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## **PUBLIC GUARANTEES ON BANK BONDS: EFFECTIVENESS AND DISTORTIONS**

by

Giuseppe Grande, Aviram Levy, Fabio Panetta and Andrea Zaghini\*

### Abstract

The government guarantees on bank bonds adopted in 2008 in many advanced economies to support the banking systems were broadly effective in resuming bank funding and preventing a credit crunch. The guarantees, however, also caused distortions in the cost of bank borrowing. Their reintroduction might help alleviate the current pressures on banks caused by the sovereign debt crisis, but the pricing mechanism should ensure a level playing field. Moreover, given the sharp deterioration in the creditworthiness of sovereign borrowers, it may be envisaged to entrust the provision of the guarantees to a supranational organization.

JEL Classification: G12, G18, G21, G28, G32.

Keywords: banks; corporate bonds; financial crisis; government guarantees.

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### OECD work on financial sector guarantees

OECD work on financial sector guarantees has intensified since the 2008 global financial crisis as most policy responses for achieving and maintaining financial stability have consisted of providing new or extended guarantees for the liabilities of financial institutions. But even before this, guarantees were becoming an instrument of first choice to address a number of financial policy objectives such as protecting consumers and investors and achieving better credit allocations.

A number of reports have been prepared that analyse financial sector guarantees in light of ongoing market developments, incoming data, discussions within the OECD Committee on Financial Markets. The reports show how the perception of the costs and benefits of financial sector guarantees has been evolving in reaction to financial market developments, including the outlook for financial stability. They are available at [www.oecd.org/daf/fin](http://www.oecd.org/daf/fin).

- Financial safety net interactions
- Deposit insurance
- Funding systemic crisis resolution
- Government-guaranteed bank bonds
- Guarantees to protect consumers and financial stability

As part of that work, the Symposium on “Financial crisis management and the use of government guarantees”, held at the OECD in Paris on 3 and 4 October 2011, focused on bank failure resolution and crisis management, in particular, the use of guarantees and the interconnections between banking and sovereign debt. Conclusions from the Symposium are included at the back of this article. This article is one of nine prepared for presentation at this Symposium.

- Managing crises without guarantees: How do we get there?
- Costs and benefits of bank bond guarantees
- Sovereign and banking debt interconnections through guarantees
- Impact of banking crises on public finances
- Fault lines in cross-border banking: Lessons from Iceland
- The macro-prudential authority: Powers, Scope and Accountability
- Effective practises in crisis management
- The Federal Agency for Financial Market Stabilisation in Germany
- The new EU architecture to avert a sovereign debt crisis

## 1. Introduction

The exacerbation of the financial crisis which followed the collapse of Lehman Brothers in October 2008 led the Governments of several advanced economies to use unprecedented amounts of state aid to support the financial sector. The measures taken with regards to the banking system targeted both sides of bank balance sheets and included capital injections to strengthen banks' capital base, reinforced deposit insurance to prevent bank runs, explicit guarantees on liabilities to help banks retain access to wholesale funding, and purchases or guarantees of impaired "legacy" assets to lessen banks' exposure to large portfolio losses. The immediate aim of this massive intervention was to avoid widespread failures and to restore normal financial intermediation.

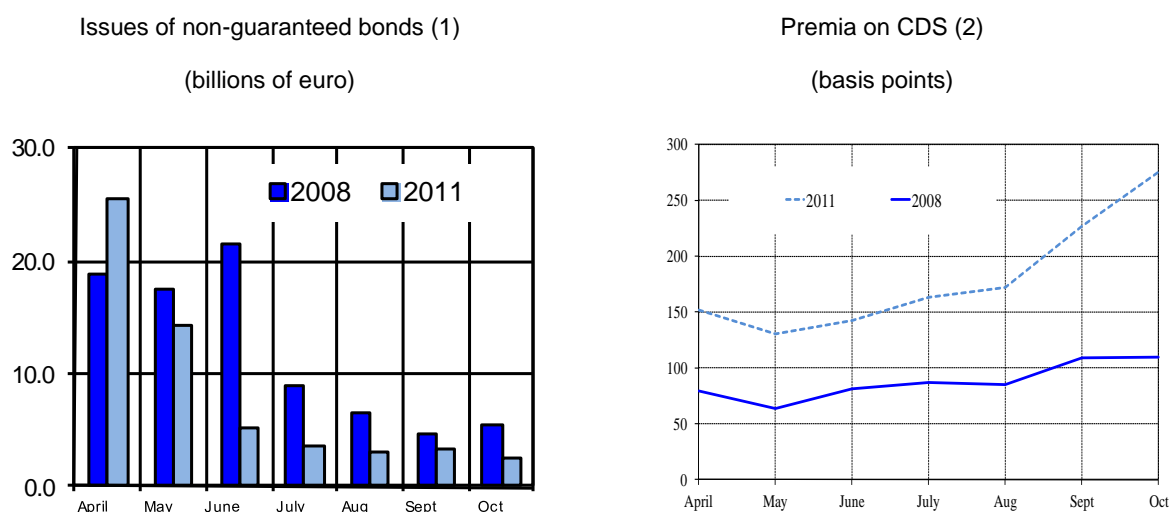
One of the most valuable tools were explicit government guarantees against default on bank fixed income debt and other non-deposit liabilities, which helped banks to preserve access to medium-term funding at a reasonable cost, offsetting the drying-up of alternative sources (such as securitisation) and the widening of spreads. The guarantee schemes varied from country to country in terms and conditions, as did the amount of funds pledged, but there were some basic common characteristics: the eligible instruments (newly issued senior unsecured debt), the eligible institutions (primarily domestic banks), a limit for each bank on the amount of issuance to be guaranteed, fees for the access, and a specified time window for availability.<sup>1</sup>

Guarantees proved effective in restoring bank funding. In the course of 2009 financial market conditions improved to the point that at the end of 2009 and in early 2010 most countries discontinued their guarantee schemes (among them the United States, the United Kingdom and France). However, precisely at the end of 2009, the financial crisis that started in August 2007 took a different turn: credit risk shifted from the banking system to the sovereign sector, reflecting the latter's burden of rescuing banks and supporting growth. Throughout 2010 and 2011 the sovereign debt crisis has been steadily intensifying and has affected a growing number of euro area countries, starting with smaller countries such as Greece, Portugal and Ireland, but subsequently (July 2011) extending also to larger countries such as Italy and Spain. The unfolding of the sovereign debt crisis in 2010-11, the policy response and the escalation of tensions in Summer 2011 go beyond the scope of this paper. It is worth emphasising, however, that in the period July through October 2011 the conditions of bank wholesale funding markets were worse than those observed in the run-up to Lehman's default in September 2008 (see Figure 1): the drying up of wholesale unsecured bond issuance has been sharper and the cost of insuring (CDS premia) against a default of bank bonds is much higher.

The purpose of this paper is to review the experience of the guarantee schemes adopted in Autumn 2008, assessing with hindsight their effectiveness and their costs (including those represented by distortions and moral hazard). The assessment is carried out not only in order to provide a stocktaking exercise, three years after their adoption and with most schemes having been discontinued, but also with a view to judge whether those schemes may be resumed in the current juncture (late 2011), taking into account the changed financial landscape.

The paper is organised as follows. Section 2 describes the main features of the guarantee schemes adopted in 2008 in the context of financial sector rescue measures. Section 3 examines the effectiveness of guarantees in resuming bank funding and preventing a credit crunch. Section 4 asks under what conditions a reintroduction of the guarantee schemes of 2008 may be desirable, in light of the distortionary effects they had on bank competition. Section 5 assesses whether a reintroduction is feasible, considering that the sovereign debt crisis of 2010-11 has sharply reduced the value of public guarantees. Section 6 draws some conclusions.

**Figure 1: Recent conditions in bond markets for European banks, and comparison with 2008**



Sources: Dealogic, Bloomberg

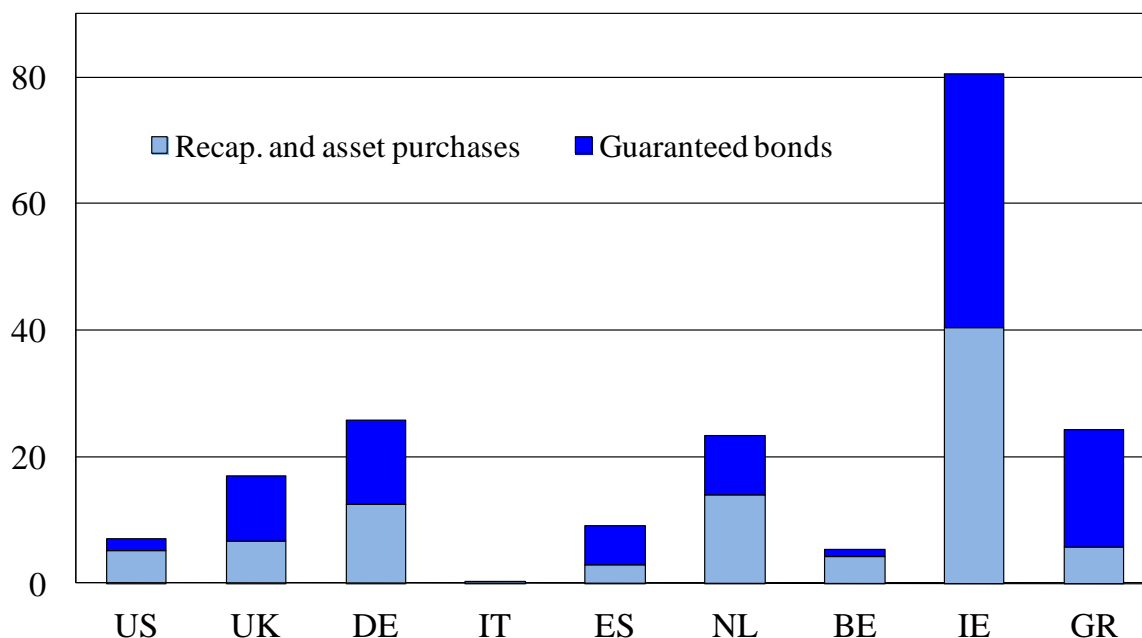
Notes: (1) Gross issuance of non-guaranteed and unsecured bonds by euro area and UK banks on wholesale markets. (2) CDS premia on the "iTraxx financials" index.

