Monetary policy committees and uncertain central bank preferences

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Abstract

This paper examines the welfare implications of different types of monetary decision procedures in the presence of uncertainty about the policymakers' preferences. We develop a simple monetary union model where member countries are hit by local and federal supply shocks. Within this framework, we study the efficiency of a large spectrum of decisions rules in terms of output and inflation stabilization. We provide a ranking of those decision rules depending on the combination of asymmetric shocks and uncertainty about the policymakers' preferences. In particular, we show that a monetary policy committee (MPC) consisting of members acting in the interest of the monetary union as a whole proves to be a better way to cope with asymmetries in economic and preference shocks than a MPC with national representatives.

Keywords: Monetary policy committees, transparency, monetary union.

JEL classification: D70, E52, E58, F33.

1 Introduction

Over the 1990's, the responsibility for the conduct of monetary policymaking in almost all major central banks has been shifted from individuals to committees. This evolution has recently received increasing attention in the literature.[1] Papers mainly focus on how the structure of these Monetary Policy

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[1]This literature is much too broad to be completely referenced here. Recent surveys include, for example, Gerling et al. (2005), Berger (2006), Vandenbussche (2006) and Blinder (2009).

Committees (MPC) may affect policy decisions and, through it, macroeconomic outcomes (i.e. inflation, output and interest rate volatility) as well as social welfare.[2] This is the case of Farvaque et al. (2009) who examine a set of different decision rules, including hegemonic and democratic procedures as well as the case of a MPC headed by a chairman. They obtain a ranking of these decision rules in terms of welfare and interest rate volatility. It is shown in particular that if a country can neither act as the hegemon nor choose the MPC's chairman, it will be better off under symmetric rules (such as consensus rule or bargaining). Another branch of this literature considers the case where MPC members are uncertain about the state of the economy. Within such a framework, Gerlach-Kristen (2006) shows that multiple-member committees are able to make better decisions than individuals. Focusing on the differences in skills among MPC members, Gerlach-Kristen (2008) demonstrates that consensus will be obtained more easily when the MPC is headed by a chairman who is more skilled than the other members.

Papers by Montoro (2007) and Riboni and Ruge-Murcia (2008, 2010) allow for the possibility that MPC members have heterogeneous preferences about inflation and output stabilisation. In particular, Riboni and Ruge-Murcia (2008) study heterogeneity in policy preferences among committee members using individual voting records of the MPC of the Bank of England. Their results indicate that, in qualitative terms, MPC members' preferences are rather homogenous, implying that policymakers agree on common objectives (such as inflation and output stabilisation). However, the strength of their reaction differs. These quantitative differences can best be captured by considering asymmetries in the weight policymakers put on their objectives. Such asymmetries may be related for instance to the MPC members' career background and to the nature of their membership (i.e. whether they are internal or external members).

A strong assumption usually made in this literature is that the public (government and society) perfectly knows the policymakers' preferences.[3] This assumption is justified when considering the case of the highly transparent Bank of England, for example. Thanks to the publication of minutes and members' voting records, it becomes possible for the public to infer each individual MPC member's policy preferences. However, what about central banks that are less transparent and do not publish minutes and voting records? The MPC members preferences are not only heterogeneous but are also uncertain for the public. In this paper, we explicitly take account of these characteristics of the policymakers' preferences. The objective is to

[2] Von Hagen and Sueppel (1994), Godbillon and Sidiropoulos (1999), De Grauwe (2000), Hefeker (2003), Matsen and Roisland (2005) and Gros and Hefeker (2007) examine the welfare consequences of different types of collective decision-making procedure in a monetary union but do not explicitly refer to MPC.

[3] Important exceptions are the papers of Sibert (2003) and Mihov and Sibert (2006) who examine how the MPC structure is likely to affect the members' incentives to gain reputation on their anti-inflation toughness.

examine the welfare implications of uncertain central bank preferences under different types of monetary policy decision-making process.

