

# **The Insufficiency of Traditional Safety Nets: What Bank Resolution Fund for Europe?**

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## The Insufficiency of Traditional Safety Nets: What Bank Resolution Fund for Europe?

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### **Abstract**

This paper analyzes the rationale for Bank Recovery and Resolution Funds (BRRFs) in the context of the present European Union's (EU) decentralized safety net. As compared to *pure* micro and macro prudential regulation, BRRF's objective is to limit losses given financial institutions' default while allowing for a balanced share of costs between private investors and tax payers. Most important, BRRFs contribute to shifting the government's tradeoff between bailing out and restructuring in favor of restructuring, to the extent that there is also an effective bank resolution legal framework. In turn, banks' contributions to BRRFs aim at discouraging their excess systemic risk creation particularly through financial system leverage. The paper makes some reflections on the governance aspects of BRRFs that would require minimum harmonization in the EU, emphasizing that BRRFs are only one institutional component of financial institutions' effective and credible resolution regime. This paper focuses on depository institutions, but the rationale of BRRFs could be extended to other credit institutions.

### 1- **Introduction: Objectives of the paper**

In the aftermath of the crisis, the European Parliament, the EU Commission and the European Council have formulated numerous proposals aimed at strengthening the resilience of the financial system. These initiatives range from institutional reforms, such as the further integration of the European financial supervisory architecture with the launching of the European Supervisory Authorities,<sup>2</sup> to significant financial regulatory reforms particularly in the realm of crisis resolution.

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<sup>2</sup> The European Banking Authority (EBA), the European Securities and Markets Authority (ESMA), the European Insurance and Occupational Pensions Authorities (EIOPA), and the ECB's European Systemic Risk Board came into force on January 1, 2011.

The collapse of Lehman Brothers highlighted the importance of having in place a legal framework for dealing effectively with the resolution of cross-border financial entities. Garcia, Lastra and Nieto (2009) showed that such an effective resolution was conspicuously missing—it is still missing. To fill this gap the Financial Stability Board issued a proposal for effectively resolving systemically important financial institutions (SIFIs) in July 2011. Its objective “is to make feasible the resolution of any financial institution without severe disruption and without exposing taxpayers to loss while protecting vital economic functions through mechanisms which make it possible for shareholders and unsecured and uninsured creditors to absorb losses in their order of seniority” (FSB, 2011b, p. 23).<sup>3</sup> The Commission had earlier launched a detailed proposal for an EU framework for bank recovery and resolution.<sup>4</sup> It should result in a legislative proposal that reacts to the FSB’s aspirations in late 2011. In the meantime a number of countries, including Austria, Belgium, Denmark, France, Germany, Ireland, and the UK, have already enacted new laws to govern the resolution of their troubled banks.

Successfully implementing the FSB’s proposal would require financing from the industry to avoid reliance on taxpayers and to fulfill the IMF’s call for financial institutions to pay a full and fair contribution to their resolution (IMF, 2010a). Indeed the EU proposal (page 83) envisages a requirement that each Member State establish a BRRF “for the sole purpose of covering the costs incurred in connection with the use of resolution tools and in accordance with the resolution objectives and the general principles governing resolution.” Parallel to these policy initiatives, the European Council (June 2010) agreed that “Member States should introduce systems of levies and taxes on financial institutions to ensure fair burden-sharing and to set incentives to contain systemic risk. Such levies or taxes should be part of a credible resolution framework.” This agreement left open questions such as to whether the financial resources gathered via fees should be publicly or privately managed. It also ignored operational aspects concerning whether taxes should be designed to control risk creation or how to trigger the use of those resources.

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<sup>3</sup> Such an effective resolution scheme would: “ensure continuity of systemically critical financial services and functions; protect insured depositors and insurance policy holders and ensure the rapid return of segregated client assets; allocate losses on firm owners (shareholders) and unsecured and uninsured creditors in their order of seniority; not rely on public solvency support and not create an *ex ante* expectation that such support will be available; avoid unnecessary destruction of value, and therefore minimise the overall costs of resolution in home and host jurisdictions; provide for speed and transparency and as much predictability as possible through legal and procedural clarity and advanced planning for orderly resolution; provide a mandate in law for cooperation, information exchange and co-ordination domestically and among relevant foreign resolution authorities before and during a resolution; ensure that non-viable financial institutions can exit the market in an orderly way; and be credible and thereby provide incentives for market-based solutions.”

