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Zentrum für Europäische Integrationsforschung  
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Rheinische Friedrich-Wilhelms-Universität Bonn



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**Divided Boards: Partisanship  
Through Delegated  
Monetary Policy**

# Working Paper

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# Divided Boards : Partisanship through Delegated Monetary Policy<sup>α</sup>

Etienne Farvaque<sup>γ</sup>      Gaël Lagadec<sup>z</sup>

September 10, 2000

## Abstract

While monetary policy decisions are mainly taken by Committees (as is the case for the ECB, or for the Federal Reserve), the literature largely stands on the ...ction of a single central banker, be it (or not) a conservative one. The purpose here is to consider explicitly the plural dimension of monetary policy Boards, and to investigate the consequences of such a decision structure for monetary policy rules.

Keywords : Partisan Theory, Policy Boards, Monetary Union

JEL Classification : E50, E58

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## 1. Introduction

Since the first day of the European Central Bank's life, and even before, observers and commentators have been worried of political pressures on the Bank, but also of opinion divergences inside the Board. The first kind of coercion on monetary policy has been prevented by the adoption of the so-called Stability Pact, even if everybody knows it does not prevent bashing (a term coined by Waller, 1991) exercised by political leaders on the Bank. That should be no surprise, as this kind of 'chicken' game between monetary and fiscal policymakers belongs to untold rules of the political scene. Yet, at least on pure theoretical ground, its implications and potential dangers are now well known (see, for example, Persson and Tabellini, 1995).

Hence for political pressures, but what about the divergences of insiders' opinion? While monetary policy decisions are mainly taken by Committees (as is the case for the ECB, or for the Federal Reserve), it appears that the literature has hardly looked upon the consequences of such a decisional structure. It is rather mainly based on the opposite assumption, of monetary policy being decided and implemented by a single policymaker, be it (or not) a conservative one. However, it is now well documented that "central banks are no unified actors", as Von Hagen (1999, p.682) puts it. This author, for example, even identifies three opposite groups inside the Bundesbank Board, each group having different objectives for monetary policy. Our objective here is thus to integrate explicitly the plural dimension of monetary policy Boards, and to investigate the consequences of such a decision structure for monetary policy rules.

Our framework is a simple one-period model with time consistency problems. We simply depart from the literature by considering delegated monetary policy to a Board where two types of agents confront. We consider the source of divergence to lie in different views (due to ideological influence or simply lack of knowledge) about the functioning of the economy. In the model, this comes from different judgments about the slope of the Phillips curve (the relative efficiency of monetary policy on real variables). We show that, in this context, considering opinion divergences leads to several conclusions. First, we exhibit the possibility of a political business cycle, one that has rarely been highlighted, induced by the appointment of new central bankers at the Board. Second, we show that traditional solutions to the inflation bias (i.e. performance contracts, inflation targets and conservative central bankers) depend on the uncertainty raising from ideological divergences. As a consequence, implementing these solutions should be considered cautiously.

However, we also show, as a third result, that societies will, on average, be better off when monetary policy is delegated to a Board than when it is left to elected leaders.

The first section thus develops the model, and considers monetary policy decisions in the absence of delegation. In the second section, we expose how explicit consideration of Board's opinions heterogeneity can question traditional solutions to the time consistency problem, in part because of the bank's appointment induced business cycle. The conclusion follows with reflections on further research.

## 2. Monetary policy by elected leaders

We start from a standard one-period model of monetary policy with time consistency and stabilization problems, as Barro and Gordon (1983) and Rogoff (1985) first introduced. The model is extended to include electoral uncertainty, as in Alesina (1987, 1988) : two political parties compete and, once elected, the (leader of the) winning party selects the monetary policy according to its own preferences. The preferences of each party are given by a loss function assigning a penalty to deviations of inflation from an optimal level,  $\pi^*$ , and to deviations of output from a given target  $y^*$  :

$$L^D = \frac{1}{2} \left( \pi_t - \pi^* \right)^2 + \alpha \left( y_t - y^* \right)^2 \quad (1a)$$

$$L^R = \frac{1}{2} \left( \pi_t - \pi^* \right)^2 + \beta \left( y_t - y^* \right)^2 \quad (1b)$$

Thus, we assume political parties to share the same objectives, but to disagree on their relative weight. We will assume here  $\beta < \alpha$ , hence party D is relatively more concerned by output stabilization.