More specifically, we develop a simple monetary union model where member countries are hit by local and federal supply shocks. Within this framework, we study the efficiency of a large spectrum of decisions rules in terms of output and inflation stabilization. A broadly similar study has been developed by Matsen and Roisland (2005) and Farvaque et al. (2009) in the case of full transparency about the central bankers preferences. They obtain a ranking of decision rules in terms of macroeconomic volatility and social welfare. We extend their analysis by allowing for the possibility that the policymakers' preferences over inflation and output stabilization may not be perfectly known by the public, due for instance to the central bank's reluctance to publish minutes or the MPC's voting records. We show that this lack of transparency creates some uncertainty about the central bank's stabilization efforts which has significant consequences for the desirability of the different decision rules. In particular, it appears that a MPC consisting of members who act as representatives of the monetary union as a whole (such a decision process is called the union rule) is an appropriate way to cope with asymmetric shocks when the policymakers' type is unknown to the public.

The remainder of the paper is organized as follows. The next section describes our formal framework. The effects of uncertain central bankers' preferences in the case where countries conduct independent monetary policies are presented in section 3. Section 4 extends the analysis to a monetary union and examines the welfare implications of different MPC decision rules such as the nationalist hegemon rule and more democratic decision mechanisms. Section 5 summarizes our results and concludes.

2 The model

We consider a monetary union that consists of n economies indexed by $i = 1, ..., n$. The structure of economy i can be described by the following Lucas supply function:

$$y_i = \pi_i - \pi_i^e - \epsilon_i - \nu \tag{1}$$

where y_i is country i's output level, π_i and π_i^e respectively designate country i's actual and expected inflation rate.[4] We assume that member countries are affected by both local ϵ_i and federal (monetary union-wide) supply shocks ν. These shocks are all normally distributed with well defined variances and mean equal to zero. Moreover, they are mutually uncorrelated: $E(\epsilon_i) = 0$, $E(\nu) = 0$, $E(\epsilon_i^2) = \sigma_\epsilon^2$, $E(\nu^2) = \sigma_\nu^2$ and $E(\epsilon_i \epsilon_j) = 0$, with $j \neq i$ and $E(\epsilon_i \nu) = 0$, $\forall i = 1, ..., n$.

The welfare loss of the government (and society) in country i is given by:

$$L_{G,i} = \lambda \left(y_i - y^*\right)^2 + \left(\pi_i - \pi^*\right)^2 \tag{2}$$

[4] Variables are expressed in logarithms.

where y^* and π^* respectively denote the government's preferred values for output and inflation. To simplify our analysis, we suppose that these values, as well as the relative weight, λ, governments put on output stabilization are identical across member countries. Moreover, in order to focus on the shock stabilization performance of different decision rules, we simplify the algebra of our results and abstract from the deterministic components. This is done by assuming that the targeted level of inflation is nil: $\pi^* = 0$ and that there is no desire to reach an overoptimistic output level: $y^* = 0$.

3 Independent monetary policy

To begin our analysis, we first consider the case where the countries conduct independent monetary policies. This implies that the inflation rate π_i is under direct control of the national monetary authorities. The policymaker in country i has the following loss function:

$$L_{CB,i} = (\lambda + \alpha_i)\, y_i^2 + (1 - \alpha_i)\, \pi_i^2, \qquad -\lambda < \alpha_i < 1 \tag{3}$$

where α_i is a stochastic parameter unobserved by the government and the private sector, with mean $E(\alpha_i) = 0$ and variance $E(\alpha_i^2) = \sigma_\alpha^2$. Moreover, it is assumed that α_i is independent of local and federal supply shocks so that: $E(\alpha_i \epsilon_i) = 0$ and $E(\alpha_i \nu) = 0$.

Here, we assume that the policymakers' preferences are uncertain. This uncertainty is modeled in the spirit of Sorensen (1991) and arises in our framework through the presence of the component α_i. In particular, we view α_i as representing idiosyncratic central banker preferences that may for instance reflect the central banker's career background (see Riboni and Ruge-Murcia, 2008 and Farvaque et al., 2009), a temporarily pressure from some specific interest group. According to the statistical properties of this component, the central banker's preferences coincide on average with the government's (and society's) but there is some degree of uncertainty around it, which is captured by the variance σ_α^2. The larger σ_α^2, the higher the uncertainty concerning the monetary decision-maker's relative weight on output stabilization.