## 2. Guaranteed bank bonds in the context of the rescue measures adopted in 2008

The financial sector support measures adopted in Autumn 2008 by the governments of several advanced economies can be divided into three main groups: (i) guarantees on new debt securities; (ii) capital injections; (iii) asset purchases and asset guarantees. In most countries guarantees on bank debt turned out to be one of the favourite tools, largely because the guarantees do not have an immediate impact on the budget deficit since they represent a contingent liability. As can be seen in Figure 2, in several countries the volume of "indirect support" through guaranteed issuance (in terms of GDP) was larger than or equal to the amount of "direct support" via capital injections and asset purchases.

**Figure 2: Government support to banking systems as a ratio to GDP**

(percentage of GDP)



Sources: IMF Fiscal Monitor 2011; Bloomberg.

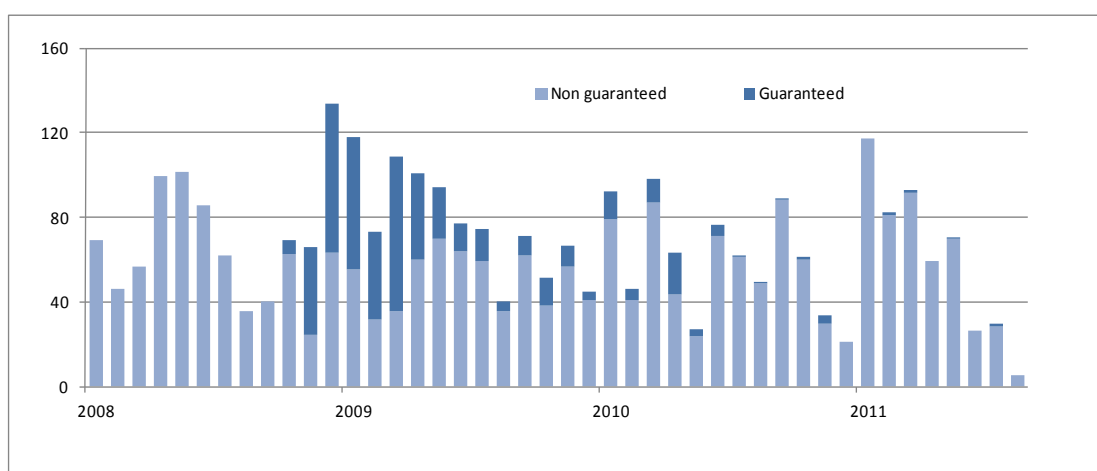
Notes: (1) The reference period is October 2008 - July 2011. The red bars indicate the actual outlays on capital injections (gross of any fund paid back) and asset purchases; blue bars indicate the cumulated issuance of guaranteed bank bonds. The amounts are expressed as a ratio to the nominal GDP of 2010.

In most countries, issuance of guaranteed bonds by banks was sizable right from the very beginning of the guarantee programmes in October 2008. Figure 3 shows the monthly profile of guaranteed and non guaranteed gross issuance for the combined banking systems of the euro area, the US and the UK. Bank bond issuance, which had sharply declined during the summer months of 2008, was revived by the adoption of the guarantee schemes: issuance picked up in October and November and in the following two months reached the highest levels over many years. Until mid-2009 the bulk of issuance was represented by guaranteed bonds, but a considerable volume of non guaranteed bonds was also issued, suggesting that guarantees were successful in reducing the funding liquidity risk of banks and in encouraging investors to buy also non guaranteed bonds.

In the second half of 2009, tensions on bank funding markets declined significantly and an increase in investors' appetite for risk supported the demand for non guaranteed bank bonds. In the first half of 2010 the actual usage of guarantees continued to decline, despite the fact that the first wave of sovereign debt tensions started to affect banks' funding conditions. In that period, the decline of guaranteed issuance also reflected the discontinuation of guarantee schemes in several countries, among them the United States, the United Kingdom and France.<sup>2</sup>

**Figure 3: Gross issuance of bank bonds in the euro area, the UK and the US**

(billions of euro equivalent)



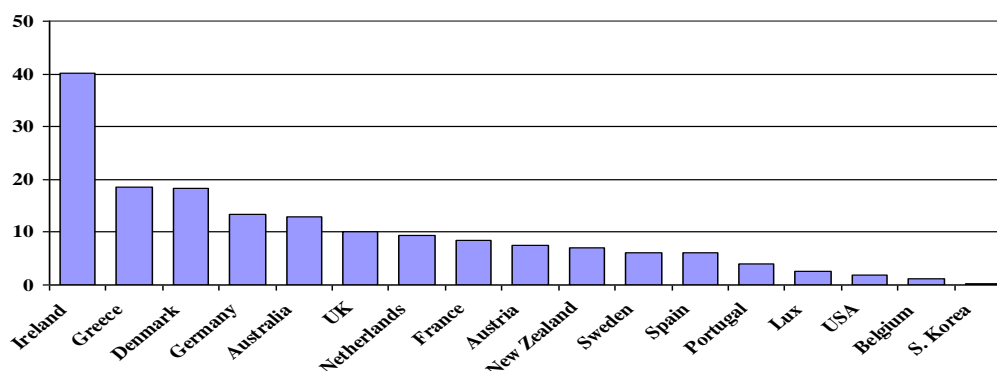
Sources: Bloomberg and Datastream.

Notes: Non guaranteed issuance includes only bank bonds and MTNs with maturity over 12 months. Latest observation: August 2011.

In terms of cross-country patterns, the picture differs depending on whether one considers issuance of guaranteed bonds in absolute terms or relative to GDP. Guaranteed issuance in absolute terms (not shown) is dominated by a few countries. The largest volumes (250 billions of euro equivalent) were issued in the United States, partly reflecting the adoption of an opt-out rule (guarantees were automatic for all US banks unless an exemption was requested). A group of countries including Germany, the United Kingdom, France and Australia follows, with guaranteed issuance above €100 billions. The picture in terms of GDP is different (Figure 4): the total bank guaranteed issuance amounts to 40 per cent of GDP in Ireland, 18 per cent in Greece and Denmark and around 13 per cent for Germany and Australia. Given the large size of the US economy, the ratio is only 2 per cent.

**Figure 4: Total issuance of guaranteed bonds by country**

(percentage of GDP)

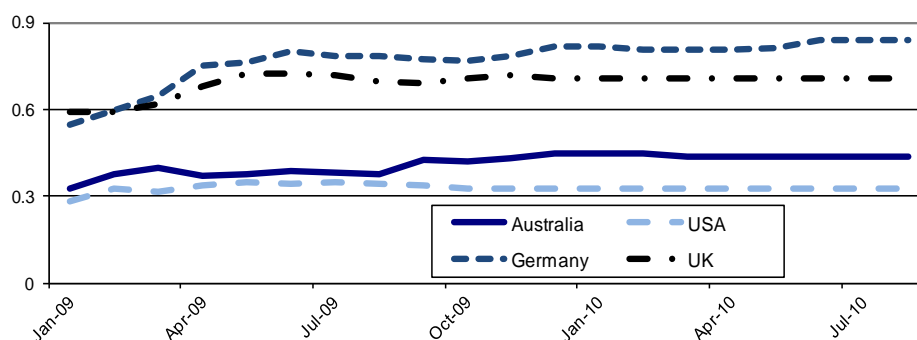


Sources: Bloomberg; Datastream

Notes: Cumulated issuance over the period October 2008-August 2011, as a ratio to 2010 GDP.

Finally, a within-country analysis shows that in some countries the usage of guaranteed issuance was concentrated within a few banks. Figure 5 describes the degree of concentration of guaranteed bond issuance in the United States, Germany, the United Kingdom and Australia over the period from January 2009 to August 2010.<sup>3</sup> The Figure suggests that in Germany and the UK the market share of the two largest issuers was very high, in a range of 70 to 80 per cent, whereas for the US and Australia it was much lower (30 to 40 per cent), reflecting wider participation.

**Figure 5: Share of guaranteed issuance accounted for by the two largest borrowers**



Sources: Dealogic.

Notes: Share of cumulated issuance between October 2008 and the month considered.

