

# POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICIES ECONOMIC AND MONETARY AFFAIRS

### **Eurobonds – Concepts and Implications**

### **Briefing Note**

#### **Abstract**

The main advantages of Eurobonds are increased liquidity of European bond markets (conditional on participation), protection from large market shocks and erratic market discipline, guaranteed funding for all Economic and Monetary Union (EMU) countries and an improvement in the international position of the Euro. The main disadvantages are possible free-riding problems, tensions with the no-bailout clause, credibility and political viability. By presenting the various proposals for introducing Eurobonds with their advantages and disadvantages, we hope to have clarified the messy discussion on Eurobonds in a more structured way. Especially the political viability may prove to be a large hurdle to be taken before starting any Eurobond scheme. As the author has argued before (Eijffinger, 2010), the Member States of EMU will first have to build a strong enforcement mechanism of fiscal discipline into the Stability and Growth Pact (SGP). That implies to strengthen the SGP's preventive arm by, amongst others, the introduction of a European Semester, as well as to strengthen the SGP's corrective arm by the enforcement of (semi-)automatic sanctions. In spite of all the possible benefits of Eurobonds, proper fiscal coordination and discipline will have to be agreed upon before embarking on a journey towards further European bond market integration, including the introduction of a Eurobond scheme.

IP/A/ECON/NT/2011-01

March 2011

(Part of the compilation PE 457.357 for the Monetary Dialogue) EN

This document was requested by the European Parliament's Committee on Economic and Monetary Affairs.

#### **AUTHOR**

Sylvester C.W. EIJFFINGER, CentER and EBC, Tilburg University and CEPR

#### **RESPONSIBLE ADMINISTRATOR**

Doris KOLASSA Policy Department Economic and Scientific Policies European Parliament B-1047 Brussels

E-mail: poldep-economy-science@europarl.europa.eu

#### LINGUISTIC VERSIONS

Original: EN Abstract: DE, FR

#### **ABOUT THE EDITOR**

To contact the Policy Department or to subscribe to its newsletter please write to: <a href="mailto:poldep-economy-science@europarl.europa.eu">poldep-economy-science@europarl.europa.eu</a>

Manuscript completed in March 2011. Brussels, © European Parliament, 2011.

This document is available on the Internet at:

http://www.europarl.europa.eu/activities/committees/studies.do?language=EN

#### **DISCLAIMER**

The opinions expressed in this document are the sole responsibility of the author and do not necessarily represent the official position of the European Parliament.

Reproduction and translation for non-commercial purposes are authorised, provided the source is acknowledged and the publisher is given prior notice and sent a copy.

### **CONTENTS**

CON.	TENTS	3
1.	INTRODUCTION	4
2.	OVERVIEW OF THE VARIOUS PROPOSALS FOR INTRODUCING EUROBONDS.	5
3.	IMPLICATIONS FOR FINANCIAL MARKETS AND ECONOMIC GOVERNANCE	. 12
4.	ARGUMENTS AGAINST THE INTRODUCTION OF EUROBONDS AND ALTERNATIVES	. 13
<b>5</b> .	CONCLUSION	.14
DFFF	PRENCES	15

#### 1. INTRODUCTION<sup>1</sup>

After last year's sovereign crisis, the euro area is still far from sailing in safe waters. Severe reforms have to be undertaken to guarantee the future of the Economic and Monetary Union (EMU). This has to start with the enlargement of the temporary stability fund to at least EUR 700 billion. Fortunately, this is currently a major point on the EMU political agenda. However, we simultaneously need a strengthening of the fiscal rules in the Stability and Growth Pact (SGP), especially when it comes to enforcement<sup>2</sup>. This should be a prerequisite for moving to the last reform, namely a permanent defense mechanism for the euro area. This would be a move towards making EMU a more integrated fiscal union. In December 2010, the European heads of state and government and the economics and finance ministers decided to introduce a permanent European Stability Mechanism (ESM) from 2013 on to replace the European Financial Stability Facility (EFSF). Recently, though, other ideas to guarantee the stability of the euro area have been put forward. In what follows, I am focusing on 'Eurobonds', to be defined as 'pooled' sovereign debt instruments of the Member States of the euro area. These have been the object of intense political debate lately. Proposals span from the possibly most cited Blue-Red Bond proposal by Bruegel to political manifests such as the one in December 2010 by Tremonti and Juncker. However, there is a need to understand the features and the policy implications of the different proposals, including their differences, more fully. To this end, let us first establish what a Eurobond solution should offer. Boonstra<sup>3</sup> has summarised this in five points. The introduction of Eurobonds could contribute to the better functioning of EMU in different ways:

- 1) Market discipline: the markets should be able to correctly discipline governments for good and bad behavior, instead of acting very erratically as they did last year. However, some authors doubt whether or not the markets are able to correctly discipline governments.
- 2) Fiscal discipline: these bonds will have to contribute to strengthening the enforcement of budgetary rules, i.e. those from the SGP. Some authors believe that Eurobonds could also weaken fiscal discipline.
- 3) Speculation deterrence: by guaranteeing stability of the Euro, the bonds should help to shelter from speculation in financial markets. However, Blommestein<sup>4</sup> concludes that there is no solid empirical evidence against speculation ('short-selling') and that it should be banned.
- 4) Market stability: the market for government bonds will be larger and more stable, sheltering from large swings in market sentiment.
- 5) Benefits for both strong *and* weak Member States: this is very important politically, as a large participation rate is vital for the Eurobond proposals to succeed.

All proposals discussed in this paper satisfy these demands, at least to some degree. In the next section, the most important proposals will be analysed and discussed with their advantages and disadvantages respectively.

<sup>3</sup> Boonstra 2010.

<sup>&</sup>lt;sup>1</sup> The author gratefully acknowledges the very helpful comments of Professor Hans Blommestein and Dr. Wim Boonstra and the excellent research assistance of Mr. Rob Nijskens, M.Sc.

<sup>&</sup>lt;sup>2</sup> Eijffinger, 2010.

<sup>&</sup>lt;sup>4</sup> Blommestein 2010.

# 2. OVERVIEW OF THE VARIOUS PROPOSALS FOR INTRODUCING EUROBONDS

Favero and Missale<sup>5</sup> have summarised the most recent proposals for Eurobonds. They conclude that the proposed Eurobonds can improve on liquidity and default risk over sovereign debt, while these bonds also ensure continued market access for all Member States. Moreover, they are able to protect against speculative attacks and improve the position of the Euro as an international reserve currency. Concerning economic governance, the bonds can lead to improved budget discipline, reduce the probability of a bailout and, ultimately, lower costs for the taxpayer. However, the realisation of these benefits hinges on credible cooperation and commitment, a high enough participation rate and the credibility of fiscal discipline and the no-bailout clause. Additionally, flexibility in debt management is reduced and set-up costs may be very high.

Let us now consider the various Eurobond proposals, and describe their basic concepts and differentiating features (summarised in Table 1). The first proposal for the introduction of Eurobonds has been made by Boonstra. It is also one of the most detailed and analysed proposals. He proposes to move from national to central financing for all public debt, thereby abolishing the possibility for countries to separately raise debt on financial markets. A newly to be established independent 'EMU fund' will issue Eurobonds, and lend the funds raised to the participating EMU countries at a premium over the Eurobond rate. This premium will be based on deficit and debt deviations from the average levels of Germany and France. Only countries performing worse than Germany and France will pay a premium. The formula for this premium looks as follows:

$$R(i) = a[O(i) - O(m)] + b[S(i) - S(m)],$$

where

R(i) is the margin payable by country i over the funding costs of the EMU fund,

O(i) is the government deficit ratio of country i,

S(i) is the government debt ratio of country i,

the variables O(m) and S(m) represent the average for French and German government deficit and government debt, and

the parameters *a* and *b* are coefficients, used to determine the weight of the relative performance. These coefficients have to be determined ex ante; see also below.

Figure 1 illustrates the hypothetical case where the EMU fund is introduced in 2000 and *a* and *b* are set to 0.25 and 0.02, respectively. The total premium over the EMU fund rate is for Belgium, Italy, Portugal and Spain since the start of the financial crisis in 2008 around 100 basis points or less. For the countries that were bailed out by the EFSF – Greece and Ireland – the total premium spiked to respectively 300 and 700 basis points in 2009 and 2010 to decline to less than 200 basis points at the beginning of 2011.

It should be noticed that the total premium over the EMU fund rate is very much depending on the setting of the parameters *a* and *b*.

-

<sup>&</sup>lt;sup>5</sup> Favero and Missale (2010).

<sup>&</sup>lt;sup>6</sup> Boonstra 2005, 2010.

