FISCAL POLICY COOPERATION IN EMU:

LITERATURE REVIEW

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ABSTRACT

Article deals with the movement toward closer macroeconomic policies cooperation within the EMU area. As the monetary policy is given for all Euro-zone countries and managed by one player (ECB), real space for stipulating economic growth is given in coordination of fiscal policies. Key question examined in the article is how fiscal authorities should behave in order to maximize output stabilization and to speed up convergence effort among EMU countries.

The article reviews theoretical approaches explaining rationality of fiscal authorities' cooperation in the EMU area. Methodologically, the article is based on the literature and theoretical approaches review presented by well-known and widely accepted authors published in last decade in order to prepare concept of the model based on game theory examining whether cooperative or non-cooperative behavior in the field of fiscal policy is more suitable in order to increase the expected benefits of the game.

Key words: *fiscal policy, European Union, game theory*

JEL classification: E62, E63, N14, C71, C72

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1. INTRODUCTION

With the creation of the Economic and Monetary Union (EMU) in Europe a considerable interest has focused on the mix of monetary and fiscal policy in this new macroeconomic framework. Many governments view a tighter coordination[3] of economic policies as a prerequisite for a smoothing-functioning monetary union. Macroeconomic policy coordination has been one of the central issues in the theory and practice of macroeconomic policy design. This concerns both the coordination of macroeconomic policies within a country and between countries. In a contest of monetary union the economic policy of one country are fairly transmitted to the other countries through various channels in goods, labor, money and financial markets. The more is the spill-over effects, the higher the rational for policy coordination. Actually, in Europe, the discussion about the need for macroeconomic policy cooperation has intensified. Generally speaking, the issue of cooperation between monetary and fiscal policy has been examined in the literature mainly in the framework of game theory (Tabellini, 1986, Nordhaus, 1994, Beetsma, 2001). Apart from full cooperation, also partial cooperation regimes have been analyzed. The latter mostly employs static model framework where only a subset of the players cooperate in their policies. The Pareto efficient solutions are nevertheless difficult to reach if players are not able to commit themselves to binding agreements before executing their strategies. In the case of EMU, moreover, where fiscal authorities are independent and might not be willing to pre-commit to undesirable policies, cooperative games hardly can take place.

As most concerns in Europe, the issue of macroeconomic policy cooperation has been approached mainly in theoretical terms. The set of principles incorporated in the Maastricht Treaty and in the SGP refer to several, not better specified forms of coordination, defined as common procedural framework, exchange of information, common analytical framework, monitoring and joint determination of policies. We develop our analysis on the concept of coordination as used in game theory. A model based on the game theory framework also allows us to cover the more complicated form of coordination as those foresights by the EMU.

In the EMU, the problem of coordination between fiscal and monetary authorities is further complicated by the rather unique relationship between one common European monetary authority (ECB) and several independent national fiscal authorities, which have in turn a problem of coordination between them.

In order to analyze the game between the monetary authority and the national fiscal authorities in monetary union, the starting point is considering macroeconomic policy as conducted through two instruments, monetary and fiscal policy. It is generally accepted that the economic decisions made in one country can have significant spillover effect on other economies (Frankel and Rockett, 1986). This led to significant pressure for government to coordinate their economic policy.

Moreover, in the EMU, the Maastricht Treaty stipulates that the ECB should be independent from political control of the member countries. It means that the monetary policy of the ECB and the fiscal policies of the member countries are decided separately; therefore their interactions become a non-cooperative game. Depending on the structure of the game, this may yield Nash or Stackelberg equilibrium. Furthermore, it is likely that the ECB is more conservative, because of its price stability object, than the politicians who run the fiscal policies in the member countries, either by explicit mandate or by natural inclination. In this case, where monetary and fiscal policies affect outputs and inflation, the policymakers have possibly conflicting objectives. This conflict of objectives raises the possibility that the resulting equilibrium is suboptimal.

