Unpublished Appendix for "Voting Transparency in a Monetary Union"

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Part I

Proofs of the Propositions in the Published Paper

F Proof of Proposition 5

The proof is almost identical to the proof of Proposition 1. However, Condition (14) has to be modified to take δB, the utility gain created by re-appointment, into account:

$$2w - 1 \geq \delta \left[P(2w - 1) + B \right]. \tag{1}$$

This condition can be rewritten as

$$B \leq \left[\frac{1}{\delta} - P \right] (2w - 1) = B_O. \tag{2}$$

□

G Proof of Proposition 6

Recall that member $i = 1$ always votes for I^* and that partisans in $\mathbf{C} = \{2, 3\}$ always vote for $\hat{I}$. In the following we derive the optimal behavior of nonpartisans in $\mathbf{C}$. Moreover, we have to show that TJL represents an optimal response of national governments and have to determine the value of σ. We proceed in several steps. First, we derive the probability a government in $\mathbf{C} = \{2, 3\}$ assigns to the eventuality of its member being partisan, given that the respective voter has chosen $\hat{I}$ but the other member in $\mathbf{C}$ has chosen I^*. This likelihood is essential for determining the circumstances under which joint liability, i.e. a positive value of σ, is optimal for the government. Second, we consider the incentives of a single nonpartisan in $\mathbf{C}$ of voting for I^*. Third, we analyze when it is optimal for one out of two nonpartisans in $\mathbf{C}$ to vote for I^*. Finally, we combine the results of the previous steps and describe the equilibrium for different levels of B.

Step 1: We determine the likelihood a government in $\mathbf{C} = \{2, 3\}$ *assigns to the eventuality of its member being partisan, given that the respective voter has chosen* $\hat{I}$ *but the other member in* $\mathbf{C}$ *has chosen* I^**.*

Suppose w.l.o.g. $j = 2$ has chosen I^* and $j = 3$ has chosen $\hat{I}$. Whenever both $j = 2$ and $j = 3$ are nonpartisans, one of them chooses I^* with probability κ_2. In this case it is unclear which will vote for I^* and which for $\hat{I}$. We assume here that the two possible constellations will materialize with equal probability, i.e. the probability that both committee members are nonpartisans and that a given central banker votes for I^* amounts to $\frac{1}{2}(1-p)^2\kappa_2$. Then the probability of $j = 3$ being a partisan is

$$\gamma := \frac{p(1-p)\kappa_1}{p(1-p)\kappa_1 + \frac{1}{2}(1-p)^2\kappa_2} = \frac{p\kappa_1}{p\kappa_1 + \frac{1}{2}(1-p)\kappa_2}, \tag{3}$$

where we have also used the fact that $p(1-p)\kappa_1$ is the probability of $j = 2$ being a nonpartisan, $j = 3$ being a partisan, and $j = 2$ choosing I^*. We note that for government 3 dismissing its member is optimal if $\gamma < p$ and re-appointing its member is optimal for $\gamma > p$. For $\gamma = p$, government 3 is indifferent between dismissing and re-appointing its member.

Step 2: We examine the circumstances under which it is optimal for a single nonpartisan in $\mathbf{C}$ *to vote for* I^* *(*$n_{NP} = 1$*).*

Voting for I^* rather than $\hat{I}$ is optimal for the nonpartisan in $\mathbf{C}$ if

$$\begin{aligned} & w + \delta\left\{(1-\sigma)\left[p(1-w) + (1-p)w\right] + \sigma\left[(1-p^2)w + p^2(1-w)\right]\right\} \\ > & (1-w) + \delta(w+B). \end{aligned}$$

It is straightforward but somewhat tedious to show that this condition is equivalent to

$$B < \left[\frac{1}{\delta} - p(1-\sigma(1-p))\right](2w-1) =: B_{T,1}(\sigma). \tag{4}$$

Thus voting for I^* is optimal, unless private benefits exceed the critical value $B_{T,1}(\sigma)$.

We note that $B_{T,1}(\sigma)$ is increasing in σ. This is plausible as voting for I^* is more attractive if this entails a high probability of the partisan in $\mathbf{C}$ being dismissed, which in turn increases the odds for a nonpartisan outcome in the second period.

