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The trade-off between central bank independence and conservatism in a New Keynesian framework

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ABSTRACT

The purpose of this paper is to discuss the issue of Treaty reform and its consequences for monetary policy. Inter alia, the changes include that the institutional set-up will be subtly changed and the European Central Bank (ECB) will be grouped in the first part of the Treaty as one of the “other institutions and advisory bodies”. Possibly more importantly, the euro area as such will be in the position to act legally as itself within the European Union (EU) legal structures. The Eurogroup also will be officially recognized (“Euro-Ecofin-Council”). President Jean-Claude Trichet’s concern about the status of the ECB under the new Treaty and fear that including the bank in a list of EU institutions implies a risk that EU member states could formulate policy recommendations to the ECB, but may also lead to more central bank conservatism with the ECB as explained in our analysis. In this paper we analyze the trade-off between central bank independence and conservatism with New Keynesian framework following Woodford [Woodford, M., 2003. Interest and prices: foundations of a theory of monetary policy. Princeton University Press, Princeton.] and others. Our conclusion is that the trade-off between central bank independence and conservatism still holds within the New Keynesian framework. Politicians should therefore realize that their attempts to downgrade ECB’s independence legally and verbally will only increase its conservatism in order to maintain the same inflationary bias and limit the ECB’s degrees of freedom with respect to its interest rate policy.

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1. Introduction

The purpose of this paper is to discuss the issue of Treaty reform and its consequences for monetary policy. Inter alia, the changes include that the institutional set-up will be subtly changed and the European Central Bank (ECB) will be grouped in the first part of the Treaty as one of the “other institutions and advisory bodies”. Possibly more importantly, the euro area as such will be in the position to act legally as itself within the European Union (EU) legal structures. The Eurogroup also will be officially recognized (“Euro-Ecofin-Council”). The rules for enhanced cooperation have also been further facilitated from the Treaty of Nice, also applying for the area of economic governance (e.g. euro area coordination, tax policy, exchange rates).

In essence, the content of the new proposed reform treaty is very similar to that of the Treaty establishing a Constitution for Europe. It has just been modified and rephrased, as many heads of the different EU governments have already confirmed. In July 2007, an Inter Governmental Conference (IGC) has been held to discuss the “new” Treaty and to seek political support for all the amendments to the original treaties that are in the reform of the Treaty. The major proposed changes include the removal of the

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three-pillar structure of the EU, more democracy, change of the institutional setup of the Union, improvement of the solidarity and security within the Union and enhancement of the position of the EU on the global stage (European Commission, July 10, 2007). The three-pillar structure will be abolished, as to simplify the structure of the EU. The structure will be reorganized, with more emphasis on foreign and security policy and justice and home affairs. More democracy is realized by giving national parliaments and the European Parliament (EP) a bigger say, while the power of the European Commission (EC) will decrease. The EP will be on equal footing with the Council of Ministers in many areas in terms of decision making. Also, a withdrawal option will be included, as to state that member states are part of the EU by their own choosing. The change in the institutional set-up of the ECB will be most important for the working of monetary policy and the status of the ECB. The latter effects will be singled out later in the text and treated in more detail. Furthermore, decision making will be made more swiftly and more commonly supported by the system of *qualified majority voting*, which will be introduced in more than forty new areas. This is also going to apply to economic governance. These measures include the giving up of veto power in many areas (including the ECB's powers over financial regulation), the appointment of a permanent President of the European Council, and a reinforcement of the Commission's authority. Also, as will be clear later on, it is easier to amend the treaty in the new form, by means of co-decision and qualified majority voting, so that a new IGC will not be necessary.

Although Article 108 of the Treaty still states that “neither the European Central Bank, nor a national central bank, nor any member of their decision-making bodies shall seek or take instructions from Union institutions or bodies, from any government of a Member State or from any other body”, the fact that the ECB will be grouped with institutions such as the EC and the EP makes that its special status may or will be affected. This may have consequences for the functioning of the ECB in conducting effective monetary policy. The grouping of the ECB with other EU institutions will affect its independence and must be considered as an extremely dangerous development.