Logically, this lead us to accept the thesis, that coordination of fiscal policies under the neutrality of monetary policy runs by ECB could bring the players a higher pay-off measured by output stabilization and thus we can abstract from the interaction between ECB and national governments and just focus on fiscal authorities' strategic behavior.

[3] We use the definitions of coordination and cooperation as interchangeable.

2. LITERATURE REVIEW

The issues of full policy coordination between one country and other countries that cooperate across them have had a central place in the literature on the design of macroeconomic policies in the EMU. This is not surprising given that EMU is to a certain extent an "experimental laboratory" representing a very interesting case study.

In his seminal work, Tabellini (1986), analyzing the coordination between a single monetary authority and several independent fiscal authorities in the context of a game model, shows that policy coordination between the fiscal authorities and the common monetary authority increases the speed of convergence toward the common steady state as compared to the outcome of the non-cooperative game.

Turnovsky, Basar and d'Orey (1988), in a dynamic model, compare Nash, Stackelberg and Pareto solutions and find that the advantages from full-fledged cooperation are likely to be relevant.

Nordhaus (1994) considers the strategic relationship between one fiscal and one monetary authority. When a Nash game is played (with the central bank), the lack of cooperation (among fiscal authorities) is responsible for an inefficient policy mix, resulting in an excessively restrictive monetary and an excessively expansionary fiscal policy. The solution of Stackelberg game (with the fiscal authority playing as leader, taking the central bank's monetary reaction into account) dominates the Nash outcome. This result is explained by the difference in the objectives of the two authorities. The fiscal authority tries to fight unemployment by means of an expansionary policy, but the central bank reacts with a restrictive monetary policy to keep inflation under control. The outcome is a too expansionary fiscal policy in the Nash equilibrium and secondary effect is a crowding-out effect of private investments in favor of public expenditures. When the fiscal authority takes such behavior into account, and it plays the role of a Stackelberg leader, it will act in a less expansionary way, so as to allow the central bank to follow a less contractionary policy.

Beetsma and Bovenberg (1998) focus their attention on the interaction between monetary-fiscal policies in a monetary union. They found that a monetary union with decentralized fiscal policies and centralized monetary policy produces an inflationary bias and excessive spending on public goods. The main policy-making suggestion deduced from their study is that fiscal coordination or fiscal centralization may discipline the macroeconomic policy in the EMU member countries. The practical response to these studies calling for tighter coordination between monetary and fiscal policies at the European level was the creation of the SGP (Stability and Growth Pact) that limited the maneuver area for fiscal authorities in their expansionary fiscal policy driven by the government deficit (Bini Smaghi and Casini, 2000).

Indeed, as confirmed by Breuss and Weber (1999), who used a large-scale econometric model involving 10 EMU countries and the European Central Bank (ECB). They found that in the case of a full cooperation, where the 10 EMU countries simultaneously coordinate their fiscal policies with the monetary policy of the ECB, the welfare gains are very large for the whole EMU area. Noteworthy, not for each sample country cooperation leads to Pareto efficiency. However the strong fiscal and monetary policy impulses would lead to a violation of the fiscal targets envisaged in the Stability and Growth Pact (SGP). They seem to report a trade-off between full cooperation and SGP, which limiting the room for maneuver of fiscal policy for the EMU member states, also hinder the Pareto efficiency. Full-cooperation is the case of USA, where the evidence of higher fiscal deficits are obvious, but do not have negative impacts on the economic growth and macroeconomic stability. The studies comparing European model of SGP and American model of full cooperation (Sala-i-Martin and Sachs, 1991) report that full cooperation represented by fully centralized budget helps countries, which are hit by asymmetric shocks to attenuate the negative effect of the shock (decrease in output or increase in unemployment). The tool of full cooperation represented by centralized budget will soften the impact of the shock to 62% of its original impact. The real impact of the asymmetric shock in given country depends on two main factors: the size of the country and level of public debt (Canzoneri, Cumby and Diba, 2005).