Step 3: We examine the circumstances under which I^* *will be implemented for* $n_{NP} = 2$*.*

W.l.o.g., let us consider the optimal behavior of $j = 2$. Given that committee member $j = 3$ chooses $\hat{I}$, it is profitable from member 2's perspective to vote for I^* if

$$w + \delta\left[(1-\sigma)w + \sigma\left(p^2(1-w) + (1-p^2)w\right)\right] > (1-w) + \delta(w+B).$$

Straightforward algebraic manipulations yield

$$B < \left[\frac{1}{\delta} - \sigma p^2\right](2w-1) =: B_{T,2}(\sigma). \tag{5}$$

Hence if there are two nonpartisans in $\mathbf{C}$, one of them will choose I^*, unless private benefits are above the critical level $B_{T,2}(\sigma)$.

It is intuitive that $B_{T,2}(\sigma)$ is decreasing with σ. The higher the probability of joint liability, i.e. the higher σ, the less attractive voting for I^* is. This follows from the observation that a high value of σ means that both nonpartisans are likely to be dismissed, which results in a high probability of a partisan outcome in the second period. Moreover, we note $B_{T,1}(1) = B_{T,2}(1)$ and $B_{T,1}(\sigma) < B_{T,2}(\sigma)\ \forall\sigma < 1$.

Step 4: Low private benefits ($B < B_{T,1}(0)$).

As $B_{T,1}(0) < B_{T,2}(0)$, condition $B < B_{T,1}(0)$ entails $B < B_{T,2}(0)$. Consequently, we obtain $\kappa_1 = \kappa_2 = 1$. Inserting this result into (3) yields $\gamma = \frac{2p}{1+p} > p$. Hence joint liability is not profitable and $\sigma = 0$. We observe that the equilibrium for low private benefits is identical to the equilibrium in our basic model.

Step 5: Intermediate levels of private benefits ($B_{T,1}(0) < B < B_{T,1}(1)$).

Condition $B < B_{T,1}(1) = B_{T,2}(1) \leq B_{T,2}(\sigma)\ \forall\sigma \in [0,1]$ implies $\kappa_2 = 1$. In the following we consider three cases separately.

First, σ may be zero. Because $B > B_{T,1}(0)$ we would obtain $\kappa_1 = 0$ in this case. Inserting $\kappa_1 = 0$ into (3) yields $\gamma = 0 < p$. As a consequence, $\sigma = 1$ would be optimal, which leads to a contradiction. Thus $\sigma = 0$ cannot hold.

Second, σ may be one. Thus $B < B_{T,1}(1)$ implies $\kappa_1 = 1$. Applying $\kappa_1 = \kappa_2 = 1$ to (3) results in $\gamma = \frac{2p}{1+p} > p$. Thus $\sigma = 0$ would represent an optimal response for governments in $\mathbf{C}$. Again we obtain a contradiction and conclude that $\sigma \neq 1$.

Finally, we consider the case $\sigma \in]0;1[$. Governments will only randomize if they are indifferent between dismissal and re-appointment. Hence $\gamma = p$ must hold, which is equivalent to

$$\begin{aligned}\frac{p\kappa_1}{p\kappa_1 + \frac{1}{2}(1-p)\kappa_2} &= p \\ \kappa_1 &= p\kappa_1 + \frac{1}{2}(1-p)\kappa_2 \\ \kappa_1 &= \frac{1}{2}\kappa_2 = \frac{1}{2}\end{aligned}$$

As single nonpartisans in $\mathbf{C}$ randomize between I^* and $\hat{I}$ ($\kappa_1 = 1/2$), they must be indifferent between both choices. Hence $B_{T,1}(\sigma) = B$, which determines the value of σ.

Step 6: High private benefits $B > B_{T,1}(1)$.

Condition $B > B_{T,1}(1)$ entails $\kappa_1 = 0$. We consider two cases. First, suppose $\kappa_2 > 0$.