In this paper we will argue that a *Thomas Becket effect* is likely to occur after a reduction of central bank independence.¹ Once appointed as a central banker, officials learn to behave like an independent central banker. Faced with the reduction in their independence, they develop a more conservative attitude and become like Wim Duisenberg's “whipped cream”: the more politicians stir them, the stiffer they become.² We argue that it is optimal for society to select central bankers that have the right degree of conservatism (given the present level of independence) and have the “whipped cream” property that makes them more conservative, if and when the level of independence is reduced. Both the Thomas Becket effect and the “whipped cream” characteristic are perceptible with the (newly) appointed members of the Governing Council of the ECB and perhaps most remarkable with President Trichet after the discussion of Treaty reform including the change of the institutional set-up and the grouping of the ECB in the first part of the Treaty as one of the “other institutions and advisory bodies”. President Trichet's concern about the status of the ECB under the new Treaty and fear that by including the central bank in a list of EU institutions implies a risk that EU member states could formulate policy recommendations to the ECB, but may also lead to more central bank conservatism with the ECB as will be explained by our analysis.

Section 2 discusses briefly the time inconsistency problem and the rationale for central bank independence based on Rogoff (1985) and others. In Section 3 we analyze whether there exists a trade-off between independence and conservatism within a New Keynesian framework following Woodford (2003) and others. Section 4 draws some conclusions.

2. The rationale for central bank independence

The Maastricht Treaty has made the ECB very independent. Nowadays it is widely believed that a high level of central bank independence and an explicit mandate for the bank to deliver a low and stable rate of inflation are important institutional devices to assure price stability. It is thought that an independent central bank can give full priority to low levels of inflation. In countries with a more dependent central bank other considerations (notably, re-election perspectives of politicians and a low level of unemployment) may interfere with the objective of price stability. In that context the German central bank is often mentioned as an example. The Deutsche Bundesbank was relatively autonomous; at the same time, Germany had one of the best post-Second World War inflation records among the OECD countries. Indeed, the statutes of the ECB are largely modeled after the law governing the Bundesbank. Why would central bank independence, *ceteris paribus*, yield lower rates of inflation? The theoretical reasoning in this field stresses the *time inconsistency problem* (see Kydland and Prescott, 1977; Barro and Gordon, 1983). The basic idea behind the time-inconsistency problem can be explained as follows. Suppose, the policy maker announces a certain inflation rate that (s) he considers optimal. If private sector agents take this announced inflation rate into account in their behavior, it becomes at that time optimal for the government to renege and to create a higher than announced inflation rate. The reason for this is that a burst of unexpected inflation yields certain benefits. For instance, unexpected inflation reduces real wages, thereby increasing employment. Of course, this is only part of the story. The next step is to add rational expectations. Under rational expectations economic agents know government's incentive to create unexpected inflation and take this into account in forming their expectations. Government has no other choice than to vindicate these. It is clear that the inflation rate will be higher than under the situation in which government would stick to its promise. No matter which factors exactly cause the dynamic inconsistency problem, in all cases the resulting rate of inflation is sub-optimal. So in the literature devices have been suggested to reduce this so-

¹ The Thomas Becket effect was coined by the first and former Chief Economist of the ECB, Otmar Issing, and expresses the fact that it takes time for a central banker to learn to behave independently from politics.

² This comparison was introduced by the first and former President of the ECB, Wim Duisenberg, who stated (in Dutch): “Centrale bankiers zijn als slagroom: hoe meer je in ze roert, hoe stijver ze worden”.