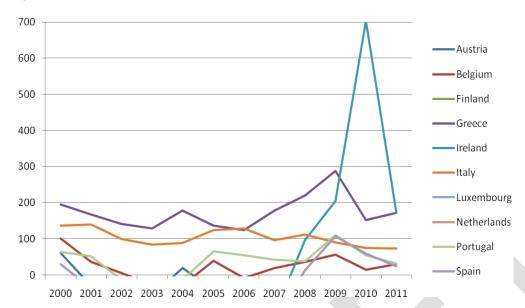


Figure 1: Total premium (basic points) over the EMU fund rate

Source: Author's calculations, based on data from OECD Economic Outlook No. 88.

This proposal is very straightforward, and has several advantages: average borrowing costs will decrease, fiscal policy quality is reflected in interest rates, and countries face a more gradual discipline from the EMU fund instead of that of erratic financial markets. However, the proposal also has some strong requirements. First, participating countries have to agree not to engage in monetary financing or directly approach financial markets for funding. This behaviour, like defaulting on the debt to the EMU fund, will be punishable by sanctions imposed by the fund. Second, participation is voluntary. However, Boonstra argues that the large liquidity and stability benefits of participating will ultimately convince all countries to participate. When countries have decided voluntarily to participate, then they are fully committed to the costs and benefits of the EMU fund. Additionally, not joining this program will be a bad signal to financial markets, thereby increasing borrowing costs. Finally, credibility of the EMU fund has to be very high, so as not to break with the nobailout clause introduced by the Maastricht Treaty. This is also essential to generate enough fiscal discipline. Some other issues with this proposal may be the setting of the parameters and the base rate, and the practical and political implementation; mainly the transition from the current regime to the new one. Fortunately, many studies have looked into the first issue and as such we can draw from this literature to set the values for the parameters<sup>7</sup>.

The practical implementation will have to be dealt with in the political arena, in particular the setting of the parameters. Notice that these parameters are also depending on the enforcement of the revised SGP (automatic sanctions).

The proposal by De Grauwe and Moessen<sup>8</sup> is formulated in a simpler and more modest way. They propose a scheme in which an EU institution, i.e. the European Investment Bank (EIB), issues Eurobonds.

\_

<sup>&</sup>lt;sup>7</sup> see i.a. Mayordomo et al. 2009.

<sup>&</sup>lt;sup>8</sup> De Grauwe and Moessen 2009.

The share of Member States in this scheme will be based on the EIB equity share, and the coupon rate on these bonds is a weighted (by the same shares) average of the yields in the national government bond market. Then, the proceeds from this issue will be allocated to

Member States in the same way. Finally, the participating countries will pay the same rate as they pay on their own government bonds, thereby eliminating free-riding possibilities. This proposal will guarantee funding for all Member States, and safety for investors in these bonds, while there can be no free-riding by weaker countries. However, it may also raise issues such as the sharing of collective responsibilities, the possible existence of implicit guarantees by stronger countries participating in the scheme (they will not want to let it break down) and the determination of the yield to be paid, as national bond markets may be distorted when Eurobonds are introduced.

Furthermore, Delpla and von Weizsäcker<sup>9</sup> propose another variant of the Eurobond, in a scheme that is lies between the abovementioned two proposals. Their proposal states that EU countries should pool their debt to a maximum of 60% of GDP (the Maastricht limit), in so-called 'blue bonds'. Beyond the 60% level, countries will have to go to the capital market on their own, which will lead to higher borrowing costs. This part of the debt is called the 'red debt'. This leads to a tranching of debt: the blue bonds will be senior, more liquid (as they are pooled) and subject to lower default risk, while the red bonds will be junior, illiquid and subject to the same default risk as before. As the red debt carries higher costs, countries will have an incentive to consolidate their budget as to bring their debt to below 60% of GDP.

Several institutional details will have to be arranged for. First, the distribution of gains and costs will have to be stipulated, preferably on the basis of fiscal positions. This can for instance be achieved by linking the blue bond quota to fiscal discipline, with a minimum of zero and a maximum of 60% of GDP. Second, an agreement to not borrow 'on the side' has to be signed, to guarantee the credibility of the scheme's discipline. Third, an orderly and stable process for allocation of blue bonds has to be set up, preferable in an independent body that can decide on the credibility the participating countries' fiscal policies. This also pertains to the no-bailout guarantees that have to be built into this scheme: an orderly bankruptcy procedure has to be arranged for countries defaulting on their red debt, so as to prevent another sovereign crisis. Finally, the transition from the current situation to the blue/red bond system has to be arranged. Delpla and von Weizsäcker propose a phasing out of national debt, by letting blue and red bond issues replace national bonds. They state that a debt restructuring is also possible if the scheme has to be implemented faster. As a final point, the authors argue that countries have several incentives to participate. First, the liquidity of a large part of their debt improves, leading to lower borrowing costs. Second, countries with weak fiscal policies can use the scheme as a commitment device for improving their budget.

