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The Eurozone needs exit rules

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ABSTRACT

This study argues that the key issue for defining and solving the Eurozone's (EZ) difficulties lies in readjusting the relationship between the centre and the periphery of the EZ. Our argument proceeds in two steps. Firstly, the basic finance problem of a centre-periphery system is captured by a threat game with complete but imperfect information. To get close to the essence of the current EZ sovereign debt crisis we analyse to what extent a 'troubled' periphery member can negotiate a bailout from the centre due to the existence of a negative externality arising from its potential default. Secondly, we analyse how establishing 'exit rules' would shift the centre-periphery relationship in a way that safeguards the stability of the EZ. We demonstrate that such rules may help limit the scope for brinkmanship whereby fiscal problems in one member state create a negative externality for the rest of the EZ. We then discuss key policy implications concerning financial aspects of the centre-periphery relationship within the EZ.

1. Introduction

With the spread of the European sovereign debt crisis suggestions abound as to how to save the Eurozone (EZ). Some commentators focus on the long-term challenges (see, e.g., Cooley and Marimon (2011) who are advocates for debt rules) while others address short-term stabilization issues (see, e.g., De Grauwe (2010) on the role of the European Central Bank (ECB) in stabilizing government debt markets or Delpla and von Weizsäcker (2010) who opt for the creation of so-called Eurobonds as a way to enlarging the EZ's financial fire power).

What brings many of the proposals together is the fact that they focus (predominantly) on economic factors and/or treat the EZ as a monolithic political organism. This study argues, however, that the key issue for defining and solving the EZ's difficulties lies in readjusting the relationship between the centre and the periphery of the EZ. The challenge is to create institutions that shift the EZ's centre-periphery relationship in a way that fosters stability. Our argument proceeds in two steps. Firstly, the basic financial problem of a centre-periphery system is captured by a threat game. To get close to the essence of today's crisis, we analyse to what extent a 'troubled' peripheral EZ member can negotiate a bailout due to the existence of a negative externality arising from its potential default. Following an exogenous shock, the periphery will make a decision whether to pursue politically costly austerity or resort to a brinkmanship strategy in order to pass some of the fiscal costs onto the centre, given that the long-term stability of the EZ is a joint public good. Secondly, we analyse how establishing 'exit rules', which have also been advocated, for example, by Delors (2011), would shift the centre-periphery relationship within the EZ.

The remainder of the study can be outlined as follows. In Section 2, we present a short overview of the literature and show how our discussion adds to it. In Section 3, we establish a theoretical threat game, which comprises a brinkmanship strategy (Section 3.1), a Rubinstein bargaining model (Section 3.2), and 'exit rules' that reshape the centre-periphery relationship within the EZ (Section 3.3). In Section 4, we provide numerical and graphical examples that highlight key empirical implications of our model. In Section 5, we discuss key policy implications. In Section 6, we summarise the main conclusions of the study.

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2. Literature

The EZ is a unique common currency area in that it is a monetary union among sovereign states, and not a federal state with a common fiscal policy, like the US. Early on, it was recognised that the absence of coordinated fiscal policies might be a potential 'hazard area' in the construction of the EZ because of the interactions between the member states' domestic policies (Bordo and Jonung, 1999). In particular, it has been argued that member governments might be tempted to engage in moral hazard behaviour. This is to say that such governments may generate unsustainable debts and push, for example, the ECB to inflate them away or run up high levels of debt that would create negative spillovers for others (Baldwin et al., 2010).

The nature of such interactions among members in multi-tiered systems (including the internal incentives and macroeconomic consequences) has first been systematically studied in the context of federations and later applied to the problem of monetary unions. For example, Rodden (2004) presents a game to study the role of central government commitment to a no-bailout clause in the event of the sovereign debt crisis of sub-national officials. In the game, sub-national officials decide whether to purse fiscal adjustment based on their beliefs about the credibility of the central government's commitment. When the commitment is credible, fiscal discipline is enforced by the voters and credit markets. But, if the central government's commitment is not fully credible, sub-national officials have incentives to pursue unsustainable borrowing. In this framework, intergovernmental grants are at the heart of the commitment problem. If sub-national governments were financed purely by local taxes, the voters and creditors would view the local government's obligations as being autonomous. If, on the other hand, the central government's tax capacity is high and sub-units rely on direct intergovernmental grants, one can expect a greater willingness by the sub-national units to avoid or delay adjustment, resulting in larger and more persistent deficits. After an empirical investigation into the tax capacity of the central units of the European Union (EU), the study concludes that there is little risk of fiscal indiscipline in the EMU. However, this study is based on a model that is not the model of a monetary union, but rather that of a fiscal federation. Therefore, it does not allow for an analysis of the specific effects that a common currency area could have on the fiscal outcomes in member states. Similar bailout problems have also been modelled as a sequential game driven by the central government's incentives by Wildasin (1997), who focuses on the structure of jurisdictions and by Inman (2003) who considers a range of other factors.