To complete the description of monetary policy, we have to specify the timing of events. First, private agents form their inflation expectations. Then, shocks occur and monetary policy is selected, which determines inflation and output outcomes.

In the case of an independent monetary policy, decisions are taken by minimizing the central bank's loss function (3) subject to (1) and taking inflation expectations as given. This yields the following expressions for equilibrium inflation and output in country i:

$$\pi_i = \frac{\lambda + \alpha_i}{1 + \lambda} (\epsilon_i + \nu) \tag{4}$$

$$y_i = -\frac{1 - \alpha_i}{1 + \lambda} (\epsilon_i + \nu) \tag{5}$$

It is clear from these expressions that the equilibrium level of inflation and output positively depends on the stochastic weight, $\lambda + \alpha_i$, that the central banker's assigns to output stabilisation.

By integrating expressions (4) and (5) into equation (2) and taking expectations, we obtain the expected value of social loss:

$$E\ L_{G,i} = \frac{\lambda + \sigma_\alpha^2}{1+\lambda}\left(\sigma_\epsilon^2 + \sigma_\nu^2\right) \tag{6}$$

where $E.$ is the expectations operator.

As can be seen from this expression, uncertainty about the policymakers' preferences – represented by σ_α^2 – renders their stabilization effort uncertain as well. This creates some additional macroeconomic variability which results into higher social losses.

4 Common monetary policy

We now consider the case where the n countries form a monetary union. Monetary policy is now decided by a federal college, consisting of country representatives, the governors. All members are assumed to have equal voting power.[5] They discuss their own views behind closed doors in order to reach unanimous decisions. We suppose that those representatives agree on the objectives to be followed as they all target the same inflation and output level (equal to zero). We also assume that the relative weight they attribute to output stabilization is similar on average (identical λ). This assumption seems realistic, in particular in the European Monetary Union (EMU) context where inflation rate convergence is a pre-requisite to the entry into the euro-zone. Yet, country representatives only partly agree on the common monetary policy's orientation. Indeed, even though the relative weight they put on output stabilization coincides on average, at the moment they take their decision, they are likely to put forward their own opinion - probably influenced by their country's economic situation or by their background and experience. There may therefore exist some uncertainty about the governors' preferences. In this respect, we continue to describe each individual policymaker's loss function by relation (3).

Accordingly, the governors preferred inflation rate always differ from each other and, this because of both, idiosyncratic shocks and heterogeneous preferences. How these divergences may influence monetary policy depends on the monetary committee's decision rule. In the following subsection, we investigate different decision-making mechanisms: nationalist hegemon (1), union rule (2), averaging rules (3) and majority rule (4).

[5]Gerlach (2008), Farvaque et al. (2009), Riboni (2010) or Riboni and Ruge-Murcia (2010), for instance, consider the particular role of a chairman in forging consensus.

4.1 The nationalist hegemon

The nationalist hegemon rule (e.g. Germany in the European Monetary System) corresponds to a situation where a single country concentrates all the monetary system's decision power. In this case, one of the governors sets the common monetary policy that best suits her own economy, regardless of the situation of her partners. More specifically, the hegemonic decision mechanism allows the hegemon, country h's governor, to set the common inflation rate that minimises her own loss function. The inflation rate that is implemented in the whole monetary union is hence given by the expression (4) above:

$$\pi^{NH,h} = \frac{\lambda + \alpha_h}{1 + \lambda} (\epsilon_h + \nu) \tag{7}$$

When deriving the welfare implications of this decision mechanism, one has to distinguish the loss function of the hegemon's country from the loss function of the other members of the union. We first integrate expression (7) into the hegemon country's supply function to derive its equilibrium output. This gives:

$$y_h^{NH,h} = -\frac{1 - \alpha_h}{1 + \lambda} (\epsilon_h + \nu) \tag{8}$$

We then plug the equilibrium expression for inflation and output into country h's social loss function, take expectations and obtain:

$$E\ L_{G,h}^{NH,h} = \frac{\lambda + \sigma_\alpha^2}{1 + \lambda} \left(\sigma_\epsilon^2 + \sigma_\nu^2\right) \tag{9}$$

As is obvious by comparing expression (9) with (6), the hegemon's losses correspond to a single independent country's losses. Indeed, the hegemon chooses the common inflation rate with her own preferences and so as to accommodate her idiosyncratic supply shocks, without taking account of the shocks affecting the other member countries.