called *inflationary bias*. Rogoff (1985) has proposed to delegate monetary policy to an independent and ‘conservative’ central banker. *Conservative* means that the central banker is *more averse to inflation* than the government, in the sense that he places a greater weight on price stability than the government does. Why would a central banker be more inflation averse than the government? Two main differences have been pointed out in the literature between preferences of the government and those of the central bank (see Cukierman, 1992). One relates to possible differences in the time preference of political authorities and that of central banks. For various reasons, central banks tend to take a longer view of the policy process than do politicians. The other difference concerns the subjective weights in the objective function of the central bank and that of government officials. It is often assumed that central bankers are relatively more concerned about inflation than about other policy goals such as achieving high employment levels and adequate government revenues. If monetary policy is set at the discretion of a ‘conservative’ and independent central banker, a lower average time-consistent inflation rate will result. Eijffinger and Hoeberichts (1998) analyzed the *trade-off* between central bank independence and conservatism within the traditional Lucas supply framework with rational expectations and concluded that this trade-off between independence and conservatism exists. We will now analyze whether this conclusion still holds within a New Keynesian framework following Woodford (2003) and others. In this framework, we abstract from the inflationary bias and the time-inconsistency problem to motivate central bank conservatism. Instead, we assume that the government has a relatively stronger preference for stabilization of the output gap than society as a whole.

3. The trade-off between central bank independence and conservatism within a New Keynesian framework

The forward-looking *New Keynesian model* is the standard workhorse model for monetary policy analysis. This model, with a forward-looking Phillips curve (or aggregate supply function) and a forward-looking IS-curve (or aggregate demand function), provides realistic interactions between nominal and real variables in the economy. The two base equations are derived from optimizing behavior by the forward-looking agents that live in the economy with sticky prices and. On top of that, we introduce two policymakers (called *government* and *central bank*) who influence monetary policy. Monetary policy is set after the two policymakers have bargained over the appropriate monetary policy rule.

We have the standard New Keynesian Phillips curve and an IS equation, following Giannoni and Woodford (2003):

$$x_t = E_t x_{t+1} - \sigma (i_t - E_t \pi_{t+1} - r_t^n) \quad (1)$$

$$\pi_t = \beta E_t \pi_{t+1} + \kappa x_t + u_t \quad (2)$$

where x_t is the period t output gap, $E_t x_{t+1}$ the current period expectation of next period's output gap, σ is the interest elasticity of the output gap, i_t the current period nominal interest rate, $E_t \pi_{t+1}$ the current period expectation of next period's inflation rate, r_t^n the neutral real interest rate in period t , β the discount factor, κ the sensitivity of inflation to the output gap and u_t a supply shock (cost push shock). The monetary policy maker fully controls the short-term nominal interest rate i_t . The micro-foundations of the model imply that $\sigma, \kappa > 0$ and $0 < \beta < 1$.

For society as a whole, the welfare theoretic loss function is of the form:

$$W = E_0 \left\{ \sum_{t=0}^{\infty} \beta^t L_t \right\} \quad (3)$$

where β is again the discount factor and the per period loss function is given by:

$$L_t = (\pi_t)^2 + \lambda (x_t - x^*)^2 \quad (4)$$

where x^* is a certain optimal level for the output gap and λ is the weight attached to output gap stabilization relative to inflation stabilization. Woodford (2003) justifies the convenient and widely assumed specification of the quadratic loss function (4) by showing that it represents a second-order Taylor series approximation of the representative household's expected utility. Woodford (2003) also derives an optimal weight on output stabilization λ^* that depends on the structural parameters of the model. The two policymakers that are relevant for the way interest rates are set, the government and the central bank are characterized by the following one period loss functions:

$$L_t^G = (\pi_t)^2 + \lambda^G (x_t - x^*)^2 \quad (5)$$

$$L_t^{CB} = (\pi_t)^2 + \lambda^{CB} (x_t - x^*)^2 \quad (6)$$

where superscript G indicates the government and superscript CB indicates the central bank. The only difference between these two loss functions and the loss function for society as a whole lies in the weight that is attached to stabilization of the output gap. In this model, we suppose that the government, for political reasons, is more concerned about deviations in the output gap than society. So, it attaches a higher weight to stabilization of the output gap than society does ($\lambda^G > \lambda^*$), which is suboptimal for social welfare.³

³ Note that the target for the output gap (x^*) is the same for the central bank and the government. This implies that the economy does not suffer from an inflationary bias, in equilibrium, independent of the central bank's independence or conservatism. There may be good reasons to assume that the government actually aims for a higher output gap. By abstracting from an ambitious output target for the government, we bias our model against central bank conservatism and independence. Introducing a government with a higher target for the output gap would strengthen our results.