Finally, they state that strong countries do not have to worry about having to pay for a bail-out anymore. However, this advantage completely depends on the credibility of the set-up.

A last proposal has come from the political arena, and is a very practical approach to Eurobonds. Juncker and Tremonti<sup>10</sup> propose that an independent European Debt Agency (EDA), a successor to the current stability fund, issues Eurobonds. It should finance up to 50% of EMU member issues, to guarantee a deep and liquid market. Furthermore, the EDA should offer a transition from national bonds to Eurobonds.

<sup>&</sup>lt;sup>9</sup> Delpla and Von Weizsäcker 2010.

<sup>&</sup>lt;sup>10</sup> Juncker and Tremonti 2010.

This transition should take place at a discount on national bonds (higher for countries with weak budgets), to make the Eurobonds attractive for investors. This will immediately force countries to improve deficits. The proposal again leads to lower borrowing costs, shelter from market shocks and speculation, and reduction of moral hazard through automatic fiscal discipline. Moreover, the authors argue that taxpayers will not have to foot the bill, as the EDA will realise a profit from converting national bonds at a discount. However, the proposal is quite ad hoc: the set-up of an EDA is not discussed in detail, and no estimates of the discount or the EDA's interest rate are given. More in-depth analysis is necessary to assess the merits of this proposal.



#### Table 1: Comparison of the various proposals for introducing Eurobonds

#### Boonstra (2005, 2010)

- Central financing through EMU fund, replacing sovereign bonds
- Spread based on deficit and debt deviations from target or average
- Clear sanctions when rules are breached, i.e. in case of non-payment
- Voluntary participation, but strong signalling effects from participation
- Benefits for weak and strong countries

#### Advantages

- + Increase in liquidity, lower costs
- + More gradual market discipline
- Shelter against speculation & shocks
- + Objective implementation
- + Early warning for budget problems

#### Disadvantages

- How to set the parameters?
- What should be the base rate?
- Practical/political implementation
- Possible tension with no-bailout

#### De Grauwe and Moesen (2009)

- EU institution issues Eurobonds with average yield of participating countries
- Governments pay the same rate as before on their national debt
- Everything is based on equity share in European Investment Bank
- Benefits will realize for weak countries mainly

#### Advantages

- + Increase in liquidity (only for the weak euro area countries)
- + No free-riding in borrowing rates
- Shelter against speculation & shocks
- + Objective implementation
- + Guaranteed funding

#### Disadvantages

- How to share responsibilities?
- Implicit guarantees by stronger states
- National markets may be distorted
- No far-going integration
- Cutting up of the European market for public debt

#### Delpla and von Weizsäcker (2010)

- Blue (senior) bonds up to 60% of GDP, and red (junior) bonds beyond the threshold
- Beyond this margin, fiscal discipline will be needed to reduce debt to below 60% of GDP
- Independent administration by a newly to be established stability council
- Orderly bankruptcy procedure for red debt to minimise disruptive defaults
- Benefits for all countries participating

#### Advantages

- + Simple proposal
- Increase in liquidity, lower costs up to 60% of GDP blue bond ceiling
- + Automatic, explicit fiscal discipline
- Less disruptive defaults for red debt
- + Limited joint guarantees and liability

#### Disadvantages

- Full participation necessary
- Credible commitment necessary
- Administration must be independent
- Transition may be messy
- Limit to 'side financing' needed
- Cutting up of the European market for public debt

#### Juncker and Tremonti (2010)

- European Debt Agency, successor to stability funds, issues Eurobonds
- Transition from national to Eurobonds at a discount
- Creates a liquid global market for Eurobonds

Advantages		Disadvantages		
	+	Simple proposal	-	Ad hoc proposal
	+	Transition is accounted for	-	No institutional details given
	+	Lower rates exercise discipline	_	Independence necessary

To summarise this section, we can list the differentiating features of the abovementioned proposals. The dimensions on which we can distinguish the proposals are the degree or amount of funding obtained, the institutional set-up of the bond issuer, the way in which participation is organised and the calculation of the borrowing costs. They are summarised in Table 2 below. Since the proposal by Juncker and Tremonti is not very detailed and very similar to the other proposals, this is left out. We can see that most proposals aim at complete centralised funding in the long run, they all require some form of independent issuer, participation is voluntary (but very much encouraged) and that borrowing costs depend on fiscal discipline, in one way or the other.