The recent sovereign debt crisis in Europe has sparked new attempts to apply game theory in the specific context of monetary unions. For example, Blueschke and Neck (2011) use a dynamic game model of a two-country monetary union to study the impacts of an exogenous fall in aggregate demand, the resulting increase in public debt, and the consequences of a sovereign debt haircut for a member country or bloc of the union. In their currency area, the governments of participating members pursue national goals when deciding on fiscal policies, whereas the common central bank's monetary policy aims at union-wide objective variables. The union consists of a 'core' with lower initial public debt, and a 'periphery' with higher initial public debt. The 'periphery' may experience a haircut due to the high level of its sovereign debt. The authors not only show that a haircut is disadvantageous for both the 'core' and 'periphery' of the monetary union, but they also provide an argument for coordinated fiscal policies in a monetary union.

The above strand of the literature sheds light on whether a particular strategy is more preferable to other strategies in terms of macroeconomic outcomes, such as 'debt restructuring' or 'no-debt-restructuring'. However, it does not address the issue of the institutional design of a monetary union in the context of the current EZ sovereign debt crisis. This issue has been taken up in a recent study by Suzuki and Tsuranuki (2011). They use a game-theoretic framework to analyse the mechanisms of EZ financial governance, with a focus on centralisation vs. decentralisation and incentive structures in the EU. Specifically, they construct a Stackelberg game with n ministries of finance within the EZ as the first movers, and the ECB as the second mover. They then show that such set-up creates an incentive to increase public debt (i.e. free-riding on other members). In particular, they show that an increase in the number n of ministries of finance or the number n of members will lead to a more severe free-rider problem. Within this framework, they analyse the solution to the free-rider problem through the penalty scheme in the Stability and Growth Pact (SGP). According to their analysis 'limited sovereignty' should be optimally imposed on the high marginal cost member. While our study also addresses the issue of the EZ's institutional set up, our approach is somewhat different. Firstly, we consider the case of a monetary union and assume that the stability of the EZ is a joint public good for which players are willing to pay, irrespective of the nature of the fiscal institutions. Secondly, we specifically focus on a negative externality problem which is central to the current EZ sovereign debt crisis, in which the refinancing difficulties of a small economy, for example Greece, which accounts for only 2% of the EZ's GDP, can endanger the whole monetary union. The key question is to what extent can such a 'troubled' EZ member successfully negotiate a bailout due to the existence of a negative externality ensuing from its potential default. Thirdly, we analyse how establishing 'exit rules' could influence the ability of a single EZ member to pursue such a credible threat strategy within the EZ.

3. The game

We shall consider a game between the centre (*CEN*) of the EZ, which is characterised by current account surpluses and a relatively sustainable level of public debt (think of Germany, Finland, Luxembourg, and the Netherlands) and the EZ's periphery (*PER*) which suffers from twin deficits (think of Greece, Ireland, Italy, Portugal, and Spain).[1] Both players are concerned about the expected electoral consequences of their policy decisions and they are concerned with preserving the smooth functioning of the EZ – i.e. 'EZ stability' as a joint public good. Both players will accrue the benefits of EZ membership in terms of efficiency gains stemming from the lower transaction costs in cross-border trade, increased specialization, competition and so on (see, e.g., Beetsma and Guiliodori, 2010 for a survey of the issues with a focus on the EZ).

The game starts with an exogenous shock to the periphery and shows to what extent a single *PER* can pass some of the 'fiscal adjustment costs' onto *CEN*. Given that *PER*'s potential default would create a negative externality for the rest of the EZ (i.e. contagion in the form of spreading defaults to other *PER* countries), this particular *PER* player could resort to a brinkmanship strategy. Such a negative externality represents a bargaining chip in the negotiations over redistributing *PER*'s 'fiscal adjustment costs'. Hence, within the scope and limits of brinkmanship strategies, *CEN* might be threatened to reveal its willingness-to-pay for 'EZ stability' and thus *PER* may effectively elicit financial assistance. The structure of the game is shown in detail in Fig. 1.

Specifically, a single PER_i (denoted as player $j = 1$, whereas $i = 1, \ldots, n$) has complete but imperfect information about a representative *CEN*'s (player $j = 2$) willingness-to-pay for 'EZ stability'. The point of departure is that PER_i faces an adverse fiscal shock

[1] In doing so, we rely on Fahrholz (2007) and Fahrholz and Wójcik (2012).