Monetary policy is implemented by the central bank, but the central bank is not completely independent in the way it sets 171 policy. The central bank faces pressure from the government about the weight that should be given to the objective of output 172 stabilization. The strength of the central bank in the negotiations with the government, or her independence from politicians, is 173 captured parameter γ , with $0 < \gamma \leq 1$. The loss function that effectively governs monetary policy is a weighted average of the central 174 bank's loss function and the government's loss function with weights γ and $1 - \gamma$ attached to the central bank and to the government, respectively.

$$L_t^p = (1-\gamma)L_t^G + \gamma L_t^{CB} = (\pi_t)^2 + [(1-\gamma)\lambda^G + \gamma\lambda^{CB}](x_t - x^*)^2 \quad (7)$$

In the remainder of the paper the optimal levels for inflation and the output gap have been set at zero, both for the central bank 178 and the government. This implies that our results hold even if the government does not suffer from an inflationary bias. 180 Introducing a positive bias for the government would only strengthen our results. Setting the target values at zero, and minimizing 181 the loss function subject to the Phillips curve, we get the following optimal *targeting* rule for monetary policy:

$$x_t = -\frac{\kappa}{(1-\gamma)\lambda^G + \gamma\lambda^{CB}}\pi_t \quad (8)$$

This rule is optimal in the sense that it minimizes loss function (7), so that given the preferences of both the government and the 185 central bank and also given the weight that both policymakers have in determining the monetary policy loss function (7), targeting 186 rule (8) is the best policy rule that can be implemented. This targeting rule implies that the central bank should set nominal 187 interest rates in such a way that the output gap moves in an opposite direction as inflation, scaled by the slope of the Phillips curve 188 κ divided by the “effective” weight on stabilization of the output gap $(1-\gamma)\lambda^G + \gamma\lambda^{CB}$. If this preference for output stabilization is 189 very high, the coefficient on inflation in Eq. (8) is very low, which means that the cost-push shocks u_t will mostly affect inflation 190 and will hardly be stabilized by letting the output gap fluctuate. The opposite will happen if the preference for output stabilization 191 is very low. 192

This policy can be implemented when the monetary policymaker set its short-term nominal interest rate i according to a Taylor 193 rule. This rule implies that the short-term nominal interest rate moves with inflation and the output gap, with the weights φ_π and 194 φ_x optimally chosen: $i_t = i^* + \varphi_\pi(\pi_t) + \varphi_x(x_t - x^*)$. It is beyond the scope of this paper to derive an exact mapping between the optimal 195 weights in the optimal Taylor rule and the optimal targeting rule, but it can be done. 196

In the institutional design stage, society knows the degree of independence γ that is granted to the central bank as well as the 197 preferences of the government. Its task, at this stage, is to pick a central banker with such preferences that the effective weight on 198 stabilization of the output gap is in line with society's optimal weight. To ensure this, society should select a central banker with 199 the following preference for output stabilization: 200

$$\lambda^{CB} = \lambda^G - \frac{\lambda^G - \lambda^*}{\gamma} \text{ or } \gamma\varepsilon = \lambda^G - \lambda^* \text{ with } \varepsilon = \lambda^G - \lambda^{CB} \quad (9)$$

In Eq. (9), ε can be interpreted as the level of central bank conservatism vis-à-vis the government. Because the government 203 attaches too much weight to output stabilization ($\lambda^G > \lambda^*$), society selects the central bank that compensates by being *conservative* 204 in the sense that she puts relative more weight on inflation stabilization rather than output stabilization. The equation above also 205 shows that the central bank needs to be more conservative, the less *independent* it is (so, the lower γ). So, if the government 206 interferes a lot in the formulation of monetary policy, it will encounter a more conservative central bank. If, on the other hand, the 207 central bank is completely independent ($\gamma = 1$) and determines monetary policy without any interference from the government, it 208 is optimal for society to simply pick a central banker whose preference for output stabilization is equal to the optimal value derived 209 by Woodford (2003), so ($\lambda^{CB} = \lambda^*$). The less independence the central bank has (low γ) and the more excessive weight politicians 210 attach to stabilization of the output gap ($\lambda^G > \lambda^*$), the more conservative the central bank has to be in order to conduct optimal 211 monetary policy. 212