<sup>4</sup> The proposal: (i) offers a harmonized EU regime for crisis prevention and bank recovery and resolution; (ii) analyses of the need for further harmonization of bank insolvency regimes in order to resolve and liquidate failing banks under the same substantive and procedural rules and to make any appropriate legislative proposals; (iii) considers the creation of an integrated resolution regime, possibly based on a Single European Authority. See [http://ec.europa.eu/internal\\_market/bank/crisis\\_management/index\\_en.htm#consultation2011](http://ec.europa.eu/internal_market/bank/crisis_management/index_en.htm#consultation2011), accessed 11 March, 2011).

In this paper, we favor an *ex ante* levy on financial institutions to fund the BRRFs—a levy that *ex ante* restrains systemic risk by taking into account the contribution that each institution makes to the stability of the financial system. In the context of an incentive-compatible and credible resolution framework for financial institutions, the BRRF would cover the public costs of bank failure “*ex post*.” The levy is thus a type of Pigouvian tax aimed at providing incentives to reduce systemic risk.

The paper starts from the experience of the current financial crisis and points to the limitations of the existing national safety nets for safeguarding financial stability. Although the current euro-area crisis raises serious questions about its adequacy in the EU’s highly integrated financial system, the paper takes as given the existing decentralized safety net except that it recognizes that for BRRFs to be effective would require that each country have an effective system of bank resolution. Like Doluca et al. (2010), this paper focuses on the rationale for BRRFs funded by levies that aim at limiting systemic risk. Taking the analysis of Doluca et al. further, this paper develops the operational and governance aspects of BRRFs that would, minimize both contagion and the resort to public funds for bailing out banks that demand minimum harmonization within the EU. It should be acknowledged upfront that, although BRRFs aim to minimize the public cost of failure, they would not necessarily entirely preclude at all times the provision of public support for banks. Moreover, BRRFs deal with bottom up” banking crisis by redirecting proposals for flat taxes and capital add-ons toward BRRF levies that internalize banks’ negative externalities. BRRFs are thus not intended to deal with “top down” crises caused by sovereign debt problems. In those countries where sovereign debt crisis were mainly explained by the collapse of their banking systems, however, BRRFs would have contributed to reducing the fiscal cost. Also, for simplicity, the paper focuses on banks, but the analysis can be extended to other financial institutions, whose government rescue would impose costs to the tax payer.

After this Introduction, section 2 the paper describes EU Member Countries’ support to their banking systems during the crisis. Section 3 discusses the rationale for bank resolution funds. Section 4 analyzes the operational aspects BRRFs, including their funding and governance. Section 5 presents our conclusions and policy implications.

## **2. Public interventions in the banking sector in the EU in the context of the recent financial crisis: do they point to the need of BRRFs?**

The systemic<sup>5</sup> character of the recent international financial crisis has tested not only the boundaries of safety net policy action but also the traditional safety net mechanisms themselves. Extraordinary times demand extraordinary measures in terms of both tools and scope. In this section, we focus on the extraordinary tools that were, and still are, being used to deal with the most important financial crisis since the Second World War. The analysis

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<sup>5</sup> The paper intentionally avoids defining “systemic,” because the *ex ante* assessment of systemic importance is very difficult. Goodhart (2010) refers to the “fuzzy outlines of the definition of systemic importance.” The Basel Committee on Banking Supervision has considered a set of quantitative and qualitative indicators of banks’ systemic importance, none of them totally absent of limitations.

provides a useful background for analysing the objectives and instruments for national BRRFs that demand minimum harmonization.<sup>6</sup>

First, as Chailloux et al., (2008) and Stolz and Wedob (2010) explain in detail, central banks, internationally and within the EU, worked to restore normal money market functionality. To ensure ample liquidity, they extended the maturity of their refinancing operations, provided foreign currency liquidity through local operational frameworks at harmonized market prices; accepted less liquid and less credit-worthy collateral in their operations—actions that all pointed to the importance of limiting the scope for undesirable market arbitrage. Last but not least, central banks made outright purchases of specific targeted securities. In addition to their support to the money markets, central banks also aided individual credit institutions in their traditional role as lenders of last resort by offering emergency liquidity assistance (ELA in the context of the Eurosystem).

