper that in the pre-meeting committee members share information. One motivation for this assumption is that committee members are often experts in their fields. In several situations, experts may fool the market, faking a united front, but are not capable of fooling each other. However, in other situations experts may also trick each other. The analysis of committee members' incentives to share information in the pre-meeting is thus a promising next step.

Third, we have limited the analysis to pre-meetings in which all members participate. By assumption, we have ruled out the possibility of the emergence of several pre-meetings. We conjecture that the emergence of several pre-meetings is especially likely when information in pre-meetings can be manipulated. The formation of homogenous groups may facilitate communication among members.

Finally, we have assumed that the weight a member attaches to his reputation is independent of the nature of the decision process. It may, however, well be that moving from a closed to a transparent or 'open' process makes members care more about their perceived ability. After all, the potential audience grows, and the mere

fact that transparency has been imposed may have heightened members' awareness of how their actions determine their reputations.

Throughout the paper, we have focused on united fronts. In reality, one sometimes does observe 'broken fronts'. Information may be leaked anonymously. This sometimes happens before the actual decision is made, presumably to influence the balance of power in the meeting. Or it takes place to discredit a decision taken in the hope that it will be reversed. Whistle blowing is another form of breaking with a widely supported practice or decision. Neither 'open' nor closed processes are immune to such behaviour. The logic used in the present paper points to some of the obstacles – reputational damage, lack of effectiveness – that should be surmounted by anyone considering to break a united front. It can also be used to think about decisions reached in a closed process that are 'whistle blow proof'.

11 Appendix

Proof of Proposition 7. It suffices to show that (i) any $j \in J^D$ is also in J^V, and that (ii) there may exist a j such that $j \in J^V$ and $j \notin J^D$. To see (i), suppose $j \in J^D$. This means either that (9) holds or that (10) (or both). Suppose (9) holds, meaning that member d does not want to deviate from the deal strategy although some member i broke the united front in the deliberation stage. This condition can be rewritten as

$$\lambda_d \left[\hat{\pi} \left(m^g_{I\setminus i}, X = 1 \right) - \hat{\pi} \left(m^g_{I\setminus i}, X = 0 \right) \right] \geq - \left(p + \mathsf{E} \left[\mu | \bar{k}_j \right] \right). \tag{12}$$

For $j \in J^V$, Eq. (8) should hold. This can be rewritten as

$$\lambda_d \left[\widehat{\pi} \left(m^g_I, v^g_I; \bar{k}_j, \gamma_j \right) - \widehat{\pi} \left(m^g_I, v^g_{I\setminus C} \right) \right] \geq - \left(p + \mathsf{E} \left[\mu | \bar{k}_j \right] \right). \tag{13}$$

Now observe that the range of possible values of k that determines the difference in reputation in the left hand side of Eq. (12) is smaller than the same range in Eq. (13): after a deviation by i in the deliberation stage, the market realizes that $k < \bar{k}_i^{dev}$. It then follows from Premise 5 that $\hat{\pi} \left(m^g_{I\setminus i}, X = 1 \right) - \hat{\pi} \left(m^g_{I\setminus i}, X = 0 \right) < \widehat{\pi} \left(m^g_I, v^g_I; \bar{k}_j, \gamma_j \right) - \widehat{\pi} \left(m^g_I, v^g_{I\setminus C} \right)$. Hence, if (9) is satisfied, then $j \in J^V$. Now suppose

that $j \in J^D$ because (10) holds, meaning that no member i is willing to pave the way in the deliberation stage although d would be willing to follow in the voting stage. This condition can be rewritten as, for all i

$$\lambda_i \left[\hat{\pi} \left(m_I^g, v_I^g; \overline{k}_j, \gamma_j \right) - \hat{\pi} \left(m_{I \setminus i}^g, X = 0 \right) \right] \geq - \left(p + \mathsf{E} \left[\mu | \overline{k}_j \right] \right). \tag{14}$$

Thus, $\hat{\pi} \left(m_{I \setminus i}^g, X = 0 \right)$ refers to the situation in which some i did break the united front in the deliberation stage, and this deviation did have as a consequence that next a coalition including d voted against implementation. Once some i has broken the united front, d has less to gain from a reputational perspective from sticking to implementation than if there were no i who had deviated in the voting stage. Therefore, d will vote for status quo for higher values of k if some i did rather than did not deviate in the voting stage. It then follows from Premise 4 that $\hat{\pi} \left(m_{I \setminus i}^g, X = 0 \right) > \widehat{\pi} \left(m_I^g, v_{I \setminus C}^g \right)$.

To see (ii), suppose $j < d$, i.e. the dictator j cares less about his reputation than the decisive member d of the formal meeting. Any deal strategy that is dictated by a $j < d$ is less distortionary than the strategy member d would be willing to accept. Therefore, *if* self-enforceability is guaranteed in the deliberation stage, then member d does not want to be part of a coalition in the voting stagethat opposes implementation of any deal dictated by any $j < d$. Hence, $j \in J^V$ for all $j < d$. But the deal strategy is *not* self-enforcing in the *deliberation stage* if there exists a member $i < j$ who is willing to break the united front in that stage, and can effectively act as a lever to cause widespread defection in the voting stage. QED