Table 2: Differentiating features of the various proposals for Eurobonds

	Boonstra (2005, 2010)	De Grauwe and Moessen (2009)	Delpla and von Weizsäcker (2010)
Funding degree	Complete replacement of national markets	Eurobonds are complements to national bonds	Eurobonds are complements, but national debt is made very unattractive
Institutional set- up	Independent institution issues bonds centrally. No individual issuance by members	EU institution issues bonds, making use of existing set-up	Independent institution allocates issuance quota, countries issue themselves
Participation	Voluntary, but staying out is a bad signal (no opting out)	Voluntary, but limits on debt	Voluntary, but limits on debt and opting out is a bad signal
Calculation of rates	Based on deviation from fiscal thresholds	Based on EIB equity share	Based on market rates, different for blue and red bonds

# 3. IMPLICATIONS FOR FINANCIAL MARKETS AND ECONOMIC GOVERNANCE

As mentioned in the overview above, the different proposals have important implications for borrowing cost, the liquidity of European bond markets and market discipline in general. We can safely state that borrowing costs in all proposals will decrease for all countries with weak fiscal policies. However, depending on the institutional set-up countries with a strong fiscal discipline will not gain (Boonstra) or only little (De Grauwe and Moesen). This implies redistribution from strong countries to weak countries, especially considering the possible tensions with the no-bailout clause that are implicit in all proposals (see also below). The liquidity of European bond markets, however, will improve almost certainly. Although this depends on the degree of participation in the different schemes, a unified bond market for Europe will send a strong signal to financial markets. Finally, market discipline may decline or increase; this differs for every proposal. While Boonstra's proposal replaces market discipline by EMU fund discipline, Delpla and von Weizsäcker argue that market discipline will become stronger, especially at the margin between blue and red debt.

This brings us immediately to the question what the issuance of bonds with joint guarantees implies for economic governance in the euro area and the legislative proposals currently under discussion. Of course, this completely depends on the credibility of the institutional set-up of the scheme. Especially France and Germany are concerned about moral hazard issues, which can ensue when market discipline is not replaced by fiscal discipline through a proper independent institution. This danger is present in the proposal by De Grauwe and Moesen, but less so in the other three. Especially the proposal by Boonstra, if political agreement on this can be reached, will provide strong fiscal discipline as the EMU fund can set independently the importance of deficit and debt consolidation. It follows that Eurobonds can only succeed with a strong underlying economic governance structure that has to be independent, credible and effective in setting sanctions. Otherwise, they will simply lead to a redistribution of costs from weak to strong states and a strong violation of the no-bailout clause. However, the structure has to be agreed upon before setting up any Eurobond issuance scheme. This means that the political discussion has to lead to follow-up of the stability fund, namely a revision of the SGP as I have argued before 11. This reform has to give the SGP more teeth, so as to be able to enforce the fiscal rules better. When this has been done, one can start thinking about a Eurobond issuance scheme.

-

<sup>&</sup>lt;sup>11</sup> Eijffinger, 2010.

## 4. ARGUMENTS AGAINST THE INTRODUCTION OF EUROBONDS AND ALTERNATIVES

As mentioned in the section above, there is much (political) opposition against these proposals, mainly from the stronger Northern euro countries. The arguments against focus particularly on the redistribution of costs, the explicit and implicit guarantees from strong to weak countries and the practical hurdles to be taken. Issing<sup>12</sup>, for instance, is very worried that the introduction of a Eurobond would lead to moral hazard issues in fiscally weak countries, at least in the short run, and to higher costs for countries with sound fiscal policies. This means that it is politically very hard to 'sell' the proposal to taxpayers in these countries. The only solution viable in the long run is a credible commitment by all EMU members to reform and fiscal discipline. Kösters<sup>13</sup> agrees with this standpoint, and notes that Eurobonds with joint guarantees by all EMU members will violate the no-bailout clause introduced by the Maastricht Treaty. He argued then that bail-outs have to be ruled out at all costs. Of course, the bail-outs have already taken place.