Second, deposit insurance, the other element of the safety net aimed at alleviating financial distress, was proved to be insufficient as early as the crisis of Northern Rock. It was not until the collapse of Lehman Brothers, however, that regulators agreed to an increase in the harmonized minimum coverage of insured deposits from €20,000 to €100,000 (Commission 2008) by end of 2010; the end of coinsurance;<sup>7</sup> and an increase in the speed of repayment for insured depositors. For a discussion on the limitations of the deposit insurance in the EU see Eisenbeis and Kaufman (2007) and Garcia, Lastra and Nieto, (2009).

In response to the inability of the safety net regulators' actions to stall the financial crisis; national governments scrambled to provide guarantees to their financial institutions' debts and to acquire not only their good but also, in some cases, their poor quality assets. Moreover, government support often encompassed recapitalizations of financial institutions. Such support was initially granted in an uncoordinated manner within the EU.<sup>8</sup> Coordination happened only *ex post* and was led by the European Commission in the context of its State aid policy, which aimed to preserve an integrated financial market within the EU. The unpreparedness of policymakers in the crisis highlights the importance of developing an institutional framework for dealing effectively with the reorganization and resolution of systemically important financial entities both at national and international level.

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<sup>6</sup> The important issue of coordination in a System of European Bank Resolution Funds is beyond the scope of this paper.

<sup>7</sup> After depositors, facing a haircut from coinsurance ran at Northern Rock.

<sup>8</sup> Aid from central banks and monetary policy/discount window policy were coordinated, however.

Immediately after the onset of the crisis, support from national governments was initially targeted to individual institutions. As the crisis intensified after the fall of Lehman Brothers in October 2008, however, governments judged that interventions needed to be extended to a larger number of banks and even to the financial system as a whole. Hence, more comprehensive schemes were adopted in a number of countries, including the Irish and Danish blanket-guarantee schemes for virtually all bank liabilities (including retail, corporate and interbank deposits).

The advantage of a permanent BRRF that we propose, as compared to the *ad hoc* measures that were employed in the crisis, resides in its transparency regarding which institutions are eligible, the conditions of access as well as the limitation of moral hazard derived from the unlimited government support. The existing rescue and restructuring guidelines of the EU State aid policy were not sufficient to address promptly the level-playing-field issues raised by countries' immediate responses to the banking crisis.<sup>9</sup> Also, the European Central Bank played a coordinating role in drawing up recommendations for a framework appropriate for the pricing the recapitalization schemes;<sup>10</sup> for government guarantees on bank debt issuance;<sup>11</sup> and for bank asset support measures.<sup>12</sup>

The Commission's approval for schemes<sup>13</sup> and *ad hoc* interventions from 1 October, 2008 to 1 October 2010 shows that the maximum volume of Commission approved measures amounted to 39% of EU-27 GDP for 2009. Although, the nominal amount of financial support that was actually used and reported to the Commission was 9.3% of EU-27 GDP. However, this percentage does not reflect the wide differences among countries within the EU—differences that range from almost 141% of Irish GDP to almost 3% Portuguese GDP. Figure 1 shows the relative mix of government support for a selected group of EU countries as of October, 2010. Support provided after 1st October 2010 is *not* represented in the chart.

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<sup>9</sup> In this context, the EU Commission's coordinating role materialized in guidance on: (a) government guarantees on bank debt issuance to ensure the temporary nature of these measures (OJ C 270, 25.10.2008, pp. 8-14); (b) the recapitalization of financial institutions limiting aid to the minimum necessary and establishing safeguards against undue distortions of competition (OJ C 10, 15.1.2009, pp. 2-10); (c) the treatment of banks' impaired assets, incentivizing disclosure of asset impairments and fair valuations (OJ C 72, 26.3.2009, pp. 1-22); and (d) the return to viability and the assessment of the restructuring measures in the financial sector under the State aid rules (OJ C 195, 19.8.2009, pp. 9-20). The Commission obliged each country to submit a comprehensive restructuring plan demonstrating how the bank would restore long-term viability without State aid as soon as possible.