4. Policy implications of the trade-off between independence and conservatism 213

In other words, delegating monetary policy to an independent and ‘conservative’ central bank will reduce the variability of 214 inflation and improve welfare. There is an optimal level of independence *cum* conservatism ($\gamma\varepsilon^*$). Under certain assumptions, this 215 is shown graphically in Fig. 1. Optimal means that the loss function of the society (Eq. (3)) is minimized. 216

It also follows from Eq. (9) that both independence and the inflation aversion of the central bank matter. If the central banker 217 has the same inflation aversion as government (i.e. $\varepsilon = 0$), the independence does not matter. And similarly, if the central bank is 218 fully under the spell of government (i.e. $\gamma = 0$), the conservatism of the central bank does not matter. There are various 219 combinations of γ and ε that may yield the same outcome, including the optimal one. We can illustrate this in Fig. 2. 220

From a practical point the concept of a ‘conservative’ central banker seems, however, void, if only since the preferences of 221 possible candidates for positions in the governing board of a central bank are generally not very easy to identify and may change 222 after they have been appointed. So, it is hard to find some real world example of a ‘conservative’ central banker. Still, one could 223 argue that the statute of the central bank could be relevant here, especially with respect to the question of whether or not it defines 224 price stability as the primary goal of monetary policy. Whether or not the statute of a central bank defines price stability as the 225

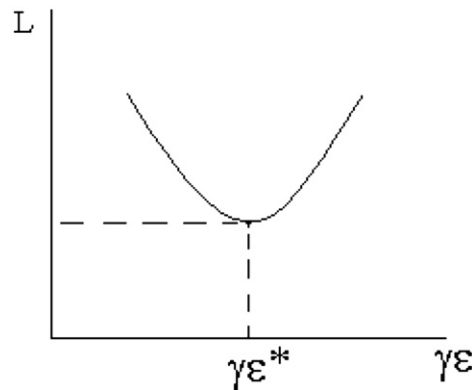


Fig. 1. The optimal level of central bank independence and conservatism.

primary policy goal, can be considered as a proxy for the ‘conservative bias’ of the central bank as embodied in the law (see Cukierman, 1992).

In the institutional design stage of the ECB, when its statutes were drawn up, the ECB was granted a very high degree of independence (γ close to 1). This arrangement allowed the ECB to have the best of both worlds by having preferences close to the social optimum (λ^{CB} close λ^* , see Eq. (9)) and still be a credible inflation fighter. It is also obvious from Fig. 2 that if the independence granted to the ECB was going to be reduced (lower γ), it would be optimal to appoint more a conservative central banker (higher ε , lower λ^{CB}). The reduction in independence combined with an increase in conservatism ensures that society shifts along the optimal curve in Fig. 2. This is summarized in the following proposition.

Proposition 1. *It is in the interest of society to appoint a monetary policy maker endowed with the optimal combination of independence and conservatism vis-à-vis the government. It is also in the interest of society that this policy maker, when faced with a reduction of its independence, becomes more conservative.*

Proof. Starting from the optimal (middle) curve in Fig. 2, lower independence pushes society to the left of the optimal curve and makes it worse of. An increase in conservatism pushes society upwards and back to the optimal curve.

However, it can be argued that the monetary policy makers (or the members of the Governing Council in the case of the ECB) are still the same people, with the same preferences. Moreover, when their term ends they will be replaced by a new member, selected by the same government(s) that weakened the independence of the central bank. In practice, however, the Thomas Becket effect is likely to occur after a reduction of central bank independence. Once appointed as a central banker, officials learn to behave like an independent central banker. Faced with the reduction in their independence, they develop a more conservative attitude and become like Wim Duisenberg’s “whipped cream”: the more politicians stir them, the stiffer they become. We argue that it is optimal for society to select central bankers that have the right degree of conservatism (given the present level of independence) and have the “whipped cream” property that makes them more conservative, if and when the level of independence is reduced. Both the Thomas Becket effect and the “whipped cream” characteristic are perceptible with the (newly) appointed members of the Governing Council of the ECB and perhaps most remarkable with President Trichet after the discussion of Treaty reform including