In this case $\gamma = 0 < p$ entails $\sigma = 1$, which in turn yields $\kappa_2 = 0$, as $B > B_{T,2}(1)$. We have thus arrived at a contradiction. Second, suppose $\kappa_2 = 0$. In this case γ in (3) is not defined and any value of $\sigma \in [0, 1]$ with $B \geq B_{T,2}(\sigma)$ corresponds to an equilibrium. □

H Proof of Lemma 3

We start our analysis by deriving welfare for private benefits and transparency as a function of n_P, which will be denoted by $W_{T,B}(n_P)$.

$$\begin{aligned}
W_{T,B}(0) &= \kappa_2 w + (1-\kappa_2)(1-w) \\
&\quad + \delta\kappa_2 \left[(1-\sigma)w + \sigma\left((1-p^2)w + p^2(1-w)\right)\right] + \delta(1-\kappa_2)w \\
&= 1 - w + \delta w + \kappa_2(1-\delta\sigma p^2)(2w-1) \\
W_{T,B}(1) &= \kappa_1 w + (1-\kappa_1)(1-w) \\
&\quad + \delta\kappa_1 \left[(1-\sigma)\left((1-p)w + p(1-w)\right) + \sigma\left((1-p^2)w + p^2(1-w)\right)\right] \\
&\quad + \delta(1-\kappa_1)w \\
&= 1 - w + \delta w + \kappa_1\left(1 - \delta p\left(1 - \sigma(1-p)\right)\right)(2w-1) \\
W_{T,B}(2) &= (1+\delta)(1-w)
\end{aligned}$$

Expected welfare amounts to

$$\mathbb{E}[W_{T,B}] = \rho(0)W_{T,B}(0) + \rho(1)W_{T,B}(1) + \rho(2)W_{T,B}(2). \tag{6}$$

Recall that $\rho(n_P)$ has been defined in (17).

We start with the computation of welfare for $B_{T,1}(0) < B < B_{T,1}(1)$. According to Proposition 6, we obtain $\kappa_1 = 1/2$, $\kappa_2 = 1$, and $B_{T,1}(\sigma) = B$. Condition $B_{T,1}(\sigma) = B$ and $\frac{d\,B_{T,1}(\sigma)}{d\,\sigma} > 0$ imply that the equilibrium value of σ is increasing with B. As a consequence, we consider the derivative of (6) with respect to σ.

$$\begin{aligned}
\frac{d\,\mathbb{E}[W_{T,B}]}{d\,\sigma} &= \rho(0)\frac{d\,W_{T,B}(0)}{d\,\sigma} + \rho(1)\frac{d\,W_{T,B}(1)}{d\,\sigma} + \rho(2)\frac{d\,W_{T,B}(2)}{d\,\sigma} \\
&= -\rho(0)\kappa_2\delta p^2(2w-1) + \rho(1)\kappa_1\delta p(1-p)(2w-1) \\
&= -(1-p)^2\delta p^2(2w-1) + 2p(1-p)\cdot\frac{1}{2}\cdot\delta p(1-p)(2w-1) \\
&= 0
\end{aligned}$$

As a result, expected welfare is constant on the interval $B \in]B_{T,1}(0), B_{T,1}(1)[$.

Next we consider welfare for $B < B_{T,1}(0)$. In this case Proposition 6 states $\kappa_1 = \kappa_2 = 1$ and $\sigma = 0$. Note that $\mathbb{E}[W_{T,B}]$ is strictly increasing with κ_1, as $W_{T,B}(1)$ is increasing with κ_1. Thus welfare is higher for $\kappa_1 = \kappa_2 = 1$ and $\sigma = 0$ than for $\kappa_1 = 1/2$, $\kappa_2 = 1$ and $\sigma = 0$. Consequently, welfare is higher for $B < B_{T,1}(0)$ than for $B_{T,1}(0) < B < B_{T,1}(1)$.

Finally we consider welfare for $B > B_{T,1}(1)$. Here Proposition 6 implies $\kappa_1 = \kappa_2 = 0$. As $\mathbb{E}[W_{T,B}]$ is strictly increasing in both κ_1 and κ_2, welfare is strictly lower for $B > B_{T,1}(1)$ than for $B_{T,1}(0) < B < B_{T,1}(1)$. $\square$