Where we depart from the literature is when we consider parties to have divergent preferences because of insufficient (or ideologically oriented) economic knowledge : each party believes the economy to conform to its own views, i.e. each party gives output stabilization a weight conform to its vision of the economic process. We assume the weight given to output stabilization is related (for simplicity, we suppose here it is strictly equal) to the slope of the expectations-augmented Phillips curve :

$$y_t^D = \alpha (\pi_t - \pi^e) + y^* \quad (2a)$$

$$y^R = \frac{1}{2} (\frac{1}{4} i \frac{1}{4}^e) + " \quad (2b)$$

Output is (traditionally) assumed to be a function of surprise inflation<sup>1</sup>, plus a random error shock, "", normally distributed with mean zero and variance equal to  $\frac{3}{4}$ <sup>2</sup>. It is the parties' desire to stabilize output at a level greater than  $y^a$  that creates the time consistency problem, with political competition just adding uncertainty. But here, uncertainty does not only emerge from the political process, but because the political process is driven by ideological perceptions of how the economy works : the bigger each party will perceive the slope of the Phillips curve, the higher it will be incited to stabilize output.

Above hypothesis has - to our knowledge - never been endorsed, either by the time consistency literature or by the political business cycles one. We think that omission drives the literature further from realism, given the existing, still controversial, economic knowledge and given the importance economic variables have in political parties' platforms, without even mentioning the question of how economic disturbances influence votes. To have neglected that ideological bias, the literature may have proposed solutions to time inconsistency problems that may become critically flawed, as should become clear below.

Within this context, during a period, the sequence of events is the following : ...rst, wage-setters lock in wage contracts; then elections occur. Once elected, the winning party observes shocks hitting the economy and sets up monetary policy (we assume, as standard, the policymaker to control  $\frac{1}{4}$ ). When engaging in their contracts, wage-setters must make (rational) prior beliefs about elections results. We assume electoral probabilities to be exogenous, with party R elected with probability  $(1 i q)$  and party D with probability  $q$ . Hence, everything happens as if the economy could be described by the following process :

$$y = qy^D + (1 i q) y^R = \frac{1}{2} (\frac{1}{4} i \frac{1}{4}^e) + " \quad (3)$$

where  $\frac{1}{2} \sim q \pm (1 i q) \frac{1}{2}$ . As shocks cannot be expected by wage-setters, policymakers have a rationale for output stabilization. Of course, in this context, no commitment technology is exploitable, and the discretionary solution applies. Routine optimization under rational expectations (minimizing (1a) and (1b) under (3) and REH) gives the monetary policy chosen by each party, if elected :

$$\frac{1}{4}^D = \frac{1}{4}^a + y^a \frac{\pm^1 (1 + \pm^3)}{1 + \pm^1 \pm^2} i \frac{\pm^1}{1 + \pm^1 \pm^2} " \quad (4a)$$

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<sup>1</sup>The equilibrium or natural level of output,  $y$ , has been normalized at zero.

$$\pi^R = \pi^a + y^a \frac{\frac{1}{2}^1 (1 + \pi^3)}{1 + \frac{1}{2}^{12}} + \frac{\frac{1}{2}^1}{1 + \frac{1}{2}^{12}} \quad (4b)$$

The solutions come in the traditional form, composed of an inflationary bias and a stabilization policy term. As in Alesina (1987, 1988), the solution is affected by both partisanship and political uncertainty. It is now well-known that increased polarization and (thus) political uncertainty increase both inflation and output fluctuations (see Alesina and Gatti, 1995), a result that also emerges from our slightly modified model. Several solutions have emerged in the literature to fight this uncertainty and reduce both the average inflation bias and the politically-induced variance of inflation and output : these range from Rogoff's (1985) conservative central banker to Walsh's (1995) optimal contract and Svensson's (1997) inflation targets. These solutions have been shown to reduce the theoretical time consistency problem and have sometimes been empirically implemented. Yet, to date, they are still hotly debated issues, on purely theoretical grounds as well as relatively to their empirical relevance and implications (see, between others, Waller, 1995, on optimal contracts, Forder, 1998, 1999, on independence, and Mishkin, 1999, on targets).