For these countries (henceforth, countries j with $j \neq h$), the equilibrium expression for output is obtained by integrating the hegemon's optimal inflation rate into their supply function:

$$y_j^{NH,h} = -\frac{1 - \alpha_h}{1 + \lambda} \nu + \frac{\lambda + \alpha_h}{1 + \lambda} \epsilon_h - \epsilon_j \tag{10}$$

We observe that the other member countries have to bear the hegemon's local supply shocks as well as her uncertain preferences. These disturbances are passed onto them through the common inflation rate. In addition, the other countries' domestic shocks are left unabsorbed.

As for the nationalist hegemon, we integrate the equilibrium expression for output and inflation into the other member countries' social loss function and take expectations. This gives:

$$E\ L_{G,j}^{NH,h} = \frac{\lambda + \sigma_\alpha^2}{1 + \lambda} \sigma_\nu^2 + \frac{\lambda^2 + \sigma_\alpha^2}{1 + \lambda} \sigma_\epsilon^2 + \lambda \sigma_\epsilon^2 \tag{11}$$

The above expression highlights the four sources of disturbances for the other member countries. That is: each country faces its own supply shocks (last term of the above equation), some of the common supply shock (first term), the hegemon's reaction to her own shocks (second term) and, the hegemon's preference shocks (σ^2_α).

4.2 The union rule

We now turn to the union decision rule. Under this structure, the MPC members are interested in the economic situation of the whole monetary area. They also average their individual preferences before deciding about policy. Hence, the policymakers preferences can be described by the following loss function:

$$L_{CB,UR} = (\lambda + \alpha_u)\, y_u^2 + (1 - \alpha_u)\, \pi_u^2, \qquad -\lambda < \alpha_u < 1 \tag{12}$$

where $\pi_u = \pi$ denotes the common inflation rate and $y_u = \sum_{i=1}^n y_i/n = \pi - \pi^e - \nu$, the union wide output level. Parameter α_u is defined as: $\alpha_u = \sum_{i=1}^n \alpha_i/n$. Here, we assume that, before deciding about policy, country representatives agree on a common preference shock that corresponds to the average level of their individual preference shock. The aggregation process implies: $E(\alpha_u) = 0$ and $E(\alpha_u^2) = \sigma^2_{\alpha_u} = \sigma^2_\alpha/n$.

The MPC minimises its loss function (12) under the constraint of y_u's expression and taking inflation expectations as given. This yields the following optimal inflation rate in the monetary union:

$$\pi^{UR} = \frac{\lambda + \alpha_u}{1 + \lambda} \left(\nu + \sum_{i=1}^{n} \frac{\epsilon_i}{n} \right) \tag{13}$$

Obviously, under the union rule, only monetary union wide shocks are taken into account as the MPC does not care for members' idiosyncrasies. By integrating the inflation rate in the expression of country j's output and its expected loss function, we obtain respectively:

$$y_j^{UR} = -\frac{1 - \alpha_u}{1 + \lambda}\nu + \frac{\alpha_u + \lambda}{1 + \lambda} \sum_{i=1}^{n} \frac{\epsilon_i}{n} - \epsilon_j \tag{14}$$

$$E\ L_{G,j}^{UR} = \frac{\lambda + \sigma^2_{\alpha_u}}{1 + \lambda}\sigma^2_\nu + \lambda\sigma^2_\epsilon + \frac{\sigma^2_{\alpha_u} - \lambda^2}{n(1 + \lambda)}\sigma^2_\epsilon \tag{15}$$

where $\sigma^2_{\alpha_u} = \sigma^2_\alpha/n$.

Comparison of (15) and (11) reveals that member countries (other than the nationalist hegemon h) are better off under the union rule than under a nationalist's hegemon and this for two reasons: First, in the former case, they do not have to cope with the hegemon's reaction to her own supply shocks. Second, the macroeconomic volatility caused by preference shocks is

lower under the union rule as this mechanism limits the influence of extreme governor specific preference shocks.