### 3. Government guarantees on bank bonds: were they effective?

The guarantee schemes adopted in October 2008 had two main objectives. First, to support bank funding so as to avoid liquidity crises and widespread bankruptcies. Secondly, to support bank lending, in order to reduce the likelihood of a credit crunch.

This paragraph provides some evidence on the effectiveness of the schemes, looking at indicators of bank recourse to bond funding, bank default risk and bank lending activity. Before presenting this evidence, a caveat is in order. Assessing the extent to which the above two objectives were achieved is indeed a challenging task, for at least two reasons. First, the counterfactual is not known, i.e. we ignore what would have happened without government intervention. Secondly, it is difficult to separate the effects of guarantee schemes from those of other rescue measures and those of the unconventional monetary and liquidity support measures which were adopted in Autumn 2008. Uncertainty about the counterfactual and multiplicity of policy actions make it difficult to draw firm conclusions on the specific effects of debt guarantees.

*Impact on banks' access to medium-term wholesale funding.* – The main short-term goal of the schemes providing explicit government guarantees on bank bonds was to help banks maintain access to medium-term funding at a reasonable cost, ensuring solvency and offsetting the drying-up of alternative sources of funding as well as the increase in credit spreads.

The available evidence reviewed in Section 2 suggests that debt guarantees did help banks to resume medium-term funding. The overall gross issuance of bank bonds on the international market, which had declined markedly since the onset of the global financial crisis in the summer of 2007, picked up significantly after the launch of the guarantee programs in the last quarter of 2008. While some degree of substitution between government-guaranteed and non-guaranteed bonds cannot be

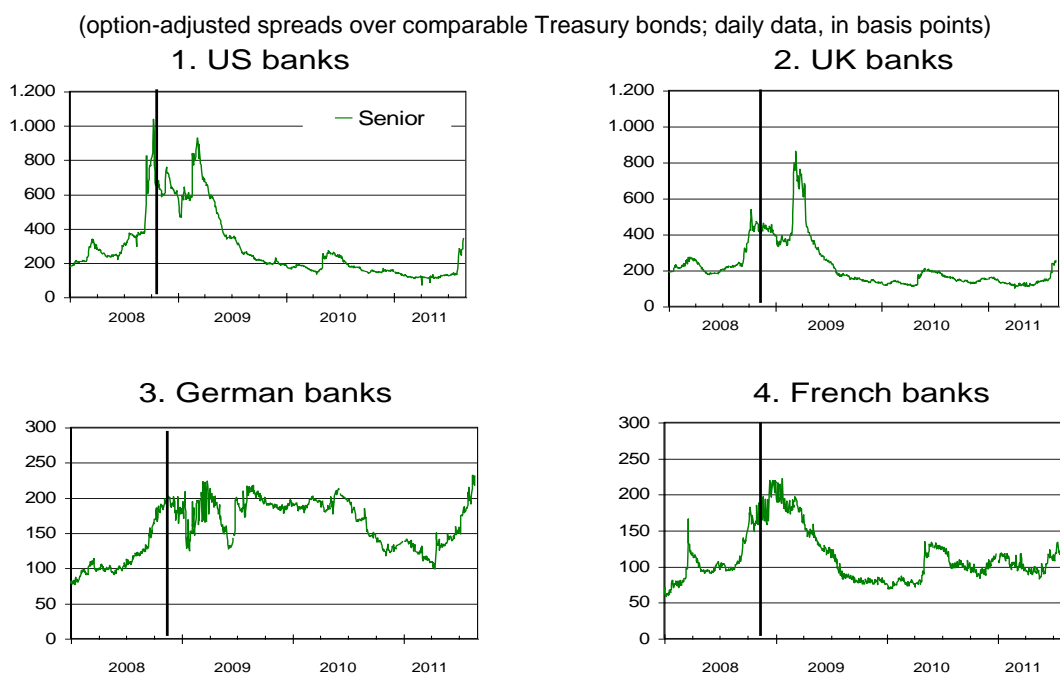


ruled out, banks' reliance on government-guaranteed bonds declined markedly since the second quarter of 2009, as the strains in funding markets started to ease. Evidence of a contribution of debt guarantees to the recovery of banks' medium-term funding is also found by other studies (IMF, 2009; ECB, 2010; Schwartz, 2010).

*Impact on the perceived riskiness of bank bonds.* – The effect of debt guarantees on the likelihood of banks' insolvency can be gauged by looking at credit risk premiums on bank bonds, which are proportional to banks' creditworthiness as it is perceived by financial market investors. In what follows, we focus on two types of indicators: the yield spreads on bank bonds and the premiums on the credit-default-swap (CDS) contracts written on banks. We will also have a look at an ex-post measure of banks' riskiness, namely the number of defaults on guaranteed bank bonds.

Figure 6 shows the yield spreads of non-guaranteed bonds issued by banks of selected countries. In the months that followed the announcement of a public backstop (and other rescue measures), the spreads of unsecured bonds stabilized and then started to decline, indicating that banks' bonds had become less risky (see Panetta et al., 2009 and CGFS, 2011).

**Figure 6: Yield spreads on banks' unsecured bonds**



Sources: CGFS (2011).

Notes: For each country, unweighted average of yield spreads (relative to government securities and option-adjusted) on the bonds of selected banks. Vertical lines mark the introduction of bond guarantee schemes.

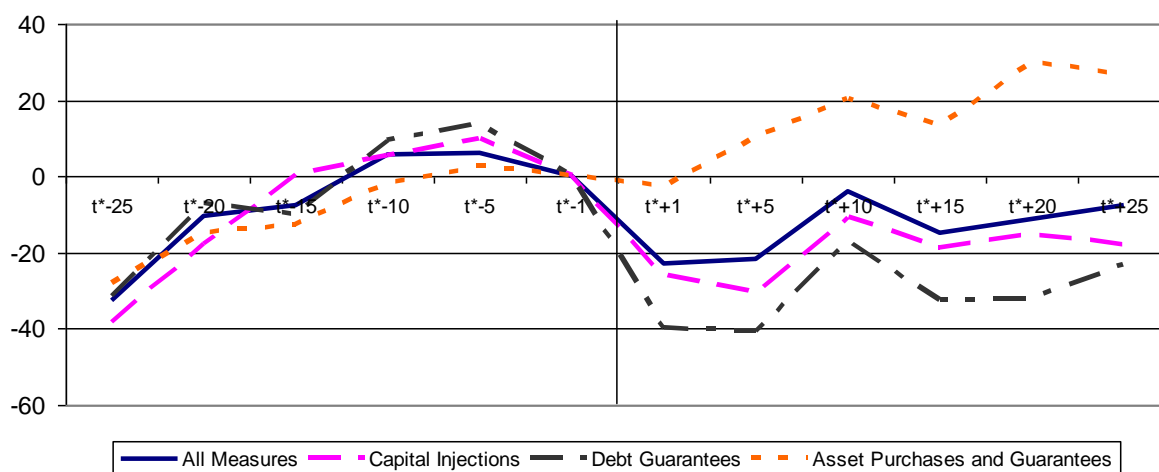
A second way of measuring the impact of bond guarantees on banks' riskiness is to look at the reaction of financial market variables to the announcement of the guarantees programs. If the guarantees succeeded in reducing banks' riskiness, their introduction should have led to a decline in the credit risk premiums required by investors on banks' securities. Some econometric studies have attempted to make such an assessment by resorting to event study analysis.<sup>4</sup> An appropriate proxy for the credit risk premiums on banks is represented by the premiums on the credit default swap (CDS)

contracts written on banks. Other things being equal, the introduction of a credible bond guarantee should lower CDS premiums. By means of event study analysis, Panetta et al. (2009) study the impact of the announcement of bond guarantees programs and the other two types of rescue packages (capital injections and asset purchases/guarantees) on indexes of the bank CDS premiums for the countries where the schemes were adopted.

The results of the event study analysis are shown in Figure 7, both for each type of rescue measure taken separately and for all of them taken together.<sup>5</sup> According to this metric, debt guarantees turned out to be quite effective: 1) they lowered bank CDS premia; 2) they had a sizable impact (about 25 basis points); 3) their effect was quite persistent.<sup>6</sup> Note that the support measures were to some extent anticipated by market participants, as bank CDS premia started to decline before the announcement. With regard to the other rescue measures, capital injections also had quite a sizable negative impact, while the announcement of asset purchases/guarantees apparently led on average to an increase in bank CDS premia.<sup>7</sup> These results are consistent with those found by IMF (2009) on the basis of a comparable, though somewhat different methodology. When considering the post-Lehman phase of the global financial crisis (from 15 September 2008 to 30 June 2009), IMF (2009) finds that for euro area countries the introduction of liability guarantees led to a statistically significant decline in bank CDS premiums in the three days after the announcement.<sup>8</sup>

**Figure 1. Figure 7: Changes in bank CDS premia: market-level analysis by type of measure**

(daily data, in basis points)



Sources: authors' calculations based on Datastream.

Notes: Cumulative change in CDS premia before and after government interventions. The symbol  $t^*$  denotes the announcement day.