In our view, the debate is at least partly due to the omission of two empirically important facts of monetary policy decisions : first, they are taken while economists have no consensual views on how and how much money influences the economy (as is clearly perceptible in Walsh, 1998). Second and, we believe, even more consequential, the proposed solutions all lie on the simplifying assumption of a single policymaker deciding on monetary policy. But, concretely, monetary decisions are taken inside Boards, that is to say are taken after being debated in deliberating assemblies. And, as the news and minutes accounts of monetary decisions show, those are sometimes hotly debated ones. Thus, a crude fact is that there is no single-minded central banker, but monetary policy committees. The next section, by endorsing the opposite assumption, shows how painful the action of a single people / minded policy Board can be.

### 3. Delegation to a policy Board

We first consider how opinions heterogeneity inside the Board can influence monetary policy, even opening the door to a certain kind of political business cycle. We then derive the implications for traditional solutions to the time consistency

problem. The section ends in showing why societies may nevertheless profit from delegating policy to a Board.

### 3.1. Partisanship inside the Board

We will now suppose monetary policy to be delegated to an independent central bank, whose preferences are given by the following loss function :

$$F = \frac{1}{2} \left( \frac{h}{\mu} (\pi_t - \pi_t^e)^2 + (\pi_t - \pi_t^a)^2 \right) \quad (5)$$

which, at least apparently, stands on the traditional assumption of a single policymaker. However, as we believe the reality of policymaking Boards to be a relatively conflicting and partly heterogeneous one, we will consider  $F$  to be the aggregate function of an institution peopled by (to keep things simple) two kinds of deciders, in proportion  $p$  and  $(1 - p)$  :

$$F = pL^k + (1 - p)L^c \quad (5')$$

Central bankers are thus of two kinds, sharing the same objectives but with relative preferences given by :

$$L^k = \frac{1}{2} \left( \frac{h}{\mu} (\pi_t - \pi_t^e)^2 + \alpha (\pi_t - \pi_t^a)^2 \right) \quad (6a)$$

$$L^c = \frac{1}{2} \left( \frac{h}{\mu} (\pi_t - \pi_t^e)^2 + \beta (\pi_t - \pi_t^a)^2 \right) \quad (6b)$$

where we assume :  $\alpha > \beta$ , i.e. one kind of policymaker weights more output stabilization than the other one. Hence the central bank global loss function is the weighted aggregation of (6a) and (6b). We will suppose for the moment relative proportions of each kind of deciders to be exogenously given, with  $p$  being the part of deciders of the  $k$  type. In (5), we thus have :  $\mu = p\alpha + (1 - p)\beta = p(\alpha - \beta) + \beta$ . As above, we assume policymakers to disagree about the functioning of the economy, each kind of central banker having in mind a different value for the slope of the Phillips curve when asked about monetary policy decisions :

$$\pi_t^k = \alpha (\pi_t - \pi_t^e) + \pi_t^a \quad (7a)$$

$$\pi_t^c = \beta (\pi_t - \pi_t^e) + \pi_t^a \quad (7b)$$



and thus :

$$y = py^k + (1 - p)y^c = \mu(\frac{1}{4} - \frac{1}{4}^e) + \pi \quad (7c)$$

Equations (7a) and (7b) are related to each kind of central banker, while the last one is the aggregate function applying when collegial decisions are taken.

Everything happens thus as if the preceding competing parties had adopted an independent central bank to avoid politically induced business cycle. However, the agreement included provisions giving each party a given number of seats inside the newly designed policy Board. The committee thus reflects, at least partly, the society's ideological divisions. The politically induced fluctuations have then been clustered inside the Board, while they precedingly were frontpage news.

Another way, which we believe an even more pertinent one, to think about the situation we describe here is the following : suppose letters R and D no longer signal political orientation, but countries. Then, the preceding section would have described a political and monetary union between two historically separated countries (or states or regions), while the present section simply describes an economic and monetary union, with monetary policy decisions taken inside a Board to which each country delegates its central banker (a kind of institution the European Central Bank would be a prominent example of).