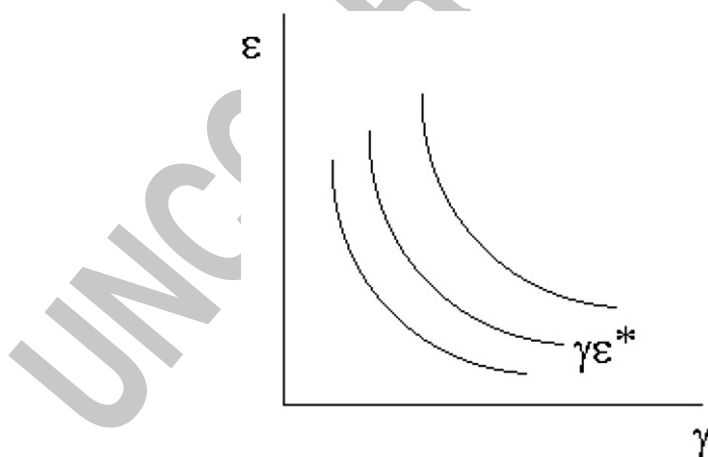


Fig. 2. Trade-off between conservatism and independence of a central bank.

the change of the institutional set-up and the grouping of the ECB in the first part of the Treaty as one of the “other institutions and advisory bodies”. President Trichet’s concern about the status of the ECB under the new Treaty and fear that by including the central bank in a list of EU institutions implies a risk that EU member states could formulate policy recommendations to the ECB, but may also lead to more central bank conservatism with the ECB as explained by our analysis.

5. Concluding remarks

So from a theoretical point of view it can be argued that an independent and conservative central bank improves the social welfare implications of monetary policy and ensures optimal stabilization policy in a world where the government puts too much emphasis on stabilization of the output gap. Moreover, the trade off between central bank independence and conservatism enables the central bank to continue implementing optimal monetary policy even after its independence is reduced, by becoming more conservative. If a government, for political reasons, decides to limit the central bank’s independence, it is in the interest of society that this is countered by a more conservative central bank. This holds under the *ceteris paribus* assumption that society’s preferences do not change.

What about the empirical evidence? A substantial amount of empirical research supports the inverse relationship between central bank independence and the level of inflation (see also Eijffinger and De Haan, 1996 for a review). The negative relationship between indicators of central bank independence and inflation in OECD countries is quite robust, also if various control variables are included in the regression. Still, it should be noted that a negative correlation does not necessarily imply causation. The correlation between both variables could be explained by a third factor, e.g. the culture and tradition of monetary stability in a country. However, sometimes central bank independence is a *condition sine qua non* to establish the culture and tradition of monetary stability in a country (e.g. in France).

President Jean-Claude Trichet’s concern about the status of the ECB under the new Treaty and fear that by including the bank in a list of EU institutions there is a risk that EU member states could formulate policy recommendations to the ECB is not only true, but may also lead to more conservatism (inflation aversion) with the ECB. Central bankers are like Duisenberg’s “whipping cream” faced with the reduction in their independence, they develop a more conservative attitude.

As we argued above both the Thomas Becket effect and the “whipped cream” characteristic are perceptible with the (newly) appointed members of the Governing Council of the ECB and perhaps most remarkable with President Trichet after the discussion of Treaty reform. President Trichet’s concern about the status of the ECB under the new Treaty and fear that by including the central bank in a list of EU institutions may also lead to more central bank conservatism with the ECB as explained by our analysis.

Politicians should realize that their attempts to downgrade ECB’s independence legally and verbally will only increase its conservatism in order to maintain the *same* monetary policy stance and limit the ECB’s degrees of freedom with respect to its interest rate policy. The consequences of these attempts are relative *higher* interest rates in the eurozone, being exactly the opposite of what they wish to achieve.

Sometimes it is better to tie yourself, like Odysseus, to the mast to resist the siren voice.

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