It should be emphasised that event study analyses usually have some shortcomings. In this case, the greatest difficulties seem to lie in the definition of the event date (given that market participants tend to anticipate policy measures) and the definition of the time window (the larger it is, the more difficult to disentangle the impact of different events). Moreover, event study analyses may at best provide an estimate of the short-term effect of a policy measure.<sup>9</sup>

While the prices of debt securities and credit derivatives provide some clues on how bond guarantees are viewed by financial market investors, additional evidence on their effectiveness in preventing banks' insolvency is provided by the actual incidence of defaults on guaranteed bonds. Despite the widespread use of government guarantees on bank bonds and the high vulnerability of

banks in many of the countries that introduced this policy tool, guarantee calls on bank bonds have been rare so far. There is evidence of one case in Portugal, where the liquidation of one troubled bank in April 2010 resulted in the activation of the state guarantee, and one case in Denmark in early 2011. This confirms that bond guarantees programs may have a very limited impact on budget deficits, because the actual liabilities generated by them may be much lower than the contingent liabilities.

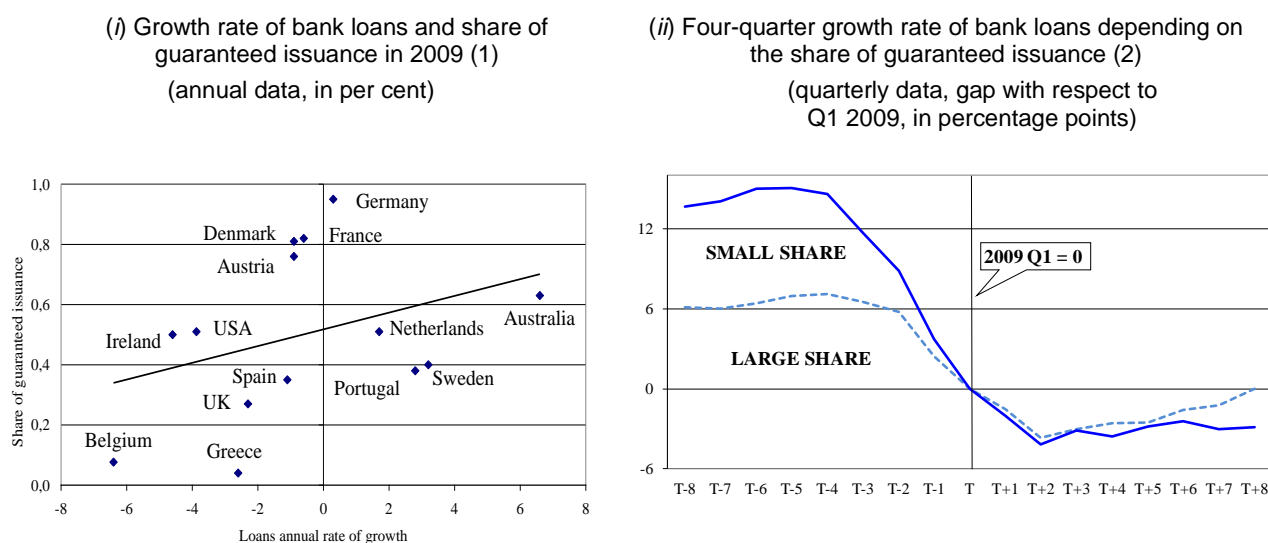
*Impact on the supply of credit to the private sector.* – The ultimate goal of public intervention was to resume and support financial intermediation. It is thus important to understand whether public guarantees on newly issued bank bonds contributed to the recovery in bank lending. The size and timing of the impact on credit supply may have varied depending on whether financial institutions decided to use public funds to strengthen their balance sheets or to support lending.<sup>10</sup>

It goes without saying that such an assessment is fraught with plenty of challenges. Besides the fact that rescue measures included several tools,<sup>11</sup> the definition of the counterfactual is particularly difficult, because banks' lending behaviour has been affected by many macroeconomic factors, such as the strongly expansionary monetary policies and the economic recovery. Moreover, credit supply factors are very difficult to identify on their own right, as the lending standards applied by banks typically reflect a range of different characteristics, some of which are hard to measure or may take time to fully emerge after a major financial crisis (e.g. losses).

That said, a bird's eye view on aggregate trends in bank lending may provide some hints about a possible contribution of bond guarantees to the resumption of the supply of credit to the real economy. For the countries that have adopted public guarantees on bank bonds, the left-hand panel of Figure 8 plots the growth rate of bank lending in 2009 against the portion of total issuance that is accounted for by guaranteed bonds. The graph suggests a broadly positive relationship between the intensity of the recourse to guaranteed bonds and lending growth in 2009.

For the same set of countries, the right-hand panel of Figure 8 looks at the evolution of lending growth since 2007. Countries are divided in two groups: the dotted (straight) line is a weighted average of countries with a share of guaranteed bonds at issuance in 2009 above (below) the median value of 51 per cent. For each group of countries, the graph plots the gap (in percentage points) between the four quarter growth rate in a given quarter and the same growth rate in Q1 2009, the latter being the first quarter in which issuance of guaranteed bonds was significant. The graph suggests that the countries in which banks had a higher recourse to bond guarantees tended on the whole to have a stronger rebound of bank lending.

It is worth emphasizing that simple bivariate and aggregate analyses such as the ones shown in Figure 8 can only be very tentative. In order to get deeper insights, one should be able to assess the contribution of bond guarantees against those of other determinants of bank lending.

**Figure 8: Public guarantees on bank bonds and trends in bank lending**

Sources: based on national data.

Notes: (1) Horizontal axis: annual growth rate of bank loans in 2009 for 14 countries that introduced bond guarantees. Vertical axis: share of guaranteed bonds over total bond issuance in 2009. (2) For each country and for each quarter, difference between the four-quarter growth rate of bank lending in that quarter and the growth rate in Q1 2009 (so that, for each country indicator, Q1 2009=0). The red (blue) line represents the weighted average of those 7 countries with a share of guaranteed bonds at issuance in 2009 above (below) the median value (median value=51%).

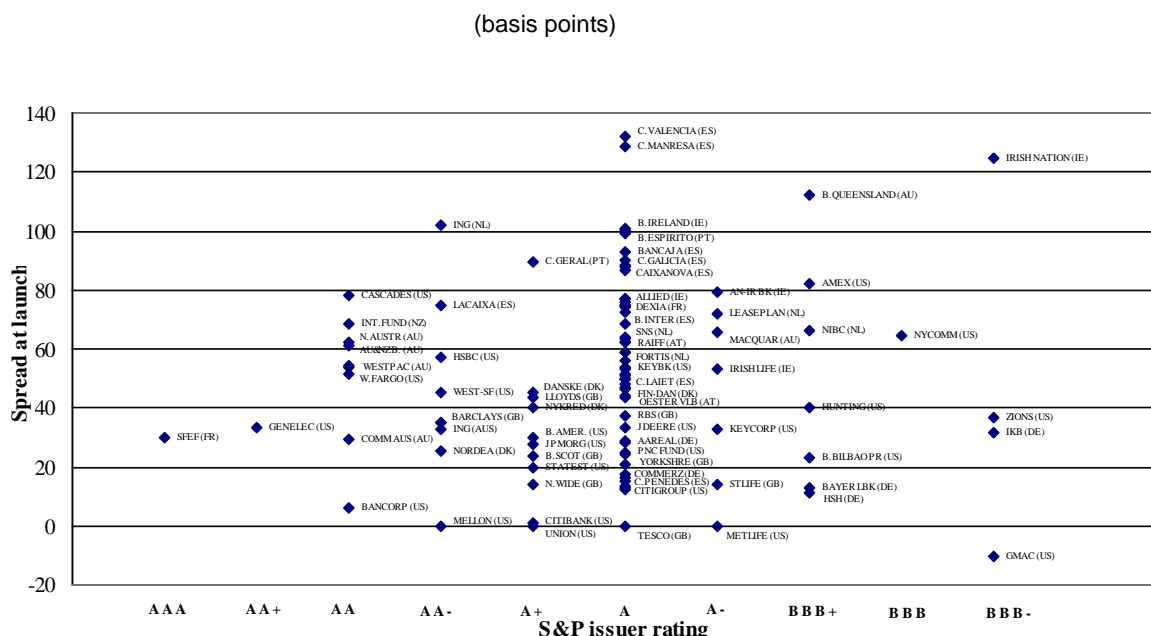
#### 4. What are the drawbacks of a resumption of 2008's guarantee schemes? Distortions and inefficiencies

The evidence presented in the previous sections seems to suggest that government guarantees and, more in general, financial support measures to the banking system have contributed to prevent severe disruptions in financial markets after Lehman's default. This evidence raises a more general question on whether and how those support schemes may be resumed and made available again in the current juncture (Autumn 2011), characterised by severe strains in bank funding markets (as in 2008) and by a fully fledged sovereign debt crisis in the euro area (unlike 2008). In order to answer this question, it is worth examining, first, whether guarantees are "desirable", when considering the significant distortions to the banking sector implied by the 2008 schemes and, secondly (in Section 5), whether guarantees are "feasible" in view of the sharp worsening of sovereign risk observed since 2010.

