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Sovereign debt with heterogeneous creditors☆

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ABSTRACT

We develop a sovereign debt model with heterogeneous creditors (private and official) where the probability of default depends on both the level and the composition of debt. Higher exposure to official lenders improves incentives to repay due to more severe sanctions but it is also costly because it lowers the value of the sovereign's default option. The model can account for the co-existence of private and official lending, the time variation in their shares in total debt as well as the low rates charged on both. It also produces intertwined default and debt-composition choices.

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1. Introduction

The recent sovereign debt crisis in the Eurozone has exhibited diverse patterns regarding the composition of sovereign debt: Greece completely switched financing from private to official (other Eurozone members and the IMF) funds that carried a low interest rate. Italy did not receive any direct official loans and continued to rely on more expensive private funds. Other debt distressed countries, namely Ireland, Portugal and Spain, experienced a change in the composition of new funding towards cheaper official sources but nevertheless continued borrowing from private credit markets.

The canonical sovereign debt model Eaton and Gersovitz (1981); Arellano (2008) contains homogeneous creditors. It is thus ill suited to analyze the determinants of debt composition and to shed light on portfolio and default choices in sovereign crisis episodes like the recent European one. In this paper we extend the standard model by introducing creditor heterogeneity. We show that this extension has interesting implications not only for the debt composition but also for default choices.

Creditor heterogeneity may take various forms. For instance, creditors may differ with respect to the type and extent of monitoring activities they engage in; the characteristics of their debt contracts such as conditionality schemes or policy requirements; and so on. In our view, these differences can largely be encapsulated by a single factor, namely the severity of the costs that the sovereign suffers when defaulting against a particular class of creditors. We assume that one class of creditors, namely official, is endowed with stronger "enforcement power" relative to another class, namely

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private creditors. We elaborate on the justification for this assumption below.[1]

The more severe sanctions imply a lower probability of default on official funds and thus lower default risk premia and interest rates. This feature can explain the low interest rates charged on large official loans. But the low rates do not represent a "free lunch" for the borrower, otherwise borrowers would always prefer official to private credit. There is a countervailing force as official loans reduce ex-post policy flexibility: More severe default costs imply that debt is repaid in some states of the world (say, during a protracted, severe recession) in which the sovereign would have opted for default were the debt owned by private creditors instead.[2] The resulting trade-off shapes the sovereign's portfolio choice.

What does the availability of "cheap" official funds imply for the riskiness of private loans and the sovereign's demand for them? Holding total debt constant, a switch from private to official funds may make *private* loans more or less safe. The former outcome arises when higher default costs associated with official funds also apply to the private portion of total debt. Such an extension of "protection" can result either directly from the existence of pari passu provisions in debt contracts;[3] or indirectly, from the characteristics of default costs, for instance from the existence of fixed costs. In either case, private funds acquire the risk characteristics of official funds; they are priced accordingly; and borrowing from official sources can crowd in private loans. The opposite outcome—crowding out of private loans—may result when higher default costs associated with official funds *reduce* the cost of defaulting against private loans.

Holding private debt constant, an increase in the amount of official credit increases total liabilities. When higher total debt raises the probability of default against all creditors (such dilution is a standard property of the canonical sovereign debt model), then private loans become riskier. But private loans may also become safer when official credit serves to enhance the debtor country's repayment capacity, for instance if its provision requires the adoption of structural reforms[4] and the resulting "collateral creation" effects are strong enough to also benefit private creditors.[5]

Extension of protection and collateral creation effects appear to have been operative throughout the Eurozone debt crisis. Both policy statements and the fact that the dispensation of official credit has been accompanied by a significant compression of private sovereign loan spreads (even in Greece in the period prior to the last elections) suggest that private claims were perceived to have been placed under official protection.[6] They also indicate that markets have expected pressure by official creditors for debtor countries to undertake measures that enhance their repayment ability, such as downsizing the public sector, liberalizing markets etc.