Moreover, by comparing expressions (15) and (6), country j's losses under independent monetary policy, it is not sure that this latter system outperforms the union rule. Indeed, although in a monetary union idiosyncratic shocks are stabilised in a lesser extent, the variance of preference shocks is lower and decreasing with the number of governors. Hence, countries whose idiosyncratic supply shocks are not too important may benefit from joining a monetary union with a large number of participating countries.

4.3 The averaging rule

An alternative to aggregating the arguments in the central bank's loss function is to aggregate the individual loss functions.[6] The optimal monetary decision under the averaging rule precisely results from the minimization of a composite loss function consisting in the weighted sum of the member countries' loss function:

$$L_{CB}^{AR} = \frac{1}{n}\sum_{i=1}^{n} L_{CB,i} \tag{16}$$

where the expression of $L_{CB,i}$ is given by equation (3) and represents the loss function of country i's governor; π_i being replaced by π_u.[7]

Minimising (16) under the constraint of each member's supply function and taking inflation expectations as given yields the following inflation rate:

$$\begin{aligned} \pi^{AR} &= \frac{1}{n}\sum_{i=1}^{n} \frac{\lambda+\alpha_i}{1+\lambda}\ (\nu+\epsilon_i) \\ &= \frac{\lambda+\alpha_u}{1+\lambda}\ \nu + \frac{\lambda\sum_{i=1}^{n}\epsilon_i + \sum_{i=1}^{n}\alpha_i\ \epsilon_i}{n\,(1+\lambda)} \end{aligned} \tag{17}$$

The equilibrium output level in country j is obtained by inserting (17) into (1):

$$y_j^{AR} = -\frac{1-\alpha_u}{1+\lambda}\ \nu - \epsilon_j + \frac{\lambda\sum_{i=1}^{n}\epsilon_i + \sum_{i=1}^{n}\alpha_i\ \epsilon_i}{n\,(1+\lambda)} \tag{18}$$

Expressions (17) and (18) allow us to determine country j's expected losses:

$$E\ L_{G,j}^{AR} = \frac{\lambda+\sigma_{\alpha_u}^2}{1+\lambda}\sigma_\nu^2 + \lambda\sigma_\epsilon^2 + \frac{\sigma_\alpha^2-\lambda^2}{n\,(1+\lambda)}\ \sigma_\epsilon^2 \tag{19}$$

where $\sigma_{\alpha_u}^2 = \sigma_\alpha^2/n$.

[6] Matsen and Roisland (2005) refer to this decision mechanism as the "Benthamite rule".

[7] We assume here that all the member countries are of equal size so that their weight in the aggregate loss function is equal too.

Comparison of equations (19) and (15) reveals that the averaging rule is outperformed by the union rule.[8] This result provides the rationale for decision mechanism based on a union wide perspective like the one adopted by the ECB.[9] Indeed, under the union rule, supply and preference shocks are aggregated, whereas under the averaging decision mechanism, each member countries' idiosyncrasies are taken into account, and this amplifies macroeconomic volatility. However, it must be noted that for this result to appear, it is the combination of both, asymmetric supply shocks and asymmetric preference shocks that matters. Asymmetries in preference shocks or supply shocks taken apart would not create any difference between the rules in terms of welfare.

Another intuitive rule would be to directly take the average of each governor's optimal inflation rate. This averaging rule is for instance examined in Matsen and Roisland (2005) as well as Farvaque et al. (2009), who interpret it as reflecting the outcome of a consensus. Formally, the optimal inflation rate under the consensus regime can be written:

$$\begin{aligned} \pi^{CONS} &= \frac{1}{n}\sum_{i=1}^{n}\pi_i \\ &= \frac{\lambda+\alpha_u}{1+\lambda}\,\nu + \frac{1}{n}\sum_{i=1}^{n}\frac{\alpha_i\,\epsilon_i}{1+\lambda} \end{aligned} \tag{20}$$

where the expression of π_i is given by equation (4).

It is straightforward to see that the consensus delivers the same inflation rate – and thereby similar results for output and welfare losses – as the averaging rule. This result can also be observed in Farvaque et al. (2009).