An important aspect of guarantee schemes of 2008 is how they affected the cost of new debt issuance (guaranteed or not) by banks. As reported by Levy and Zaghini (2011) a striking feature of the guaranteed bond market in 2009 was the significant "tiering" of spreads by country. Figure 9 shows this point. For instance, for A-rated banks the range of the spreads paid at issuance is over 120 basis points (from around zero for some US banks to well over 100 for two Spanish banks). The spreads seem to reflect the nationality of the banks quite closely. For example, Portuguese banks (Banco Commercial Português and Banco Espírito Santo, rated A, and Caixa Geral de Depósitos, rated A+) on average paid much larger spreads at launch than German banks such as Commerzbank (rated A), Bayerische Landesbank and HSH Nordbank AG (both rated BBB+). More in general, the spreads at launch were not monotonically related to bank ratings: better-rated banks in some countries paid

larger spreads than weaker banks in other countries. In other words the spread seemed to reflect the nationality of banks rather than their soundness.

Figure 9: Dispersion of spreads at launch on guaranteed bonds



Sources: Levy and Zaghini (2011).

The determinants of a bank’s cost of issuing bonds can be analyzed with statistical tools.<sup>12</sup> In principle, the dispersion of the spreads paid on guaranteed bonds could reflect several factors: the characteristics of the issuer, the characteristics of the bond, the characteristics of the guarantor (and of the guarantees’ scheme) and, finally, market conditions. In order to disentangle the contribution of each single factor, the following cross-country regression framework is adopted and applied to different sample periods, in which the dependent variable is a measure of the cost for the issuer:

$$Spread_{jk} = a_0 + \sum_j a_j D_j^{BANK} + \sum_k a_k D_k^{BOND} + \sum_i a_i D_i^{GOV} + \sum_z a_z D_z^{MKT-COND} + \varepsilon \quad (1)$$

where  $Spread_{jk}$  is the spread at launch between the yield of the bond  $k$  of bank  $j$  and the swap rate on the contract of corresponding maturity,  $D^{BANK}$  are binary dummies for each of the characteristics of the issuer (rating, CDS spread, size),  $D^{BOND}$  are dummies for bond characteristics (issue size, maturity, currency, rating),  $D^{GOV}$  are dummies for the sovereign (rating, CDS spread, characteristics of the guarantees scheme) and  $D^{MKT-COND}$  are dummies for market conditions (quarter of issue).

For continuous variables, three dummies were created that take the value of 1 if the observation is respectively in the first, fourth, or second/third quartile and zero otherwise. For non-continuous variables, the dummy determination was judgmental and reflected the possible values of each variable. For instance, the sovereign rating was broken down into two categories: one for rating of AAA, and one for ratings below AAA. Table 1 reports the exogenous variables considered in the regressions and their breakdown into dummies.

Table 1: Breakdown of non-continuous exogenous variables

Variable	Dummies	Breakdown
Issuance volume	3	Low, medium, high
Maturity	3	Low, medium, high
Currency of denomination	3	Euro, US dollar, other currencies
Rating of bond issue	2	AAA, not AAA
Market conditions	4	Quarter of issuance
Issuer rating	4	AAA, AA, A, other
Issuer CDS spread	3	Low, medium, high
Sovereign CDS	3	Low, medium, high
Sovereign rating	2	AAA, not AAA

This cross-sectional regression is used to analyse and compare the determinants of the cost of bond issuance in three distinct years:

1. in 2009, at the first peak of the financial crisis, during the operation of the guarantee schemes adopted after Lehman's default;
2. in 2006, a tranquil period used as a counterfactual;
3. in 2010, during the sovereign debt crisis.

*Cost of issuance in 2009, after Lehman's default.* – The first regression analyzes 414 guaranteed bonds issued in 2009. The first column of Table 2 shows the estimation results when only significant coefficients are taken into account. A general property of the regressions shown in Table 2 is that the exogenous variables are constructed so as to have only negative coefficients. In this way, thanks to the fact that we use only dummy variables, each coefficient can be seen as the estimated saving an issuer would achieve if one of the “worst case” characteristics foreseen by the intercept were removed. In fact, on the one hand, each coefficient shows the (negative) contribution in basis points to the spread at launch, on the other hand the intercept, by construction, can be interpreted as the estimated spread of the weakest issuer, namely the spread that a hypothetical bank would pay at launch in the worst case scenario, i.e. if the State were rated below AAA, premia on sovereign CDS were high, the maturity of the bond were long, the issuance volume were low, the issue had a low rating, the issuer had high premia on CDS, the issuer had a low rating and issuance occurred under adverse market conditions.

Independently of the negative sign that was imposed, each variable has the expected influence on the cost of bond issuance. For instance, it is not surprising that a favourable bank outlook (i.e. a low CDS) would reduce the cost of issuing a bond or that a small volume or a long maturity would negatively affect the cost for the issuer. In Figure 10 the regression results are presented in a graphical form. The height of the bar is the sum of all the regression coefficients (127 basis points) except the intercept. The layers of the bar show the contribution of each variable to the overall spread (represented by the regression coefficients of the first column of Table 2).

Table 2: OLS regression results

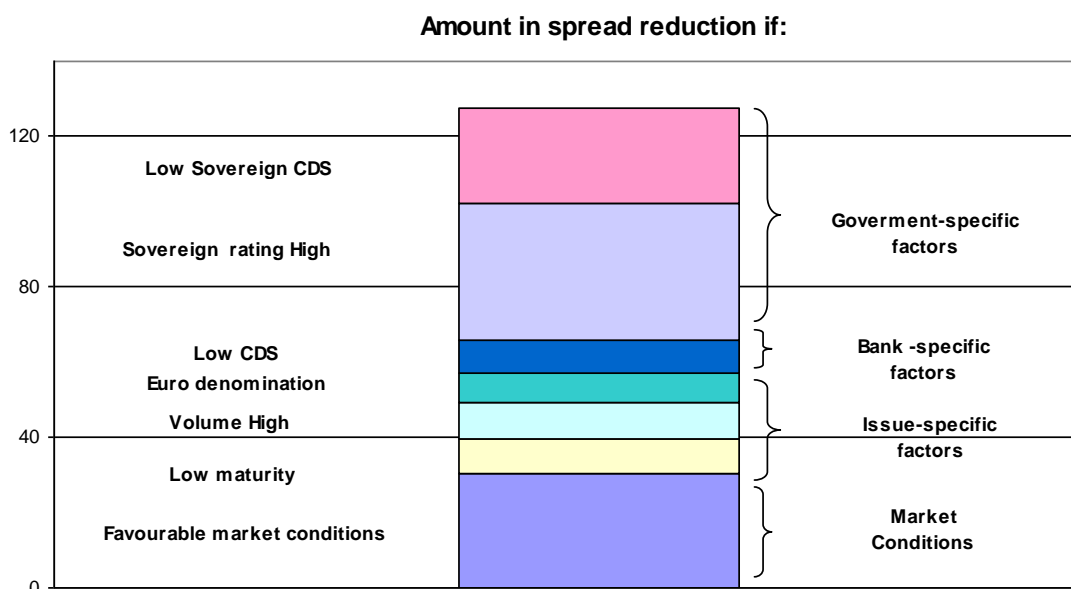
Dependent Variable: SPREAD AT LAUNCH

Variable	2009 G	2006 NG	2010 NG	2009 NG
<b>Constant</b>	116.1 ***	67.3 ***	346.4 ***	332.5 ***
<b>Rating Gov AAA</b>	-36.4 ***		-61.5 ***	
<b>Low Sovereign CDS</b>	-25.1 ***	-18.0 *	-59.0 ***	-34.6 **
<b>Maturity low</b>	-9.1 *	-9.1 *	-94.2 ***	-62.7 ***
<b>Volume high</b>	-9.7 *			
<b>Issue rating high</b>		-19.0 **	-44.6 ***	-106.1 ***
<b>Euro denomination</b>	-7.9 *	-48.8 ***	-68.7 ***	-47.7 ***
<b>Fav. Market condition</b>	-30.6 ***	-28.8 ***	-13.6 *	-44.2 ***
<b>Bank CDS low</b>	-8.7 *	-14.4 **	-21.0 **	-27.5 *
<b>Bank rating high</b>		-10.3 *	-31.7 *	-64.2 **

Notes: One, two and three asterisks denote statistical significance at 90%, 95% and 99%, respectively. 'G' and 'NG' denote guaranteed and non-guaranteed issuance, respectively.

The most relevant result is that sovereign characteristics (AAA rating and low CDS) account for almost 50 per cent of the whole spread at launch, suggesting that the guarantee from a strong guarantor can almost halve the cost of the issuance for a troubled bank.<sup>13</sup> At the same time the characteristics of the issue account for only 21 per cent of the total spread, whereas only 7 per cent of the spread could be deducted from the cost if a bank had a good market assessment (i.e. a low CDS).