I Proof of Proposition 7

We note that $B_O = \left[\frac{1}{\delta} - p^2\right](2w - 1)$ for $N = 3$. According to (12), $B_{T,1}(1) = B_O$. For $B > B_O = B_{T,1}(1)$, partisan equilibria are always chosen under both transparency regimes, resulting in identical welfare levels. For $B < B_{T,1}(0)$, Proposition 3 can be applied: Opacity is always desirable. For $B_{T,1}(0) < B < B_{T,1}(1)$, welfare under opacity is identical to its level for $B < B_{T,1}(0)$. Under transparency, welfare for $B_{T,1}(0) < B < B_{T,1}(1)$ is lower than for $B < B_{T,1}(0)$, according to Lemma 3. Hence opacity leads to higher welfare for $B_{T,1}(0) < B < B_{T,1}(1)$. $\square$

Part II

Costs of Replacing Committee Members

J Set-Up

This part of the appendix contains the extension of our model to the case where costs accrue to a government when it replaces its central banker. These costs may occur because searching for a new candidate may be laborious. They may also arise because the incumbent's experience is lost and no equally capable successor is available. Another cost element may stem from the loss of prestige for the government when the dismissal creates the impression that it is trying to appoint a more partisan candidate.

An extension of our model along these lines seems particularly interesting as one would expect opacity to better protect individual committee members in the presence of dismissal costs. A government may be less willing to replace a committee member under opacity, where it cannot be sure about an individual's share in the overall outcome.

In the following, we focus on the case $N = 3$ for simplicity. The only interesting constellation is $n = 2$. Without loss of generality, we assume that **A** comprises country 1 and **C** comprises countries 2 and 3. Let us assume that each dismissal of a central banker involves costs K for the national government, but does not affect the welfare of the monetary union directly.[1] Note that re-appointment schemes T and O represent the harshest possible punishment for nonpartisan policy. Thus if nonpartisan equilibria occur for these re-appointment schemes, they will also occur for any other, less strict re-appointment scheme. Consequently, we consider nonpartisan equilibria for $n_P \leq 1$ and partisan equilibria for $n_P > 1$ in the following.

K Opacity

We first look at opacity. In Section N we prove the following proposition:

Proposition K.1
For $K < K_O^1 := \frac{p^3}{1+p}$, re-appointment scheme O corresponds to an equilibrium.

[1] This assumption is relatively innocuous. It allows us to focus on the impact of dismissal costs on the quality of decision-making.

Thus if costs are moderate, the re-appointment scheme from our basic model continues to be optimal.

In order to examine possible equilibria for higher costs we define two additional re-appointment schemes that represent obvious candidates for alternative behaviors of the government in this case. First, we consider a scheme where only one government in **C** dismisses its member if I^* has been adopted. Second, we consider a scheme where both governments always re-appoint their members.

Re-Appointment Scheme O1:

$$\text{committee member } j \text{ is } \begin{cases} \text{re-appointed} & \text{if } j = 1 \text{ or } j = 2 \\ \text{re-appointed} & \text{if } I^{(1)} = \hat{I} \text{ and } j = 3 \\ \text{dismissed} & \text{if } I^{(1)} = I^* \text{ and } j = 3 \end{cases} \tag{7}$$

Re-Appointment Scheme O2:

$$\text{all committee members are always re-appointed} \tag{8}$$

As both re-appointment schemes punish I^* votes of members in **C** less harshly compared to re-appointment scheme O, it is clear that both schemes induce nonpartisan equilibria for $n_P \leq 1$. The following proposition shows for which size of costs K re-appointment schemes O1 and O2 represent an optimal behavior of the government. In Section O we show

Proposition K.2

1. *For $K_O^1 < K < K_O^2 := \frac{p^2}{1+p}$, O1 corresponds to an equilibrium.*
2. *For $K > K_O^2$, O2 corresponds to an equilibrium.*

Intuitively, the higher the costs K, the less harsh is the re-appointment scheme. For very large costs K, O2 is chosen, which is the most lenient re-appointment scheme.

L Transparency

Now we turn to the transparency scenario. As a first step we examine under which circumstances re-appointment scheme T remains optimal for positive dismissal costs. Our analysis of Section 5 entails that all possible equilibria are nonpartisan for $n_P \leq 1$. In Section P we show

Proposition L.1

For $K < K_T^1 := \frac{2p^2}{1+p}$, re-appointment scheme T corresponds to an equilibrium.

