



## DSF POLICY BRIEFS

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# Eurobonds are likely to increase the risk of joint defaults in the Eurozone

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### Summary

This policy brief argues that Eurobonds – while having the potential to reduce the risk of failures of individual countries – increase the risk that several Eurozone countries fail together. The argument is based on simple algebra showing that a pooling of resources increases joint failure risk. Eurobonds – sometimes labeled “stability bonds” – are thus likely to be detrimental to Eurozone stability.

The policy debate on Eurobonds is a long lasting one – and with many turning points. Although in late November leading EU officials have called for the introduction of “stability bonds”, such bonds were not part of the new EU treaty on fiscal discipline. In recent days the tide seems to be turning once again as the leaders of all main parties in the European parliament propose an amendment to the treaty that includes a roadmap for the introduction of such bonds.<sup>1</sup>

The defining property of most Eurobond proposals is a joint liability for government debt issued by Eurozone countries: rather than each member state standing behind its own debt, the idea is that all member states will be jointly guaranteeing the Eurozone debt. The rationale behind such Eurobonds is that they have the potential to reduce sovereign defaults in the Eurozone. They allow countries that come into troubles to benefit from the strength of other countries. This column argues that while this may indeed reduce the risk of sovereign default in individual countries – the reverse is likely to happen for the risk of a default of a larger number of countries in the Eurozone.

The argument is a simple one, and based on the insight that a pooling of resources increases joint failure risk (see Shaffer, 1990). Consider the following setup. There are two countries, A and B. In the absence of joint liability, each country defaults if its government's funds (or the capacity to raise funds),  $F$ , falls below some debt threshold,  $D$ .

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<sup>1</sup> See “Plan for eurobonds ‘road map’ in new treaty”, Financial Times, December 29th 2011.

Joint failures thus occur when each individual country is below the threshold, that is, when

$$F_A < D \text{ and } F_B < D \quad (1)$$

The funds a government can raise are subject to country-specific risk – such as arising from economic and political factors. This is what creates the rationale for common bonds. A country may still run into fiscal problems – but this is fine as long as the other country has enough room to raise funds to cover the shortfall.

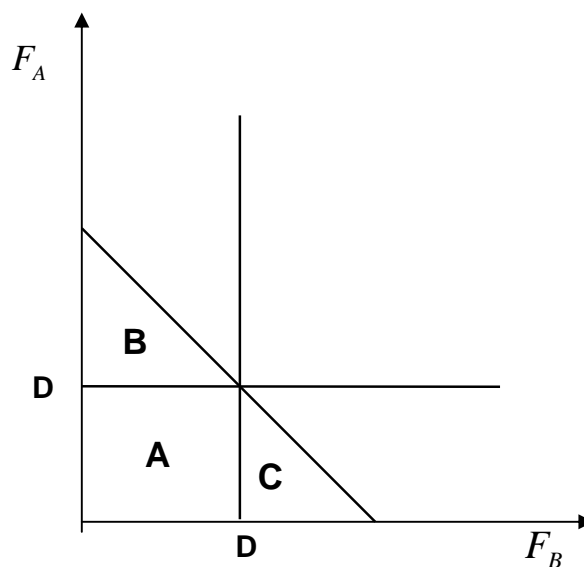
Suppose now that the two countries only issue debt for which they are jointly liable. This obviously completely eliminates the risk of individual failures – countries will either both survive or both default. Joint default will happen when the combined funds of the countries exceed their combined debt

$$F_A + F_B < 2D \quad (2)$$

Joint defaults necessarily incur more often than with national bonds – as condition (1) is stricter than condition (2).

What is the intuition behind this result? First, one should realize that there are no situations in which the introduction of Eurobonds averts a joint failure: when we have  $F_A < D$  and  $F_B < D$ , we necessarily also have that  $F_A + F_B < 2D$ . However, there are situations where there is a single default in the absence of Eurobonds but joint default with Eurobonds. This happens if one country is in significant difficulties while the other country is close to default but still manages to avoid default in the absence of Eurobonds (consider, for example,  $F_A = 0.8 \cdot D$  and  $F_B = 1.1 \cdot D$ ). Arguably, this is the situation we are facing in the Eurozone where countries with drastic problems (such as Greece) have the potential to drag down other countries that are in a relatively better shape but still weak in absolute terms (Germany).<sup>2</sup>

The potential for Eurobonds to increase joint defaults is exemplified by below figure. In the absence of joint bonds, country A and B default if their funds are individually less than D. Joint failures incur in area A. Under Eurobonds, joint failures occur when F is below the diagonal line, which is given by (2). It can be seen that this creates additional failures in areas B and C. Note that the potential effect is quite large: the area of failures is twice as large previously.



<sup>2</sup> Recall that supposedly-safe Germany has a debt-to-GDP ratio well above 80%. In addition, S&P's move in early December to put Germany's rating on negative outlook has been attributed by some commentators as being the result of the country's implicit guarantees of the debt of troubled European countries.

The increase in joint failures triggered by the introduction of common liabilities is a relatively robust property and does not depend on specific assumptions on the risks countries are subject to (see, Wagner 2010, for a formal analysis in the context of bank failures).

The result is also robust to the possibility of contagion. An objection to the simple setting considered above is certainly that avoiding failure of an individual country can also mitigate systemic defaults due to the risk of contagion. Suppose, for example, that default of one country makes default of the other country more likely by raising the default threshold to  $D+C$ . In such a situation, country B strongly benefits from the survival of country A if country B's funds are between  $D$  and  $D+C$ . However, it remains true that pooling increases joint failure risk. This can be appreciated by the fact that then all lines indicating default in the above figure will simply shift from  $D$  to  $D+C$  – preserving the fact that joint failures become more likely under common liabilities.<sup>3</sup>

The analysis suggests that Eurobonds trade off the failure risk of individual countries with the risk of a joint failure of Eurozone countries. As joint failures are likely to be particularly disruptive, Eurobonds are unlikely to be beneficial for overall Eurozone stability.<sup>4</sup> Note that this argument obtains even without taking account of moral hazard concerns – which would further increase the risk of joint failures (in the analysis of above – moral hazard at the country level can be interpreted as an increase in the debt threshold  $D$  – which obviously will lead to more failures of whatever sort).

Of course the introduction of Eurobonds may have other objectives than enhancing stability – such as increasing liquidity in the bond market – but these advantages can be reaped without joint liabilities using *synthetic European debt instruments*.<sup>5</sup> The idea behind the synthetic debt is to issue securities that are fully backed by (existing) national debt. For example, a European debt agency may purchase the debt of member states according to some fixed proportion and then issue securities backed by the payments on the underlying national debt. This would create a European debt security that is substantially safer than national debt due to diversification benefits. This single debt instrument would probably be also very liquid. And since the bond is fully backed by existing national debt, no cross guarantees are needed.

## References

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<sup>3</sup> Technically, there is now the potential for multiple equilibria when in both countries we have that  $F$  is between  $D$  and  $D+C$ . We presume here the worst case (in the sense that we assume a panic equilibrium) but this is not an essential requirement (see Wagner, 2010).

<sup>4</sup> Wagner (2010) shows (in the context of banking failures) that complete pooling is always undesirable if the cost of a joint failure of institutions exceeds the cost of a corresponding number of individual failures. Interestingly, however, the analysis also suggests that some (incomplete) amount of pooling is generally welfare enhancing.

<sup>5</sup> See Beck et. Al (2011) and Brunnermeier et. al. (2011) for two proposals.