Figure 10: Spread decomposition from OLS regression for 2009

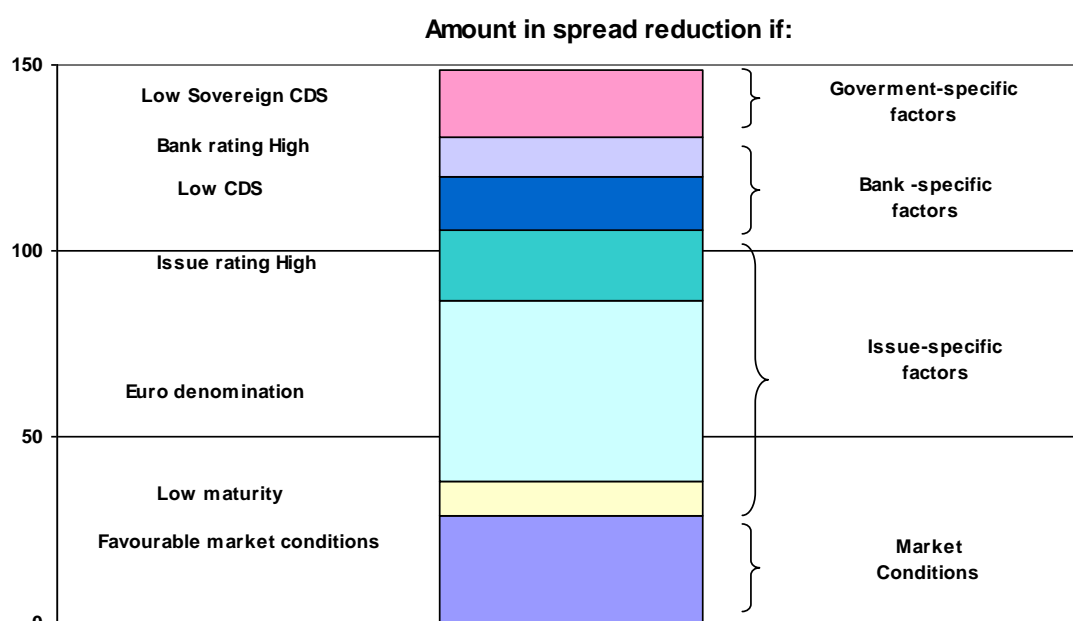


Notes: Results are derived from the regression results reported in Table 3.2. The bar shows how many basis points of the estimated spread can be attributed to country-specific, bank-specific or issue-specific factors or to market conditions.

*Cost of issuance in 2006, a tranquil year.* – Is the role of government always so important in determining the cost of issuance of a bank bond? In order to answer the question we apply the same methodology to 287 bonds issued by 79 banks of 13 countries between January and December 2006, a year in which market conditions and investor sentiment can be described as very stable and favourable.

Based on the estimates of the coefficients presented in the second column of Table 2, the bar chart in Figure 11 shows again the contribution of each variable to the overall cost at launch in 2006. Even though statistically significant, it is immediately clear that the role of the government is a minor one (12 per cent). As expected, what matters most for the pricing of an individual bond are the characteristic of the issuance (71 per cent) together with the bank's soundness (17 per cent).<sup>14</sup>

**Figure 11: Spread decomposition from OLS regression for 2006**



*Notes: Results are derived from the regression results reported in Table 3.2. The bar shows how many basis points of the estimated spread can be attributed to country-specific, bank-specific and issue-specific factors.*

*Cost of issuance in 2010, during the sovereign debt crisis.* – As a third sample period, the cross-sectional regression (1) was run also for 534 bank bonds issued in 2010, a year characterized by severe tensions in sovereign debt markets which had a strong negative effect on bank funding (CGFS, 2011). Predictably, the weight of sovereign variables in the estimated cost at issuance of non-guaranteed bank bonds is significantly higher in 2010 than in previous tranquil periods (2006). The role played by government's creditworthiness rises to 30 per cent of the total cost while the characteristics of the issuance and issuer decline to 56 and 13 per cent, respectively (column 3 of Table 2). One possible interpretation of this pattern is that although in 2010 explicit public guarantees were not actively used anymore (and our sample includes only non guaranteed bonds), the reliability of the sovereign helped banks from solid countries to reduce by around 30 per cent the cost of bond issuance, suggesting that these banks enjoyed an implicit guarantee. This amount of issuance cost reduction lies half-way between the "tranquil period" reduction of around 10 per cent and the 50 per cent of the case of explicit sovereign guarantees.



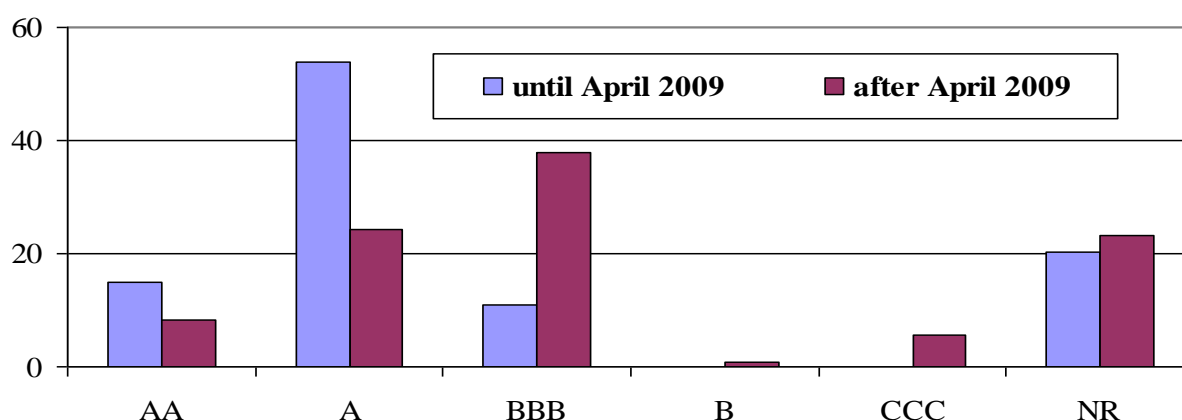
*Distortions and inefficiencies.* – The bottom-line of the statistical evidence provided in this section is that the guarantees that were granted in 2008-09 to distressed banks created severe distortions: the fact that the cost of issuing guaranteed bonds reflected by more than 50 per cent the guarantor’s creditworthiness (rather than the issuer’s) implies that banks with lower profitability and weaker balance-sheet positions – but enjoying guarantees from highly rated sovereigns – were able to raise funds at a much lower cost than sounder and better-rated banks.

This distortion in the pricing of bank bonds has two main negative effects. First, the absence of a “level playing field” is detrimental to competition and leads to a misallocation of resources that lowers the banking system’s productivity. Secondly, the measures could create expectations of further intervention, thus influencing and distorting banks’ business strategies and encouraging excessive risk-taking (i.e. moral hazard).<sup>15</sup> One way in which the authorities might have mitigated these distortionary effects is the adoption of an appropriate mechanism for pricing the guarantees (see Panetta et al., 2009), such as a fee that is inversely related to sovereign risk, so as to broadly align across countries the “fee-adjusted” subsidy (in terms of lower interest payments) benefiting the issuing banks (see also Section 5).<sup>16</sup>

Indirect evidence of these inefficiencies is provided by the fact that the credit quality of banks that issued guaranteed bonds declined over time: Figure 12 shows that the average credit rating of banks that made use of guarantees in the period October 2008-April 2009, at the peak of market tensions, was much higher than the rating of those banks that issued between May 2009 and June 2010.

Preserving a level playing field and containing moral hazard are two guiding principles not only in evaluating exceptional policy measures but also in steering the global financial system towards a new environment with better incentives (see e.g. OECD, 2009).

**Figure 12: Issuance of guaranteed bank bonds by rating of issuing banks**  
(in percent of total issuance)



Sources: authors’ calculations based on Bloomberg and Datastream.

## 5. Is a resumption of bond guarantees feasible? The decline in the value of sovereign guarantees

The financial crisis that began in 2008 after Lehman's default has undergone two major stages. The first phase lasted until the end of 2009 and can be characterised as a bank crisis: government and central bank support measures managed to gradually reduce market pressure on bank funding instruments and stock market valuations, but most advanced economies experienced a sharp worsening of their fiscal positions, reflecting the public support to the financial system, the policy stimulus meant to fend off a recession and the sharp cyclical slowdown.

Since the end of 2009 investors realised that the fiscal landscape was changing and they began to require higher risk premia on sovereign debt. The repricing of risk turned into a fully fledged sovereign debt crisis during 2010 and became most visible in May, when the EU and the IMF granted financial assistance to Greece and the European Financial Support Mechanism was established. The crisis further intensified in 2011 and engulfed larger euro area countries, despite efforts by EU authorities to scale up the policy response (two important EU meetings took place on 21 July and 26 October).

Severe funding pressures were experienced by banks in both stages of the crisis, especially in non triple-A sovereigns, but there is a major difference between the two episodes: while in 2008 the increase of banks' credit risk reflected concerns about banks' exposure to toxic assets, in 2011 the concern was about exposure to sovereign debt (see CGFS, 2011; Davies and Panetta, 2011).

Reflecting the severe strains on bank funding conditions observed since July 2011, in October the EU Heads of State or Government acknowledged (see EU, 2011) "*the need to ensure the medium-term funding of banks, in order to avoid a credit crunch and to safeguard the flow of credit to the real economy, and to coordinate measures to achieve this*". At the same time the EU leaders were aware that "*A simple repetition of the 2008 experience with full national discretion in the setting-up of liquidity schemes may not provide a satisfactory solution under current market conditions. Therefore a truly coordinated approach at EU-level is needed regarding entry criteria, pricing and conditions*".