For higher costs, we propose the following candidate re-appointment schemes

Re-Appointment Scheme T1:

$$\begin{aligned}&\text{committee member 1 is always re-appointed}\\&\text{committee member 2 is}\begin{cases}\text{dismissed} & \text{if } I_2^{(1)} = I^* \text{ and } I_3^{(1)} = \hat{I}\\ \text{re-appointed} & \text{otherwise}\end{cases}\\&\text{committee member 3 is}\begin{cases}\text{dismissed} & \text{if } I_3^{(1)} = I^* \text{ and } I_2^{(1)} = \hat{I}\\ \text{re-appointed} & \text{otherwise}\end{cases}\end{aligned} \tag{9}$$

Re-Appointment Scheme T2:

$$\text{all committee members are always re-appointed} \tag{10}$$

The next proposition describes the circumstances under which the respective equilibria exist. In Section Q we show

Proposition L.2

1. *For $0 < K < K_T^2 := p$, T1 corresponds to an equilibrium.*

2. *For $K > K_T^2$, T2 corresponds to an equilibrium.*

We note that both T1 and T2 induce nonpartisan equilibria for $n_P \leq 1$.

Now we discuss the equilibria for T1. Intuitively, if two members in **C** vote for I^*, it will be never beneficial for a government in **C** to replace its member if it expects the other government to also re-appoint its member. Replacing the central banker would create the costs K but would not change the outcome in period 2, as two members have to be replaced to affect the outcome.

These equilibria are particularly intriguing. They show that by a unanimous decision, committee members may successfully protect themselves from outside influence. A similar effect may be at work at the ECB, although it does not publish voting records. Nevertheless, the ECB council always claims to reach decisions by consensus. If governments actually believe this statement, they have only a very small incentive to exert pressure on their respective committee members.

Because K_T^1, K_T^2, K_O^1, and K_O^2 are increasing functions of p, national governments are more willing to replace their committee members if their ex ante probability of identifying partisans, p, is high. This is quite plausible, as governments would have higher incentives to replace a central banker who is apparently a nonpartisan if the probability of his successor being a partisan were high.

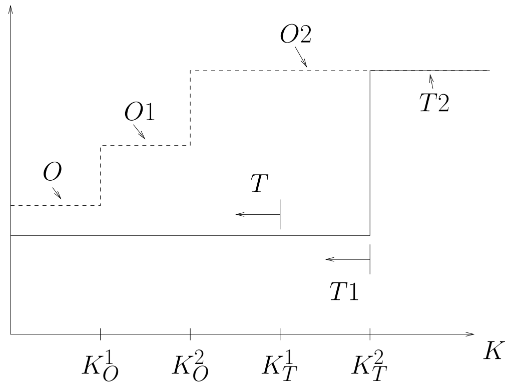

Figure 1: Expected welfare as a function of K under transparency (solid line) and opacity (broken line).

M Comparison

It is an interesting question whether transparency or opacity yields higher overall welfare in the variant of our model with costs for replacing committee members. In Section R we show

Proposition M.1
Under opacity, the overall welfare of the monetary union is increasing with costs K.

Proposition M.2

1. *For $K < K_T^2$, opacity yields strictly higher overall welfare than transparency.*

2. *For $K > K_T^2$, transparency and opacity are identical with respect to welfare.*[2]

The proposition is illustrated in Figure 1.[3] For $K_O^1 < K < K_T^1$, an additional advantage of opacity becomes apparent. Under opacity, the tradeoff between the costs of dismissal and the increased likelihood of partisan policy is biased towards re-appointment, since the costs of dismissal will certainly be incurred but the prospect of partisan policy in the second period is very uncertain. Under transparency, a government is more willing to incur these costs when it knows with certainty that the respective central banker is a nonpartisan, which can be derived from the published voting records. This effect should become even stronger for larger committee sizes, where the contribution of an individual central banker to the overall outcome is much harder to identify under opacity.

[2] In this case, we obtain the same level of welfare as under mandatory two-period terms, i.e. $\mathbb{E}[W_{MTPT}]$.

[3] The figure follows directly from Table 1 in Section R.