While they clearly sound like realistic descriptions, both interpretations are hardly met in the literature, which generally stands on the action of an omnipotent (and sometimes omniscient) central banker deciding alone on inflation and stabilization decisions<sup>2</sup>. When ruling out this assumption, a better description of the policy game in federations or in economic and monetary unions (EMUs) is given by equations (5) to (7c). In this simple framework, discretion still emerges as the equilibrium solution. Minimization of (5) under (7c) and rational expectations delivers :

$$\frac{1}{4}^F = \frac{1}{4}^a + y^a \mu^2 - \frac{\mu^2}{1 + \mu^3} \pi \quad (8)$$

Inspection of the solution shows that delegating monetary policy to a Committee nesting people with different (possibly divergent) preferences does not rid

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<sup>2</sup> An insight about both types of divergences we consider can be found, respectively, in Moser (1999) and in Alesina and Grilli (1992). But these authors do not derive their policy implications. Von Hagen and Süppel (1994) and Von Hagen (1995) explored possible constitutions for monetary unions, but keep the action of a single-minded central banking Committee as a reference. However, see Waller (1996) who analyzes, though in a different way, policy Boards' heterogeneity.

inflation of partisanship, embedded here in  $\mu$ . As long as there can be several interpretations of the economy and / or political polarization, inflation will suffer from a bias, should it be due to a lack of knowledge or coming from ideologically-oriented delegation. As we will see now, this bias may even be the source of a new kind of political business cycle, eroding further the base on which traditional solutions lie.

### 3.2. Good times, bad times : insights on an inflation-induced political cycle

Remember partisanship being embedded in  $\mu = p + (1 - p)\phi$ , with  $p$  the relative proportion of policymakers caring more about output (one can think, in a quite caricatural way, that they are of a 'keynesian' type, while others are of the 'neo-classical' one). As they are appointed by elected leaders, there may be swings in relative proportions when a member of the Board ends her mandate (or resigns, or dies). With divergent preferences, these appointments may give rise to a new kind of political business cycle, the paradox being that it is truly induced by the delegation process itself. This comes in contradiction with the common wisdom, inspired by Rogoff's (1985) influential paper, that delegation may increase welfare by reducing uncertainty surrounding inflation and output stabilization.

As an illustration of that point, think of an episode of output contraction, leading to a burst of inflation, as the central bank tries to stabilize output. If some members of the Committee have to be renewed<sup>3</sup>, the renewal may be influenced by recent experience, and the relative proportion of 'keynesians' versus 'neoclassics' will probably be time-varying. In that case, of course, relative proportions become endogenous,  $p = p(\pi, y)$ , with the following intuitive comparative static properties :  $\frac{\partial p}{\partial \pi} < 0$  and  $\frac{\partial p}{\partial y} < 0$  : following a burst of inflation, preference in renewals should be denied to 'keynesians' (should it be due to a preference reversal inside the existing Board or to the appointment of a new, less 'liberal', member) and, when output grows far out of the target, fear of inflation will probably have the same impact. Hence, any inflation / output variation will have some consequences on the Board composition, and thus on inflation and output results. As long as there is some uncertainty about the economy, any event can lead to preferences

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<sup>3</sup>It does not matter here whether the appointment process may or may not concern the same people. All that is necessary for the reasoning is the only possibility of preferences divergences in the whole society. In the extreme case, as long as at least two people's views about the economy diverge, our reasoning applies.

reversals : a government can change his view of the economy, thus selecting unlikely people to appoint. As the Board here has no more knowledge than the political parties, we cannot preclude preferences reversal inside the Board either.

Moreover, and inversely, any variation in  $p$  will have an impact on the inflation performance (from (8), we clearly have  $\frac{\partial \pi^F}{\partial p} > 0$  : the more numerous 'keynesians' are, the higher the average inflation). Delegating is thus not enough to forbid uncertainty in monetary policy. As long as policy will be designed by a Committee (i.e. by more than one person), reappointments will occur, opening the door to partisan influence in monetary policy.<sup>4</sup>

One may ask how realistic this scenario is. A simple exercise will help here to make our case more concrete : think of the European Central Bank, with policy decisions taken by a policy Council composed of the Directoire (6 members) and the governor of the central bank of each member of the Euro-zone, 11 people as of 1999. These governors have commonly long, non-renewable, staggering appointments of about eight years on average. Average turnover should then be higher than one a year. Our simple one-period model is thus able to catch majority reversals that could occur at the ECB with, following inflationary (resp. deflationary) episodes, the appointment of a neoclassical (resp. keynesian) -minded central banker.