In the case of a cooperative game only among the fiscal policies of the EMU member countries, in which the ECB stays outside, the fear of inflationary pressure due to an excessive expansionary fiscal policy will determine very small welfare gains. Their policy implication is straightforward: the SGP might have a very strong limiting impact on the efforts for a positive or active cooperation in EMU which would lead to more output and employment but will deal with interest rates and exchange rate disturbances, which can alter the equilibrium in investment and savings in EMU (Eichengreen and von Hagen, 1996).

Cooper and Kempf (2000) analyze monetary and fiscal policy interactions in a two-country model, with and without a monetary union, where the monetary and fiscal authorities agree on the macroeconomic

goals. When the monetary authority has leadership, a monetary union is Pareto-efficient. However, if the fiscal authorities have leadership, a monetary union is Pareto-efficient only if the aggregate shocks are highly correlated.

Van Aarle, Engwerda and Plasmans (2001) apply a two-country model in a contest of existing monetary union with decentralized fiscal authorities and a centralized monetary authority. The cases they consider include: non-cooperation; full cooperation; coalition between the two fiscal authorities; coalition between one fiscal authority and the monetary authority. Their main finding is that cooperation is often efficient for the fiscal players. Although in many simulations full cooperation does not induce a Pareto improvement for the ECB, while the governments' coalitions imply a considerable loss for the ECB compared to the non-cooperative and full cooperative cases.

De Bonis and Della Posta (2004) provide an analytical framework for the analysis of the monetary and fiscal interactions in an environment, which may represent the current European situation, characterized by a single monetary authority (ECB) and several fiscal authorities. Considering macroeconomic policy as implemented through two instruments, monetary and fiscal policy, and defined by two objectives, price and output stabilization, they justify the introduction of fiscal rule like those contained in the SGP.

Lambertini and Rovelli (2002) claim that with a common currency, the weaker EMU member states are exposed to greater competitive pressures, suffering higher levels of unemployment as a result of their lower productivity and competitiveness. Therefore, substantial transfer payments could be necessary. Alternatively, fiscal policy in each member countries can deviate from those in others and be used to counteract regional shocks. Thus, an active fiscal authority is necessary. What might be also necessary is an insurance mechanism against regional shocks. This may imply the need for a stronger political union too.

Table 1 Selected literature review

Authors	Research objectives	Research methodology	Outcomes – Findings
Tabellini (1986)	coordination between a single monetary authority and several independent fiscal authorities	context of a static game model	policy coordination between the fiscal authorities increases the speed of convergence
Turnovsky, Basar and d'Orey (1988)	coordination between fiscal authorities	context of a dynamic game model	full-fledged cooperation leads to advantages
Nordhaus (1994)	fiscal and monetary policy coordination	context of a strategic game model	given the difference in the objective function of the two players, the Stackelberg solution dominates Nash equilibrium
Beetsma and Bovenberg (1998)	interaction between monetary-fiscal policies in a currency area	context of a strategic game model	fiscal authorities coordination discipline the macroeconomic policy
Breuss and Weber (1999)	fiscal and monetary policy coordination	large-scale econometric model	full-cooperation generally leads to Pareto efficiency
Cooper and Kempf (2000)	fiscal and monetary policy coordination	context of a strategic game model	Stackelberg solution is Pareto efficient only if the aggregate shocks are symmetric
Van Aarle, Engwerda and Plasmans (2001)	interaction between monetary-fiscal policies in a currency area	two-country econometric model	cooperation is often efficient for the fiscal players
Lambertini and Rovelli (2002)	interaction between monetary-fiscal policies in EMU	context of a strategic game model	Stackelberg solution always dominates the Nash one, independently of who is the leader of the game
De Bonis and Della Posta (2004)	interaction between monetary-fiscal policies in a monetary union	analytical model	fiscal rule improve welfare