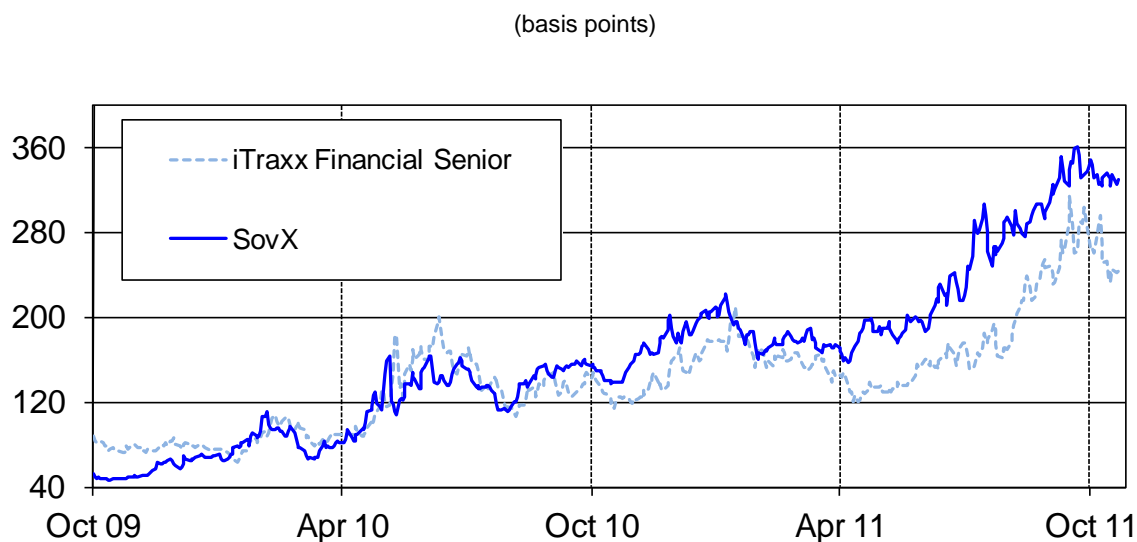
Following the request of the EU summit, European authorities have been devising a new guarantee scheme for bank bonds that avoids the distortions induced by the 2008 programme and that can be effective despite the sharp deterioration of the fiscal landscape. The main purpose of the new guarantee scheme is to resuscitate the market for wholesale funding for banks.

In achieving this goal it is important to make sure that the scheme does not introduce distortions to competition; for this purpose it is crucial to take into account that differences exist across countries in the value of the sovereign guarantee as well as in the riskiness of banks.

For some countries the value of sovereign guarantees was indeed already low in the first stage of the crisis, i.e. in 2008-09. For instance, in the context of the guarantee scheme adopted in the EU in 2008, for banks located in fiscally weak countries such as Italy it was not worth buying insurance from the Treasury because the cost for the bank (the insurance fee) was roughly of the same order of the yield reduction (i.e. the interest saving) made possible by the guarantee. Mainly for this reason no Italian bank relied on the guarantee scheme (see Levy and Zaghini, 2011). In 2010-11 things got worse and in several euro area countries sovereign credit risk rose above banks credit risk (Figure 13 compares the average CDS premia of European banks with premia on European sovereigns), implying that the value that banks may extract from a public guarantee is close to nil. As a consequence, in the case of Italy and many other euro area countries a government guarantee on bank bonds would not be

able to improve funding conditions of banks to a significant extent, while it would likely worsen the country's fiscal position, as a consequence of the increase of contingent liabilities.

**Figure 13: CDS premia on European banks and sovereigns**



Sources: Markit. CDS on European banks are proxied with the MarkIt index "iTraxx financials". CDS premia on Euro area sovereigns are proxied with the MarkIt index "SovX".

A non-distortionary pricing mechanism should make sure that the "insurance premium" is adjusted in order to reflect both the value of the sovereign guarantee (banks enjoying a less valuable guarantee should pay a lower fee) and the "standalone" riskiness of the insured bank (riskier banks should pay a higher fee than "safer" banks). As for the latter adjustment, in analogy with the programmes adopted in 2008, authorities may rely on a bank's CDS premium as recorded over an appropriate time period. One caveat when using a bank's CDS premium as a measure of a bank's riskiness is that the CDS does not reflect only the bank's "standalone" riskiness but it also incorporates the benefit coming from any kind of sovereign guarantee.

Concerning the adjustment related to the value of the sovereign guarantee, two cases can be considered depending on whether a national or a "mutualistic" guarantee scheme is adopted. In case a national approach is adopted, the premium could be a function of the gap between the credit standing of the bank's sovereign and the average credit standing of advanced economies, so that the insurance fee decreases for those banks that obtain a less valuable guarantee (see Panetta et al., 2009, and Estrella and Schich, 2011).

An alternative solution would be a "mutualistic" approach, in which the guarantee is not provided at the national level but rather by a supranational institution (such as the European Financial Stability Fund) or by a pool of countries that provide a "several" and, possibly, "joint" guarantee. In this case the value of the sovereign guarantee would be equal across countries and there would be no need to adjust for this factor the price of the guarantee.

The "mutualistic" approach is more attractive in terms of relief for bank funding costs but it may raise a number of objections. First, it may be argued that a mutualistic approach implies fiscal subsidies and transfers across countries and thus violates the Treaty provisions. Secondly, it may be

objected on economic grounds that the contingent liabilities taken up by the European supranational institution or, equivalently, by the “joint guarantors” might negatively affect the latter’s rating. These drawbacks make the adoption of mutualistic guarantee schemes highly unlikely.

## 6. Conclusions

The bond guarantee schemes adopted in Autumn 2008 by most advanced economies formed part of a package of rescue measures including also capital injections, asset purchases/guarantees and, as far as central banks are concerned, large scale liquidity support. With hindsight, the bond guarantee schemes adopted in Autumn 2008 proved to be an effective policy tool. The issuance of guaranteed bonds was sizeable and the schemes seem to have achieved their two main objectives: they helped to resume bank funding, thus reducing the likelihood of bankruptcies, and they contributed to prevent a credit crunch, thus alleviating the impact of the financial crisis on the real economy.

The sovereign debt crisis that has engulfed the euro area in 2010 and, on a wider scale, in 2011 has led to severe funding pressures, as in 2008, for banks based in non triple-A countries. After the debt crisis has intensified and reached large euro area countries in the summer of 2011, the question has been raised of whether the “2008 vintage” guarantee schemes, that were discontinued in most EU countries, may be resumed in 2011.

The answer provided in this paper is that government guarantees may be used again but after some adjustments, so as to avoid two obstacles. The first obstacle is represented by the inefficiencies and severe distortions to competition implied by the guarantee schemes of 2008: the pricing mechanism of guarantees and the large differences in sovereign creditworthiness that were in place in 2008 implied that weak banks backed by strong sovereigns were able to borrow more cheaply than strong banks with weak sovereigns. One way to reduce this distortion would be the adoption of an appropriate, “sovereign-related” pricing scheme.

The second obstacle is represented by the decline of the value of public guarantees in those countries where sovereign risk is higher. In such countries, a guarantee provided by the domestic sovereign might not bring any substantial decline in the cost of borrowing of domestic banks and therefore consideration should be given to the possibility of having supranational authorities providing such guarantees.

## Notes

- <sup>1</sup> Other possible restrictions concerned the bonds' maturity and currency of denomination. For a detailed account of debt guarantee programmes and a thorough description of the financial sector rescue plans implemented in advanced economies, see Panetta et al. (2009).
- <sup>2</sup> Following the easing in bank funding at the end of 2009, many government-guarantee schemes, including those in the UK and France, were allowed to expire. Others, such as in the US, were extended but in a significantly curtailed version, which expired at the end of 2010. In Australia the government closed the scheme on 31 March 2010 and New Zealand did it on 30 April 2010.
- <sup>3</sup> For France, no information is available for individual issuers of guaranteed bonds, as the SFEF Agency issues on behalf of banks, under anonymity. If one looks at the Annual Report on 2009 for the three largest French banks, only BNP discloses that in 2009 it issued €11 billion of guaranteed bonds (which compares with a total issuance by SFEF close to 75 billion).
- <sup>4</sup> See Panetta et al. (2009), Ait-Sahalia, et al. (2009), IMF (2009) and references therein.
- <sup>5</sup> The sample includes 41 large international banks of ten advanced economies over the period from September 2008 to April 2009. The event study analysis of debt guarantees is carried out at the country level only, rather than at the bank level, because in the latter case there would have been too many events to take into account (in the sample period there were many issues of debt guarantees at very close intervals). In Figure 7, the blue line represents the simple average across countries of the CDSs' reaction to the announcement of the introduction of a program of bond guarantees.
- <sup>6</sup> After more than one month the effect was still evident, in a period of extremely high volatility and very negative investor mood. The analysis was replicated by using the difference between the change in banks CDS premiums and that in non-bank CDS premiums, as a way to control for common factors. Results did not change remarkably. For the sake of clarity, Figure 7 shows the results for changes in banks CDS premia only.
- <sup>7</sup> The latter result can be explained in two ways: 1) the low number of observations (very few programmes of the kind were introduced) does not allow to correctly identify the effect; 2) because in that period investors' concerns mainly focused on the amount of toxic assets held by banks, the announcement of asset purchases or guarantees programmes may have had the effect of fuelling uncertainty and stigma effects.
- <sup>8</sup> For the United States the effect was not statistically significant, while for the United Kingdom the IMF's approach couldn't be applied due to the very low number of policy events during the post-Lehman period. The IMF's analysis of euro area countries seems to be close enough to Panetta et al. (2009)'s multi-country approach. One of the main methodological differences between the two studies is that IMF's definition of "liability guarantee" includes not only debt guarantee on new liabilities but also debt guarantee on all liabilities, enhancement of depositor protection schemes and government lending to an individual institution.
- <sup>9</sup> For a detailed discussion of the methodological issues arising in event study analyses, see IMF (2009) and references therein.
- <sup>10</sup> Brei, Gambacorta and von Peter (2011) provide an econometric analysis of the impact of equity injections on loan growth for a sample of 108 large international banks headquartered in 14 major advanced economies for the period 1995–2010. They find significant non-linearities: recapitalisations may not translate into greater credit supply until bank balance sheets are sufficiently strengthened to boost risk-weighted capital ratios.