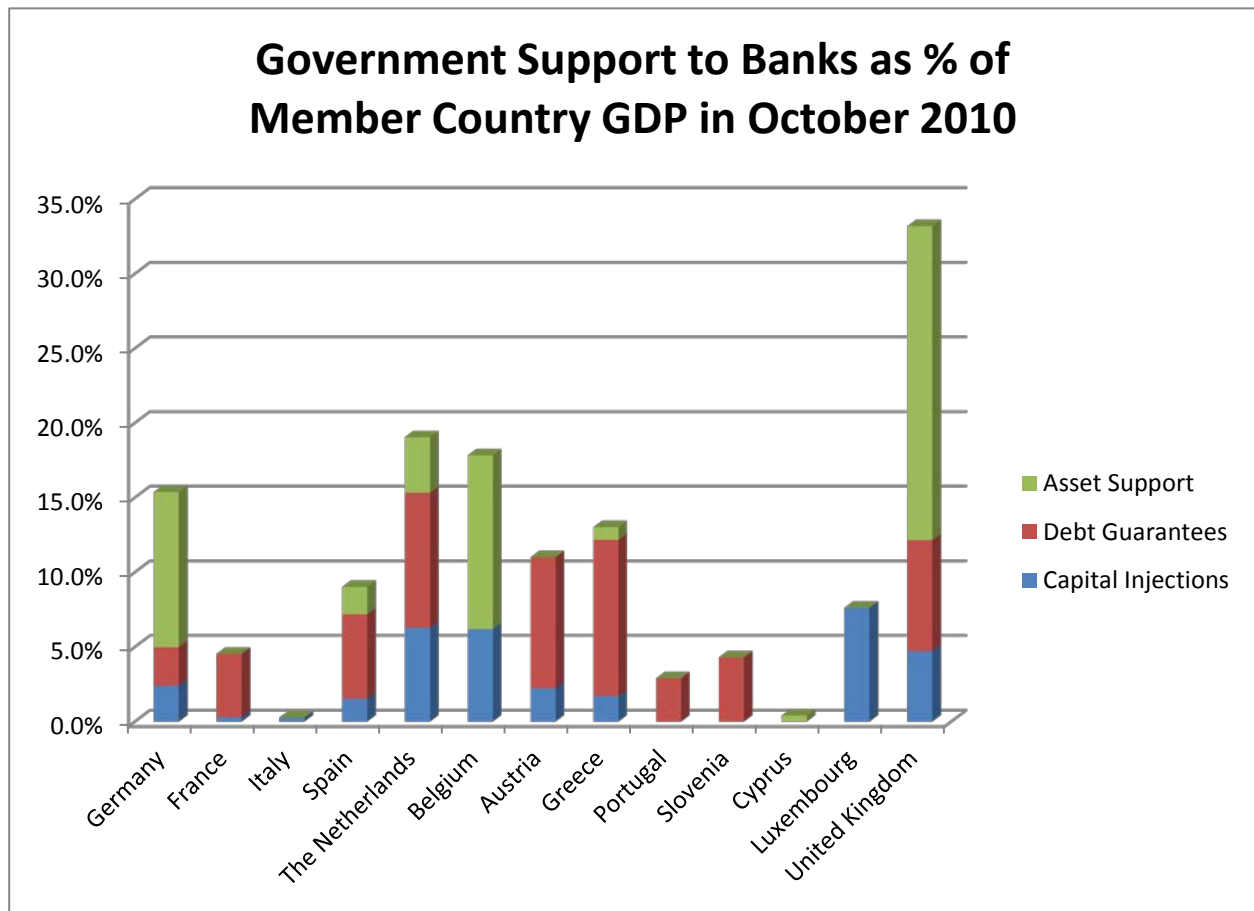
<sup>10</sup> See [http://www.ecb.int/pub/pdf/other/recommendations\\_on\\_pricing\\_for\\_recapitalisationsen.pdf](http://www.ecb.int/pub/pdf/other/recommendations_on_pricing_for_recapitalisationsen.pdf).

<sup>11</sup> See [http://www.ecb.int/pub/pdf/other/recommendations\\_on\\_guaranteesen.pdf](http://www.ecb.int/pub/pdf/other/recommendations_on_guaranteesen.pdf) and Box 2 in Stolz and Wedob (2010).

<sup>12</sup> See <http://www.ecb.int/pub/pdf/other/guidingprinciplesbankassetsupportschemesen.pdf>.

<sup>13</sup> The approved schemes represent the overall maximum amount of State aid guarantees, capital injections and other) set up by Member States and approved by the Commission. The figure shows the upper limits of financial support that Member States were allowed to grant to the financial institutions and not the much lower amounts actually provided.