N Proof of Proposition K.1

We start with the condition which guarantees that it is optimal for a government in **C** to replace its central banker if I^* has been adopted, given that the other government in **C** also dismisses its member

$$p^2 - K > pY, \tag{11}$$

where $Y := ((1-p)p)/(2(1-p)p + (1-p)^2)$ is the probability of an incumbent central banker in **C** being a partisan, given that I^* was adopted. If the government replaces its member, a partisan policy will occur in the second period with probability p^2, which is the likelihood of both members in **C** being replaced by partisans. A partisan policy will entail a welfare in the respective country of 1. Moreover, when the government replaces its central banker, the costs K accrue. On the other hand, a partisan monetary policy only occurs with probability pY, should the government not dismiss its central banker. Condition (11) is equivalent to $K < p(p - Y)$, which can be reformulated as $K < K_O^1$. □

O Proof of Proposition K.2

If the other government does not dismiss its committee member, it is profitable for a government to dismiss its committee member if

$$pY - K > 0, \tag{12}$$

where pY is the likelihood of a partisan policy in the second period when exactly one central banker in **C** is replaced by a new candidate. This inequality holds if $K < pY = K_O^2$.

We note that $K_O^1 = pK_O^2$ and thus $K_O^1 < K_O^2$. For $K_O^1 < K < K_O^2$, (11) is violated and (12) holds. Thus O1 is optimal. For $K > K_O^2$, (12) is violated, which entails O2 is optimal. □

P Proof of Proposition L.1

Here we check under which circumstances T corresponds to an equilibrium. According to our analysis of the basic model, nonpartisan equilibria will occur if and only if $n_P \leq 1$. Please recall that for $n_P = 0$ only one of the two nonpartisans in **C** will for

I^*. If the second nonpartisan voted for I^*, he would be dismissed but would not affect the outcome in the first period.

Suppose that one central banker in **C** has chosen I^* and the other central banker has chosen $\hat{I}$. Whenever both committee members are nonpartisans, it is unclear which will vote for I^* and which for $\hat{I}$. We assume here that the two possible constellations are played with equal probability. Thus the probability that both committee members are nonpartisans and that a given central banker votes for I^* amounts to $\frac{1}{2}(1-p)^2$. Then the probability of the central banker in **C** who has voted for $\hat{I}$ being a partisan is

$$q = \frac{p(1-p)}{p(1-p) + \frac{1}{2}(1-p)^2} = \frac{2p}{1+p}. \tag{13}$$

Note that q is strictly smaller than one, because in the equilibria under consideration one central banker in **C** will vote for a partisan policy even if both committee members in **C** are nonpartisans. Moreover, $q > p$ holds, which is intuitive, because a member who has chosen $\hat{I}$ is more likely to be a partisan than a newly appointed member.

It is optimal for a government to dismiss its central banker when he has voted for I^* and the other central banker in **C** has chosen $\hat{I}$ if

$$pq - K > 0. \tag{14}$$

If the government dismisses its central banker, the probability of a partisan policy in the second period will be pq. If it re-appoints its central banker, the probability of partisan policy in the second period will be zero. The respective central bank is definitely nonpartisan and will achieve a nonpartisan outcome together with the central banker in **A**. Importantly, (14) is equivalent to $K < pq = K_T^1$.

Now we show that it is always optimal for a government in **C** to re-appoint a central banker who has voted for $\hat{I}$, although the government cannot be sure that he is a partisan if the other central banker in **C** has chosen I^*. Re-appointing one's central banker in this situation is optimal if

$$pq > p^2 - K.$$

This condition is fulfilled, because $q > p$.

Finally we examine the case where both central bankers in **C** have chosen I^*, which does not occur in equilibrium. We assume that both governments believe both central bankers in **C** to be nonpartisans in this case. It is optimal for a government to dismiss its central banker, provided that the other government also dismisses its central banker, if

$$p^2 - K > 0.$$

This condition holds for $K < pq = K_T^1$, because $q > p$. To sum up, re-appointment scheme T corresponds to an equilibrium if $K < K_T^1$. □

Q Proof of Proposition L.2

Q.1 Re-appointment Scheme T1

We focus on re-appointment scheme T1 first. For this re-appointment scheme, partisans in **C** choose $\hat{I}$ and nonpartisans in **C** vote for I^*. In particular, both nonpartisans in **C** vote for I^* if $n_{NP} = 2$, as this behavior ensures re-appointment.