Proof of Proposition 8. It suffices to show that if $j' \in J$, then $j'' \in J$ for $j'' < j'$. Suppose therefore that $j' \in J$, meaning that for all $i < j'$

$$p + \mathsf{E} \left[\mu | \overline{k}_{j'} \right] + \lambda_d \hat{\pi} \left(m_{I \setminus i}^g, X = 1 \right) \geq \lambda_d \hat{\pi} \left(m_{I \setminus i}^g, X = 0 \right), \tag{15}$$

or

$$p + \mathsf{E} \left[\mu | \overline{k}_{j'} \right] + \lambda_i \hat{\pi} \left(m_I^g, v_I^g; \overline{k}_{j'}, \gamma_{j'} \right) \geq \lambda_i \hat{\pi} \left(m_{I \setminus i}^g, X = 0 \right). \tag{16}$$

As j'' cares less about his reputation than j',

$$\begin{aligned} p + \mathsf{E}\left[\mu|\bar{k}_{j''}\right] &\geq p + \mathsf{E}\left[\mu|\bar{k}_{j'}\right] \text{ and} \\ \hat{\pi}\left(m_I^g, v_I^g; \overline{k}_{j''}, \gamma_{j''}\right) &\geq \hat{\pi}\left(m_I^g, v_I^g; \overline{k}_{j'}, \gamma_{j'}\right) \end{aligned}$$

hold. Now observe that by Premise 2, $\hat{\pi}\left(m_{I\setminus i}^g, X=0\right) < \hat{\pi}\left(m_I^b, v_I^b; \overline{k}_j, \gamma_j\right)$. As $\hat{\pi}\left(m_I^b, v_I^b; \overline{k}_j, \gamma_j\right) < \pi$, out-of-equilibrium behaviour $\left(m_{I\setminus i}^g, X=0\right)$ reveals little in terms of k. If it did, $\hat{\pi}\left(m_{I\setminus i}^g, X=0\right) > \pi$ could be possible, in which case members in the pre-meeting could decide to play games to fool the market by implementing the status quo after breaking a united front. We therefore assume that $\hat{\pi}\left(m_{I\setminus i}^g, X=0\right)$ does not depend on the member dictating the deal. As a result, if (16) is satisfied for j', then it also holds for j''. Also by Premise 2, $\hat{\pi}\left(m_{I\setminus i}^g, X=1\right) < \hat{\pi}\left(m_I^g, v_I^g; \overline{k}_j, \gamma_j\right)$. But it may be still be that $\hat{\pi}\left(m_{I\setminus i}^g, X=1\right) > \pi$. Then, as $\bar{k}_{j''} \geq \bar{k}_{j'}$, a deviation by i followed by continued support for $X=1$ implies that $\hat{\pi}\left(m_{I\setminus i}^g, X=1\right)$ is non-decreasing in $\bar{k}_j$. Hence, if (15) is satisfied for j', then it also holds for j''. QED

Proof of Proposition 9. What remains to be proved is the possibility that $d \notin J$. In a closed process, see section 5, the decisive voter determines the maximum distortion $\overline{k}_d$, which is implicitly defined by

$$p + \mathsf{E}\left[\mu|\overline{k}_d\right] + \lambda_d \hat{\pi}\left(X=1; \overline{k}_d, \gamma_d\right) = \lambda_d \hat{\pi}\left(X=0; \overline{k}_d, \gamma_d\right), \tag{17}$$

where we still focus on the mixed strategy equilibrium. If $j=d$ in the pre-meeting, and if the self-enforcing conditions are non-binding, $\overline{k}_d$ also defines the maximum possible distortion in an 'open' process. Under what conditions will such a dicated deal not be self-enforcing? A necessary condition is that there exists a member $i<j$ who cares sufficiently little about his reputation to break the united front in the deliberation stage of the formal meeting. But it also requires that next member d is willing to vote against implementation. This means that simultaneously (17) should hold and (9) should be violated. The latter means that once member i has broken the united front, member d no longer wants to support his own deal in the 'transparent' part of the 'open' process. One can verify that (17) holds while (9) is

violated if

$$\hat{\pi}\left(m^g_{I\setminus i}, X=1\right) - \hat{\pi}\left(m^g_{I\setminus i}, X=0\right) < \hat{\pi}\left(X=1; \overline{k}_d, \gamma_d\right) - \hat{\pi}\left(X=0; \overline{k}_d, \gamma_d\right). \quad (18)$$

Thus, if (18) is satisfied, an 'open' process reduces the extent to which the decision on X can be distorted. To identify the conditions under which (18) holds, first notice that in a closed process the difference in reputation, $\hat{\pi}\left(X=1; \overline{k}_d, \gamma_d\right) - \hat{\pi}\left(X=0; \overline{k}_d, \gamma_d\right)$, is determined by $\overline{k}_d$ (and γ_d). From $X=1$ the public infers that $k \geq \overline{k}_d$, and from $X=0$ it infers that $k < \overline{k}_d$. The higher is $\overline{k}_d$, the larger is the right-hand side of (18). From $m^g_{I\setminus i}$ the public learns that $k \in \left\{\overline{k}_d, \ldots, \bar{k}^{dev}_i\right\}$. Clearly, if $\overline{k}_d$ is close to $\bar{k}^{dev}_i$, member d has little to win in terms of reputation by choosing $X=1$ rather than $X=0$. Since the possible range of k is small, reputations are more or less fixed. Consequently, the left-hand side of (18) is small. Thus, inequality (18) is satisfied if $\bar{k}^{dev}_i$ is sufficiently close to $\overline{k}_d$, and $\overline{k}_d$ is sufficiently large. This means that if in a closed process the distortion would not be too large, an 'open' process yields better project outcomes. On the other hand, if $\overline{k}_d$ is close to $(n+1)/2$, the right-hand side of (18) is close to zero, and (18) is always violated.

If $d \notin J$, it follows from the fact that J is a non-empty connected set, that the only deal strategies that are self-enforcing are less distortionary. QED

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