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<sup>11</sup> For example, Panetta et al. (2009) provide earlier insights on the lending behaviour of the US banks that received public equity injections through the Capital Purchase Program.

<sup>12</sup> Econometric analyses of the evolution of corporate spreads are provided by Collin-Dufresne et al. (2001), Elton et al. (2001) and Driessen (2005) among others.

<sup>13</sup> Moreover, if we introduce additional dummy variables for the characteristics of the guarantees' scheme the overall weight of the government reaches 2/3 of the total cost. This result (regression not shown but available on request) is in line with Levy and Zaghini (2011).

<sup>14</sup> Rather interestingly, analysing non guaranteed issuance in 2009 (fourth column of Table 2) leads to a result which is very similar to the one derived for 2006, namely that the sovereign's characteristics played a negligible role in determining banks' cost of issuance. When running regression (1) for the 215 non-guaranteed bonds placed that year by banks, regression results suggest that sovereign creditworthiness accounts for a mere 9 per cent, while the issue's characteristics add up to 67 per cent and banks' features to 23 per cent. This may be seen as implying that, even in times of turmoil, investors distinguish very clearly between an explicitly guaranteed bond and a non guaranteed bond, and price them accordingly. One possible corollary is that in 2009 investors did not perceive an implicit guarantee on non guaranteed bonds.

<sup>15</sup> Gropp et al (2010) show that public guarantees on saving banks in Germany – which ended in 2001 – were indeed associated with substantial moral hazard.

<sup>16</sup> For a more expanded discussion of the costs of the bond guarantees see Schich (2009) and Levy and Schich (2010). Economic distortions are a common drawback of public guarantee schemes that provide insurance against financial risks generated in the private market. A good deal of the literature has focused on deposit insurance. In a general equilibrium analysis of a multi-region economy with banks, Bruche and Suarez (2010) find that deposit insurance causes a misallocation of credit and argue that one possible solution to the distortions would be to introduce fair risk-based premia. See also Acharya (2010), Acharya, Santos and Yorulmazer (2010), Pennacchi (2010) and references therein.

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## **Symposium on “Financial crisis management and the use of government guarantees” \***

(OECD, Paris, 3 and 4 October 2011)

### ***Background***

Almost three years after what many observers had considered the peak of this global financial crisis, we are still waiting for normalcy to prevail. Instead, tensions in funding markets have risen very significantly in recent weeks mainly as a consequence of the sovereign debt crisis in Europe. Currently, we find ourselves once again contemplating guarantees, with some observers calling for the creation of explicit government-supported arrangements for guaranteeing bank debt, such as those temporarily put in place by many governments in 2008/09. In this context, the Symposium on “Financial crisis management and the use of government guarantees” held on 3 and 4 October 2011 turned out to be very topical, certainly more topical than policy makers would have wished.

The Symposium was characterized by an open and frank dialogue between policy makers, policy consultants and other academics on the policy response to the financial crisis, the use of guarantees, failure resolution, banking and sovereign debt interconnections, as well as other financial safety net aspects. The mix of participants from academia and the public and private sector, and both from the economic and the legal profession helped participants appreciate some of the institutional details that get lost in much of the public debate on the topic. Numerous policy suggestions were made as to how to improve the use of government-supported guarantees and the design of the financial safety net, so as to improve existing mechanisms to avert future crises or check them at an early stage. One key message was that guarantees can be a powerful policy tool, but that they need to be employed with limits and priced appropriately.

### ***Costs and benefits of the use of guarantees***

The use of guarantees, where they worked well and where they precipitated other problems, were issues that came up throughout the Symposium. Together with measures to enhance liquidity and capital of financial institutions, sovereigns effectively provided the function of the guarantor of last resort for financial claims in response to the global banking crisis. Despite the rather ad hoc nature of some policy measures, the policy response helped avoid the worst outcome, which could have been a series of failures of systemically important financial institutions, with dire consequences for real activity. Despite their associated problems, guarantees have been an important element in preserving liquidity and restoring market functionality, and it would be difficult to manage financial crises without them. Moreover, other forms of intervention are likely to be more intrusive.

Nonetheless, guarantees were not without cost. Further to administrative costs, they created significant contingent potential liabilities for sovereigns, which was compounded by a failure to charge fees commensurate with the risk which created additional costs. The costs of such underpriced insurance included potential distortions to competition and incentives, which give rise to moral hazard and the potential for additional problems down the road.

### ***Pricing government guarantees***

In principle, pricing structures should be designed in such a way that the premiums paid by beneficiaries of guarantees reflect the costs that they would have incurred if markets had functioned properly. As it turns out, however, pricing was not always appropriate. For example, the case of Ireland has highlighted the risk of underestimating losses from already existing claims, but where the ultimate extent of losses arising from those claims is uncertain. Guarantees have also been introduced for new liabilities, such as bank bonds, in many OECD in an effort to help banks regain access to markets. This effort was generally considered a success. However, fees typically were set as a function of the characteristics of the issue or the issuer and, in practice, were on average broadly flat across countries. In Europe, an effort was undertaken to harmonise fee structures across borders, making them a close function of a measure of the history of credit default swap spreads for the issuer, with the explicit aim being to avoid competitive distortions between banks.

Unfortunately, the costs for banks of issuing such government-guaranteed bonds turned out to be significantly affected by the identity of the guarantor. This is not so surprising, as theory suggests that the market value of a sovereign guarantee is not only a positive function of the weakness of the borrower but also a positive function of the creditworthiness of the sovereign. Thus, to avoid competitive distortions, the strength of the sovereign should be taken into account in the pricing of government-provided guarantees.

### *Crisis management experiences and changes in the financial safety net*

The costs and benefits of guarantees have to be weighed against the alternatives. In Iceland, for example, an all-encompassing guarantee would not have been credible. The more limited guarantee announced together with the resolution approach adopted implied that shareholders were wiped out and that unsecured non-priority creditors bore losses. The link between bank and sovereign credit risk was severed. Whether that approach was available elsewhere is questionable. In fact, extensive guarantees were in many cases introduced precisely because alternative tools for resolving severe problems were either not available or not trusted to work smoothly enough to avoid a systemic fallout. In particular, effective failure resolution mechanisms for some types of troubled financial institutions tended to be absent.

In the meantime, special legislation for dealing with stressed financial institutions has been introduced in many countries, which has successfully addressed some issues. For example, new institutions and legal frameworks have been introduced that facilitate the restructuring of stressed banks and the rescue of systemically relevant parts of banks. Other issues prevail, however, including the issue of how to resolve stressed large financial institutions in a cross-border context. For example, further reforms are needed for cross-border banking activities in the European Single Market, where the issue is to match the European passport for banks with a pan-European safety net including deposit insurance and supervision.

While use of guarantees was a central theme, the Symposium also analyzed other aspects of the design of safety nets. There is a need for policymakers to elaborate on the specific roles of the various safety net participants and stakeholders so as to better understand how the financial safety net should work during times of crisis. Moreover, the traditional three-tier safety net, consisting of a lender of last resort, bank deposit insurance, and a (micro-prudential) regulator-supervisor was considered incomplete, which led to calls for the creation of additional players or functions, including:

- a macro-prudential authority, with the power to alter the composition of central bank assets, to adjust capital adequacy and liquidity ratios, and to propose fiscal and structural changes affecting financial intermediaries.
- an institutionalized tiered systemic crisis insurance function, inspired by mechanisms developed for funding resolution of natural or man-made catastrophes. To limit moral hazard, a layered approach with self-insurance as the first layer, private insurance and reinsurance as another layer and the government as a reinsurer of last resort was suggested.
- a bank failure resolution fund, which would be separate from the general government budget and funded through ex ante contributions of financial intermediaries according to their systemic importance, to finance resolution measures that require the rapid availability of funds in systemic crises.
- an institutionalized investor of last resort, which would establish ex ante conditions for providing support and establish credible bounds to the extent of support in systemic crises, thus helping to legitimize future support measures and limit associated moral hazard.

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 \* OECD Secretariat assessment, facilitated by the rapporteur James McCollum. The opinions expressed here do not necessarily reflect the official views of the Organisation or of the governments of its member countries. For further enquiries please contact Sebastian Schich at [Sebastian.Schich@oecd.org](mailto:Sebastian.Schich@oecd.org).