We check the optimality of T1 for different deviations. Suppose that both central bankers in **C** have chosen I^*. Then it is optimal for a government in **C** to re-appoint its member, given that the other government in **C** also re-appoints its member, if

$$0 > -K. \tag{15}$$

Notice that the probability of partisan policy is zero irrespective of the government's decision, because the other government re-appoints its central banker who is definitely a nonpartisan. Condition (15) always holds since $K > 0$.

Next we show that it is optimal for a government in **C** to dismiss its central banker if he has chosen I^* and the other member in **C** has chosen $\hat{I}$, which will entail the re-appointment of the other central banker. Formally, this leads to the following condition:

$$p - K > 0,$$

which is equivalent to $K < K_T^2$.

Finally, we verify under which circumstances re-appointing its central banker is optimal for a government if the member has chosen $\hat{I}$ and the other member has voted for I^* and is thus dismissed. The respective condition is

$$p > -K + p^2, \tag{16}$$

where we have used the fact that the probability of a partisan policy will be p if the government re-appoints its member and p^2 if the government dismisses its member. Inequality (16) always holds because $p < 1$ and $K > 0$.

To sum up, T1 corresponds to an equilibrium for $K < K_T^2 = p$. We consider re-appointment scheme T2 next.

Q.2 Re-appointment Scheme T2

We examine in which case it is optimal for a government in **C** to re-appoint its member if he has chosen I^* and the other member has chosen $\hat{I}$. Formally, the respective condition can be written as

$$0 > p - K. \tag{17}$$

The condition results from the observations that the probability of partisan policy in the second period is zero if the member is re-appointed and p if the member is dismissed. Condition (17) is equivalent to $K > p = K_T^2$.

It is straightforward to show that for all other constellations of votes I_2 and I_3 no profitable deviation exists. Thus T2 corresponds to an equilibrium for $K > K_T^2$. □

R Proof of Propositions M.1 and M.2

Recall that for $n_{NP} = 0$, a partisan outcome materializes in both periods irrespective of the transparency regime. Consequently, we focus on the case $n_{NP} \geq 1$. In this case I^* is always achieved in the first period. It remains to be shown how likely a nonpartisan outcome is in the second period for the different regimes. These probabilities are displayed in Table 1, where we have taken into account that $K_O^1 < K_O^2 < K_T^1 < K_T^2$.

	$n_{NP} = 1$ $[2(1-p)p]$	$n_{NP} = 2$ $[(1-p)^2]$	overall
opacity (O), $K < K_O^1$	$1 - p^2$	$1 - p^2$	$(1 - p^2)^2$
opacity (O1), $K_O^1 < K < K_O^2$	$\frac{1}{2} + \frac{1}{2}(1-p)$	1	$(1-p)(1+p-p^2)$
opacity (O2), $K > K_O^2$	1	1	$1 - p^2$
transp. (T), $K < K_T^1$	$1 - p$	1	$(1-p)^2(1+2p)$
transp. (T1), $K < K_T^2$	$1 - p$	1	$(1-p)^2(1+2p)$
transp. (T2), $K > K_T^2$	1	1	$1 - p^2$

Table 1: This table displays the probabilities of a nonpartisan outcome in the second period. The expressions in brackets denote the probability for $n_{NP} = 1$ and $n_{NP} = 2$ respectively. The "overall" column displays the ex-ante probability of I^*.

Consider the first row, which concerns the opacity regime for $K < K_O^1$. In this case, both committee members will always be dismissed when I^* is reached. A nonpartisan outcome will be chosen in period 2 unless two partisans are appointed, i.e. the probability of a nonpartisan outcome is $1 - p^2$. This holds irrespective of the number of nonpartisans in **C**. The overall probability of a nonpartisan outcome is then given by the probability of $n_{NP} = 1$ times the probability of a nonpartisan outcome for $n_{NP} = 1$ plus the probability of $n_{NP} = 2$ times the probability of a nonpartisan outcome for $n_{NP} = 2$. This probability is displayed in the last column.

By comparing the figures for the overall probabilities of a nonpartisan outcome, one can show that Propositions M.1 and M.2 hold. □