Virén (1999)	fiscal policy coordination in EMU	comparative analyses of automated stabilizers and fiscal effects under uncertainty based on cross-country 3 variables correlation	No or little fiscal policy coordination among OECD countries. Evidence of fiscal policy coordination among Scandinavian countries.
Frankel and Rockett (1986)	international macroeconomic policy coordination between two economies (USA and Europe)	coordination games of monetary and fiscal variables (Nash cooperative and non-cooperative equilibrium) using 8 econometric models	Confirmed welfare gains for the player, for which the econometric model turns out to be correct one. No gains or loss of welfare for the player, whose econometric model is incorrect. Fiscal policies of both players (public expenditures) are more adaptable (coordinated).
Canzoneri, Cumby and Diba (2005)	effects of common monetary policy and implications for fiscal policies of players	New Neoclassical Synthesis (NNS) Econometric Model	Common monetary policy, responding to area-wide aggregates, has asymmetric effects on countries within the EMU, depending on their size and debt level. Productivity shocks and monetary policy play dominant role compared to the fiscal shocks and policy. Fiscal authorities must obey macroeconomic conditions and common monetary policy and have no significant influence on the ECB ability to control inflation, thus ECB can behave non-cooperatively.

3 CONCLUSION

Our paper enriched the debate about the desirability of coordination between monetary and fiscal authorities in EMU. Recognizing that in EMU a particular framework relaying on independent and common central bank and more fiscal authorities exists, we focused on the strategic interaction that should occur among the latter in order to achieve the highest social benefits.

Considering current European discussions, it is found that the ECB has a rational to pursue an institutional design that does not enforce cooperation between fiscal authorities and let to the monetary authority a high degree of independence. Therefore, the ECB will try to promote fixed rules for European policy targets. On the other hand, governments will pursue a design based on strong cooperation among them, but leave them independent in cooperating their policies with the monetary policy of the ECB.

We reviewed previous researches focusing on the actual situation in EMU, where countries have common currency and separate fiscal authorities that run independent fiscal policies. In this paper we searched to interpret the implication of monetary and fiscal authorities coordination in EMU arisen from the well-known and widely accepted research published in last decades.

The main result shows that one important feature of the EMU is represented by the restrictions that Stability and Growth Pact imposes to the fiscal national authorities. The imposition of such restrictions is in line with the interest of the countries to provide a mechanism of control from fiscal indiscipline. But, at the same time, the fiscal restrictions do not represent an effective mechanism for coping with asymmetric shocks that can negatively influence the EMU economies. Empirically, it is emerged that fiscal restrictions that are not accompanied with a full cooperation (fully centralized budget) are more likely to exercise intense pressures on the central monetary authority.

As a suggestion for further research, it would be desirable to develop model, where monetary and fiscal authorities have possibly conflicting objectives regarding outputs, inflation and the tradeoffs among them. Such model could be based on Virén's recommendations.

As Virén (1999) mentioned in his work, there are several requirements for fiscal policy coordination. Fiscal policy coordination in reality will not take place, unless certain necessary requirements are fulfilled, that will allow players to behave in coordinated way and avoid free-riding non-cooperative behavior:

- the cyclical behavior of the economies and the nature of shocks must be similar,
- countries must have similar prerequisites for policy actions,
- the tax and transfer systems, as well as the budgetary process, must be similar so to provide similar automatic stabilizers,
- forecasts and the assessment of the current situations must be sufficiently accurate,
- effects of fiscal policy actions must be reasonably similar and predictable,
- the effectiveness (pay-off) of coordinated policy actions must be higher than un-coordinated actions,
- different countries must share the same policy view.

In fact, from our literature review it resulted that, independently from the type of shocks, coordination between fiscal national authorities is associated with larger governmental and social benefits, if above mentioned requirements for the policy coordination are met.

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