Countries involved in debt crisis often differ in terms of the level of debt overhang. We show that such differences have important implications for the interaction between a country's decision to default and its choice of debt composition. First, long-term debt overhang may induce a sovereign to collude with prospective official creditors in order to wipe out *outstanding* privately held long-term debt, rendering freshly issued official loans safer and cheaper and thus benefitting both official creditors and the sovereign. While this implication is well known in the literature as it applies to any situation with fresh financing by a new group of creditors, it is accentuated in our model by the superior enforcement power of official creditors. The borrower has a stronger incentive to default because in addition to eliminating the debt overhang, he also gets the chance to borrow at more favorable terms than if all classes of creditors had equal enforcement power. That is, inexpensive official funding in the presence of debt overhang simply aggravates default incentives. This seems consistent with the Greek default experience. The second and more novel implication is that, under pari passu, a sovereign with large future obligations to private creditors who chooses *not* to default against them in the present will also try to stay clear of official loans in order to maintain the—large—option value of renouncing the private claims in the future.

Consequently, these two features, namely, more severe sanctions for default against official creditors and differences in the stock of outstanding privately held long-term debt allow the standard sovereign debt model to generate several interesting implications. First, that involvement of official creditors may suppress interest rates on sovereign debt issued to private creditors, even for heavily indebted countries. Second, that countries that have large borrowing needs will favor borrowing from official creditors, in particular when they also face acute credibility problems. And third, the combination of the two features can help shed light on the nexus of default and debt-composition patterns. The model implies that a country with high debt overhang is more likely to switch financing from private towards official sources of funding if she defaults. And to continue favoring private funds when she does not default. More specifically, the model has the implication that in the absence of default, the share of official funds in fresh borrowing depends negatively on the stock of outstanding long-term debt.

We derive the optimal debt portfolio by focusing exclusively on the demand side, that is, we assume that the supply of official and private credit is perfectly elastic. The introduction of supply considerations would not add much value given the focus of this paper (debt composition). Assuming, for instance, that the supply of official credit is increasing in the risk adjusted rate only implies that the equilibrium share of official in total debt as well as the amount of total debt falls; the qualitative properties of the model remain the

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[1] That the identity of the creditor can make a difference for the cost of default and hence the riskiness of the loan seems undisputed. For instance, there is a widely shared view supported by anecdotal evidence that loans by Mafia carry lower risk and thus a low interest rate because the incentive to repay such loans is much stronger than the incentive to repay other creditors due to Mafia's more extensive set of enforcement tools. Note that the alternative to a Mafia loan typically is no loan at all, that is a loan with a prohibitively high rate. Gambetta (1996) discusses how Mafia's protection and guarantees of safe conduct substitute for lack of trust in society.

[2] See Zame (1993) for a discussion of the insurance benefits of *implicitly* state contingent debt. Under incomplete markets, a country may trade a higher interest rate on its debt for the option to declare default in states where debt repayment would have been very costly. The desire by sovereigns to maintain a wider default option may explain both Spain's resistance to accept official loans as well as Greece's recent attempts under the previous government to switch away from inexpensive official to much more expensive private sources of funds.

[3] Zettelmeyer et al. (2013, p. 539) report that the new bonds issued by Greece after the 2012 default include pari passu clauses and are subject to "a co-financing agreement that created an exact symmetry between Greece's debt service to the new bondholders and its debt service to the EFSF related to the EFSF notes and bills that it had received for the purposes of the debt exchange. In the event of a shortfall in payments by Greece, a common paying agent committed to distributing this shortfall pro rata between the EFSF and the bondholders. Hence, the co-financing agreement made it difficult for Greece to default on its bondholders without also defaulting on the EFSF."

[4] The establishment of a credit relationship with official creditors has often been associated with measures that create or expand collateral, such as monitoring and conditionality.

[5] These benefits for private creditors may arise independently of whether default costs take the form of pure social costs suffered by the sovereign, or resources seized by the creditors. See the discussion in Appendix A .

[6] Anxious to avoid a crowding out of private funding, official lenders conceded that safeguards should be put in place to impede ex-post discrimination against their private counterparts. Consistent with this intention, the Greek debt exchange in Spring 2012 put private and official lenders (the EFSF) on an equal footing, see Zettelmeyer et al. (2013, p. 539). The Wall Street Journal (June 29, 2012, Investors Cheer Europe Deal) reports that Angela Merkel's agreement "to make ESM loans to Spain equal to Spanish bonds in creditors' pecking order was largely a recognition by Germany that this was necessary to protect Spain's ability to sell bonds ...." In another but related context, the recent New York court decision in the dispute between Argentina and Elliott Management regarding Argentina's default in 2002 has undermined the ex post preferred creditor status of certain lenders and provided a boost for pari passu.

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