4.4 The majority rule

We now consider the case where the monetary policy committee resorts to majority rule. To formalize this decision mechanism, we assume that all governors can cast one equally weighted vote.[10] Here, the median voter theorem applies and the implemented inflation rate corresponds to the median governor's optimal inflation rate, which is given by:

$$\pi^{MR} = \text{median}[\pi_1^*, ..., \pi_n^*] = \frac{\lambda}{1+\lambda}\,\nu + \frac{1}{1+\lambda}M \tag{21}$$

[8] A similar result is found in De Grauwe (2000).

[9] Although its Governing Council consists of national representatives, the ECB is very explicit about neglecting regional influences on policy decisions. Governors are expected to pursue federal objectives.

[10] This assumption is consistent with the fact that member countries are identical in size.

where $M = \text{median}\left[(\lambda + \alpha_i)\,\epsilon_i + \alpha_i \nu\right]$ and where π_i^* denotes the optimal inflation rate for country i and is given by expression (4).

It can be seen from this expression that the extent to which local and federal shocks are absorbed in a member country depends on the extent to which it can affect the median of inflation rate.

As before, the consequences of majority voting for the output level in country j can be derived by replacing the implemented inflation rate by its value in the supply function (1). This yields:

$$y_j^{MR} = -\frac{1}{1+\lambda}\,\nu - \epsilon_j + \frac{1}{1+\lambda} M \tag{22}$$

By integrating expressions (21) and (22) into the country j's expected loss function and taking expectations, we obtain:[11]

$$\begin{aligned} E\,L_j^{MR} &= \frac{1}{1+\lambda}\left(\lambda + \frac{\sigma_\alpha^2 \pi}{2n}\right)\sigma_\nu^2 + \lambda\sigma_\epsilon^2 + \frac{\pi\left(\lambda^2 + \sigma_\alpha^2\right)}{2n\left(1+\lambda\right)}\,\sigma_\epsilon^2 \\ &\quad -\frac{2\lambda}{1+\lambda}\,\text{cov}\left[\text{median}\;\epsilon_i\left(\lambda + \alpha_i\right);\epsilon_j\right] \\ &= \frac{1}{1+\lambda}\left(\lambda + \frac{\sigma_\alpha^2 \pi}{2n}\right)\sigma_\nu^2 + \lambda\sigma_\epsilon^2 + \frac{\pi\left(\lambda^2 + \sigma_\alpha^2\right) - 2\lambda^2}{2n\left(1+\lambda\right)}\,\sigma_\epsilon^2 \end{aligned} \tag{23}$$

As in the union and averaging rules studied above, it appears from expression (23) that macroeconomic volatility and thereby welfare losses are decreasing with respect to the size of the monetary union. This is due to the fact that when the number of member countries increases, idiosyncratic shocks tend to be closer to the mean. The median governor's preferred inflation rate is therefore less volatile, and so are the member countries' output and welfare losses.

Two other interesting results must be highlighted. First, a comparison between the nationalist hegemon regime and majority voting reveals that the latter leads to lower volatility and, as a result, to lower expected losses. Indeed, as highlighted by Farvaque et al. (2009), the policy chosen by the median governor can by construction never be the extreme policy. At the opposite, a hegemon governor can display extreme preference or supply shocks, which in turn translates into extreme policy decisions.

Second, majority voting leads to an increase in each country's expected losses with respect to the union or averaging rule (and consensus). This can be explained as follows. On the one hand, the inflation rate implemented under majority voting can sometimes reflect country i's idiosyncrasies. As shown in expression (23), this possibility depends on the covariance of a combination of the median country's supply and preference shocks with country i's local supply shock. On the other hand, majority voting creates some extra volatility compared to the union or averaging rule. This is due to the

[11] Please notice that π (as opposed to π_i) refers to the mathematical constant and not to inflation.

fact monetary policy here accommodates the domestic shock of the median country. Although, they cannot by definition be extreme shocks, they may differ from the mean of idiosyncratic supply and preference shocks, and may therefore be more volatile. As appears in expression (23), this latter effect dominates, implying that the macroeconomic volatility, and thereby the expected losses, are higher under majority voting than under the union and averaging rules.