We should add that giving life mandate would not stabilize the process, as long as some members of the monetary policy Committee could change their minds : after an episode of inflation revival, for some time at least, some "doves" may turn into "hawks", leading to majority (and thus to policy) reversal. The higher the uncertainty about the way the economy functions, the less observers should ignore the probability of ideological conversions.<sup>5</sup>

To sum up, we think that one can not simply preclude political business cycles arguing of central bank independence when Committee members are heterogeneous and / or politically appointed. That conclusion looks even worse when turning to other solutions that have been recently proposed to remove the inflationary bias of monetary policy, as these solutions also lie on the assumption of a single central banker.

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<sup>4</sup>This kind of partisan influence may prove less efficient than pure "bashing" (Waller, 1991), while efficiency in our case will depend on the quorum size of the Board. Remember also that partisanship may come from Congressional influence (see Grier, 1991). Of course, all hypotheses are not mutually exclusive.

<sup>5</sup>Von Hagen (1999, pp.692-694) documents such a conversion occurring at the Bundesbank.

### 3.3. On targets and contracts

Among the proposed solutions to the inflationary bias of discretionary monetary policy, independence, optimal contracts and inflation targets are prominent. However, these solutions make reference to the delegation of monetary policy to a selected central banker taking decisions, alone, about monetary policy. The assumption may not be irrelevant in certain circumstances (when policy decisions are, concretely, taken by one person or in crisis times, when there may be a kind of "rally round the flag", with members of the monetary Committee ranging behind the Governor's view). However, in general, we believe the assumption to be harmful, as it delivers solutions that may not be applicable. The "applicability" criticism has already emerged in the literature (and notably for contracts, see McCallum, 1995), but not on the same grounds.

What we will show here is that the targets and contracts solutions, far from reducing uncertainty and distortions emerging from discretionary policy, are subject to partisanship uncertainty.

So, Walsh (1995) showed that, by inflicting to its central bank a penalty indexed on inflation, a society could obtain from it the "right" inflation rate, the optimal one. The contract was then correcting the absence of a pre-commitment technology, in an ex-post way.

Is the contracting solution relevant when monetary policy decisions are made by a Board ? In this case, then, the loss function would write :

$$F^C = \frac{1}{2} (\pi_t - \pi_t^a)^2 + \mu (y_t - y_t^a)^2 + \frac{\theta}{2} \pi_t^2 \quad (9)$$

where  $\theta$  is the penalty coefficient. Solving this problem in the same way as above, one obtains the inflation rule when a contract is in place :

$$\pi_t^{FC} = \pi_t^a + y_t^a \mu^2 + \frac{\mu^2}{1 + \mu^3} \pi_t + \theta$$

Hence, the optimal contract writes :

$$\theta = \theta(\mu) = y_t^a \mu^2 \quad (10)$$

The optimal contract can thus be defined, but it depends on the Board's divergences. Moreover, due to the renewal process, the contract is now state-contingent, and can no longer be used as a pre-commitment technology. This reinforces McCallum's (1995) criticism stating that the negotiation of the contract between the

bank and the government was just a re-location of the time-consistency problem, as the government always kept an incentive to disavow its (or its predecessor's) signature. When considering policy Committees with appointment process standing, without even renegotiating the contract, a government can modify its clauses, emptying it from any tenor, simply by using the (re)appointment procedure. The process is rather more subtle here, but no less harmful.

Inflation targets are subject to the same criticism, of course. In that case, the bank is given an objective,  $\bar{\pi}$ , defined by the government. Her loss function thus writes :

$$F^T = \frac{1}{2} \sum_{i=1}^h (\pi_i - \bar{\pi})^2 + \mu \sum_{i=1}^h (y_i - y^n)^2 \quad (11)$$

Optimization delivers the discretionary solution under a target as :

$$\pi^{FT} = \bar{\pi} + y^n \mu^2 \sum_{i=1}^h \frac{\mu^2}{1 + \mu^3}$$

To approach the optimal (committed) solution, the government should then define the target as :

$$\bar{\pi} = \bar{\pi}(\mu) = \pi^n \sum_{i=1}^h \frac{\mu^2}{1 + \mu^3} \quad (12)$$