Becker<sup>14</sup> argues the same point, adding that Eurobonds make very explicit the burden sharing among Member States in case of an impending default. He notes that this implies a risk of increasing euro-scepticism in Member States with AAA-rated debt. To resolve this, he suggests several alternatives. A possibility to improve liquidity in the market for sovereign debt is an alliance of countries with the same rating. However, this option is not very likely as these countries cannot gain much from pooling their debt. Another alternative is for small and medium-sized countries to pool their bond issues, akin to the German federal system. This however, hinges again on the imposition of fiscal discipline in these countries. A third option is to have EMU countries qualify for participation in a Eurobond scheme by consolidating in boom times. This may succeed, although it does not discipline Germany or France and requires a reform of the SGP. A last alternative proposal is the creation of a liquid short-term debt instrument by Germany and France, thus competing with US T-bills. This would greatly increase European bond market liquidity, but does not address any fiscal discipline issues nor strengthen the international position of the Euro.

The discussion above leads me to conclude that a thorough reform of the fiscal rules is a firm prerequisite for any Eurobond scheme to succeed. Without a strong fiscal basis, any proposal for joint bond issuance will be built on quicksand.

<sup>&</sup>lt;sup>12</sup> Issing 2009.

<sup>&</sup>lt;sup>13</sup> Kösters 2009.

<sup>&</sup>lt;sup>14</sup> Becker 2010.

#### 5. CONCLUSION

The main advantages of Eurobonds are increased liquidity of European bond markets (conditional on participation), protection from large market shocks and erratic market discipline, guaranteed funding for all EMU countries and an improvement in the international position of the euro. The main disadvantages are possible free-riding problems, tensions with the no-bailout clause, credibility and political viability. By presenting the various proposals for introducing Eurobonds with their advantages and disadvantages, we hope to have clarified the messy discussion on Eurobonds in a more structured way.

Especially the political viability may prove to be a large hurdle to be taken before starting any Eurobond scheme. As I have argued before, <sup>15</sup> the Member States of EMU will first have to build a strong enforcement mechanism of fiscal discipline into the SGP. That implies to strengthen the SGP's preventive arm by, amongst others, the introduction of a European Semester, as well as to strengthen the SGP's corrective arm by the enforcement of (semi-) automatic sanctions. In spite of all the possible benefits of Eurobonds, proper fiscal coordination and discipline will have to be agreed upon before embarking on a journey towards further European bond market integration, including the introduction of a Eurobond scheme.



<sup>&</sup>lt;sup>15</sup> Eijffinger, 2010.

#### REFERENCES

- Becker, W., The Creation of a Common European Government Bond, Arguments Against and Alternatives, Cahier Comte Boël, No. 14, ELEC, April 2010.
- Blommestein, H.J., A Public Debt Management Perspective on Proposals for Restrictions on Short Selling of Sovereign Debt, *OECD Journal: Financial Market Trends*, Vol. 2010 (2), November 2010.
- Boonstra, W.W., Towards a better Stability Pact, Intereconomics, Vol. 40 (1), January/ February 2005, pp. 4 – 9.
- Boonstra, W.W., The Creation of a Common European Bond Market, Cahier Comte Boël, No. 14, ELEC, April 2010.
- De Grauwe, P. and W. Moesen, Gains for all: a proposal for a common euro bond, *Intereconomics*, May/June 2009, pp.132 135.
- Delpla, J. and J. von Weizsäcker, The Blue Bond Proposal, *Breugel Policy Briefs* 420, Bruegel, Brussels 2010.
- Eijffinger, S.C.W. (2010), Legislative proposals on EU economic governance: what is missing within and beyond?, Briefing Paper for the Monetary Dialogue of the European Parliament with the President of the European Central Bank, European Parliament, Brussels.
- Favero, C.A. and A. Missale, EU Public Debt Management and Eurobonds, Chapter 4 in Euro Area Governance - Ideas for Crisis Management Reform, European Parliament, Brussels 2010.
- Issing, O., Why a Common Eurozone Bond Isn't Such a Good Idea, White Paper No. 3, Center for Financial Studies, Frankfurt 2009.
- Kösters, W., Common euro bonds no appropriate instrument, *Intereconomics*, May/June 2009, pp. 135 138.
- Mayordomo, S., J. I. Pena, and E.S. Schwartz, Towards a Common European Monetary Union Risk Free Rate, *NBER Working Paper Series*, No. 15353, September 2009.
- Tremonti, G. and J.C. Juncker, E-bonds would end the crisis, The Financial Times,
   December 2010.