5 Concluding remarks

Members of MPC are most likely to differ with respect to their preferences over inflation and output stabilisation. This is the case, in particular, for a central bank operating in a monetary union formed by heterogeneous countries. If the central bank is not fully transparent about the policymakers' type, there is some uncertainty about their reaction functions and stabilisation effort, creating extra macroeconomic volatility.

In this paper, we examine the desirability – in terms of inflation and output variability – of alternative decision-making procedures in a monetary union with asymmetric shocks by explicitly taking account of the uncertainty about the policymakers' preferences. We show that the effects of this uncertainty on macroeconomic outcomes vary according to the adopted decision rule. We can thus determine a ranking and find out which of those decision rules seems appropriate when the central bank is not fully transparent about the policymakers' type.

It appears that living under the rule of a nationalist hegemon leads to the highest macroeconomic volatility and, as a result, to the largest expected losses. Then come by order of decreasing expected losses, the majority voting decision mechanism, the averaging rule and finally the union-wide decision system, which yields the lowest macroeconomic volatility. Hence, in the presence of uncertainty about the MPC members' preferences it is in the interest of society that those policymakers act as representatives of the monetary union as a whole rather than national representatives. Indeed, this decision mechanism, which seems to correspond to the Euro-wide perspective of the European Central Bank, has the advantage that national differences in terms of shocks and policy preferences are not taken into account. This may limit the scope for national lobbyism and render monetary policy decision more predictable.

However, more work still needs to be done, with several questions appearing. In particular, when the central bank does not publish minutes or voting records, how to ensure that policymakers will act in the interest of the monetary union and ignore their own preferences?

References

Berger, H. (2006). Optimal central bank design: Benchmarks for the ECB, *Review of International Organizations*, 1, 207-235.

Blinder, A. (2009). Making monetary policy by committee, *International Finance*, 12, 171-194.

De Grauwe, P. (2000). Monetary policy in the presence of asymmetries, *Journal of Common Market Studies*, 38, 593-612.

Farvaque, E., N. Matsueda, and P.G. Méon (2009). How monetary policy impacts the volatility of policy rates, *Journal of Macroeconomics*, 31, 534-546.

Gerlach-Kristen, P. (2006). Monetary policy committees and interest rate setting, *European Economic Review*, 50, 487-507

Gerlach-Kristen, P. (2008). The role of the chairman in setting monetary policy: Individualistic vs autocratically collegial MPCs, *International Journal of Central Banking*, 4, 119-143.

Gerling, K., H. P. Grüner, A. Kiel, and E. Schulte (2005). Information acquisition and decision making in committees: A survey, *European Journal of Political Economy*, 21, 563-597.

Godbillon, B. and M. Sidiropoulos (1999). *Open Economies Review*

Gros, D. and C. Hefeker (2007). Monetary policy in EMU with asymmetric transmission and non-tradable goods, *Scottish Journal of Political Economy*, 54, 268-282.

Hefeker, C. (2003). Federal monetary policy, *Scandinavian Journal of Economics*, 105, 643-659.

Matsen, E. and O. Roisland (2005). Interest rate decisions in an asymmetric monetary union, *European Journal of Political Economy*, 21, 365-384.

Mihov, I. and A. Sibert (2006). Credibility and flexibility with independent monetary policy committee, *Journal of Money, Credit and Banking*, 38, 23-46.

Montoro, C. (2007). Monetary policy committees and interest rate smoothing, CEP Discussion Paper No. 0780, London School of Economics.

Riboni, A. (2010). Committees as substitutes for commitment, *International Economic Review*, 51, 213-236.

Riboni, A. and F. Ruge-Marcia (2008). The dynamic (in)efficiency of monetary policy by committee, *Journal of Money, Credit and Banking*, 40,

1001-1103.

Riboni, A. and F. Ruge-Murcia (2010). Monetary policy by committee: Consensus, chairman dominance, or simple majority?, *The Quarterly Journal of Economics*, 125, 363-416.

Sibert, A. (2003). Monetary policy committees: individual and collective reputations, *Review of Economic Study*, 70, 649-665.

Vandenbussche, J. (2006). Elements of optimal monetary policy committee design, *IMF Working Paper*, 06/277.

Von Hagen, J., and R. Sueppel (1994). Central bank constitution for federal monetary unions, *European Economic Review*, 48, 774-782.