The problem still lies in the target depending on the Board's composition (and renewal process). The preceding remarks apply here as well. Targets are contingent to the Committee composition and, as a consequence, may not prove as efficient as claimed as a commitment technology for monetary policy.<sup>6</sup>

The preceding results raise a doubt on the efficiency and relevancy of proposed solutions to the inflation bias, but they also raise a question, lying this time on the positive side : Why does a society delegate monetary policy to a Committee if its members are politically influenced and may even give birth to politically induced business cycles, hence reducing social welfare ?

### 3.4. Why do Boards exist

To understand why Boards may be a rational social choice, let us suppose that the Board reflects political polarization exactly : everything happens here as if political parties of the first section are appointing partisans to the Board, in

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<sup>6</sup>Mishkin (1999, p.591) notes that one main advantage of the targeting strategy may come from focusing the political debate on inflation outcomes. However, our argument still stands, as this does not prevent debate inside the Board, even if it may limit the Bank's margin of maneuver.

proportions equal to their political weight. In that case, we would have :  $R^c = c$ ,  $D^k = k$ ,  $q = p$ ,  $(1 - q) = (1 - p)$ ,  $\frac{1}{2} = \frac{1}{2}$ ,  $\pm = \pm$ , and  $1 = \mu$ . Substituting in (4a) and (4b), we have :

$$\frac{1}{4} D^k = \frac{1}{4} + y \frac{\mu^3 (1 + \mu^3)}{1 + \mu^2} - \frac{\mu}{1 + \mu^2} \quad (13a)$$

$$\frac{1}{4} R^c = \frac{1}{4} + y \frac{\mu^3 (1 + \mu^3)}{1 + \mu^2} - \frac{\mu}{1 + \mu^2} \quad (13b)$$

while delegation to a Committee still delivers  $\frac{1}{4}^F$ , which we rewrite for convenience :

$$\frac{1}{4}^F = \frac{1}{4} + y \mu^2 - \frac{\mu^2}{1 + \mu^3} \quad (8)$$

To know if society is better off with delegation than without, we have to verify that inflation performance is better under delegation. Term by term comparison simply shows that we have :

$$\frac{1}{4} R^c < \frac{1}{4}^F < \frac{1}{4} D^k \quad (14)$$

Hence, delivering monetary policy into the members of a Board's hands does not systematically make society better off, as inflation may sometimes be higher than with political leaders deciding, delivering higher losses. However, even when the Board reflects society's political degree of polarization and uncertainty perfectly, delegating monetary policy to a Committee delivers, on average, a better inflation performance. Everything happens as if policy debates were choked off in the central bank's conditioned rooms, where policy decisions are taken, instead of being debated in the heated air of the political arena.

In brief, while monetary theory should consider more exactly how policy decisions are taken (i.e. by somewhat ideologically influenced people), it seems that societies found in Committee delegation a way to keep policy debates alive but hardly kicking.

## 4. Conclusion

We have used a simple framework to show how considering that policy Boards are composed of heterogeneous people may be important for monetary economics.

The assumption of a single central banker should be considered as a fiction, a sometimes useful one, but also a sometimes misleading one. We believe the latter option to be true when considering solutions to time consistency problems : all of them (the conservative central banker as well as performance contracts or inflation targets) are based on the fiction, an assumption that plagues their supposed welfare enhancing properties and / or implementability. More work thus needs to be done to consider how effective they may be when people with potentially divergent preferences seat around a Board's table.<sup>7</sup>

We identified a (barely mentioned) source of business cycle emerging from the appointment process or from ideological conversions of Board members. This kind of politically induced cycle is probably one of the main impediments for solutions to time consistency problems to be enforced.

On the positive side, including potential divergent preferences may also shed some light into another research area. As Clarida et al. (1999) or Taylor (1999) emphasize, interest rate smoothing is still a puzzle for monetary economists. All things equal, considering insiders divergences may help explain slow movements in interest rates. That hypothesis, at least, should deserve further exploration.

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<sup>7</sup>Our conclusion about the relative desirability of targets and contracts joins Muscatelli's (1998), while achieved with a different set of hypotheses.

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