Figure 1:



Source: Authors' analysis of European Commission data (excluding Ireland for the sake of comparability).

Notes: Ireland is excluded from the chart because its aid (at 140.6% GDP) swamps the chart. Data for Spain include only purchases of good-quality assets. Data for Germany, Ireland and the UK include purchases of impaired assets. Greece's data include assets swapped for government bonds eligible as collateral in the Eurosystem's main refinancing facilities. Ireland provided guarantees of bad debts of 90.6%; capital injections of Ireland of 31.4% and banks' asset support measures of 18.6% GDP (October, 2010) - The EU Commission (Dec 7, 2010) also lists inquiries into aid to banks by Denmark, Finland, Hungary, Latvia, Lithuania, Poland, Slovakia, and Sweden, for which the authors have no numerical data.

According to Stolz and Wedob (2010) government support was highly concentrated –not only by country but also by bank size.<sup>14</sup> In the euro area, 37 percent of capital injections and 63 percent of the asset protection schemes were granted to the three largest banks. In the UK, 61 percent of capital injections and 52 percent of the asset protection schemes were absorbed by the largest three recipient institutions.

<sup>14</sup> Only Bulgaria, the Czech Republic, Estonia, Malta and Romania did not grant any State support to their financial systems. EU data show that close to 70% of the maximum volume (both schemes and ad hoc interventions) was provided by the United Kingdom, Ireland, Denmark, Germany and France (see [http://ec.europa.eu/competition/state\\_aid/studies\\_reports/studies\\_reports.html#scoreboard](http://ec.europa.eu/competition/state_aid/studies_reports/studies_reports.html#scoreboard)).

*Specific characteristics of bank debt guaranteed by governments*

Since October 2008, government guarantees have provided temporary coverage for retail deposits (and debt held by retail clients), certain types of wholesale deposits (excluding interbank deposits), and short and medium-term debt instruments, to the extent that such liabilities are not already adequately protected by existing guarantees for depositors and investors. The mean maturity of the guarantees at issuance is around three years, although it varies by country. Mostly government guarantees of new issued bank senior debt and roll-overs of banks' maturing debt aim to further ease the solvent banks' liquidity problems. In order to exclude protection of shareholders and other risk capital investors, coverage excludes subordinated debt (Tier 2 capital) and has eschewed blanket guarantees (the indiscriminate coverage of all liabilities).

The historically high levels of the CDS spreads and the stigma associated with accepting government guarantees seem to explain to a large extent, banks' reluctance to use government guarantees. Furthermore, the rise in government spreads mirrored that of the government guaranteed bonds (see Charts 6 and 7 in Stolz and Wedob, 2010).

*Specific characteristics of bank recapitalization by governments*

As acknowledged by the EU Commission: "recapitalization measures were aimed mainly at strengthening the capital position of fundamentally sound financial institutions in order to improve the functioning and stability of the banking system and to foster an adequate flow of credit to the economy" (ECB 2008).<sup>15</sup> Although initially capital support came in the form of Tier 2 capital and non-core Tier 1 (e.g. preferred shares in Northern Rock) in order to avoid any minority voting rights, it was only a matter of time before the governments' financial support materialized into acquisition of banks' ordinary shares and even full nationalization (e.g. Hypo Real Estate; Anglo Irish). This took place hand in hand with increasingly market focus on high loss absorbing regulatory capital components. In some instances, the capital injections were to the banks' holding company structures, providing significant evidence that governments intended to provide support to the entity's entire legal structure. In other instances, capitalization involved support by several governments simultaneously (i.e. Dexia and Fortis).

Both the EU Commission and the ECB provided guidance on the methodology for calculating the remuneration policy for government capitalizations based on market prices and according to specific bank risk, taking into consideration the level of subordination and corresponding risk of the specific instrument. Subordinated debt is referenced to CDS spreads and government bond yields, while ordinary shares are linked to equity risk premiums. Most importantly, pricing was intended to incentivize the temporary nature of the government's involvement

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<sup>15</sup> See [http://www.ecb.int/pub/pdf/other/recommendations\\_on\\_pricing\\_for\\_recapitalisationsen.pdf](http://www.ecb.int/pub/pdf/other/recommendations_on_pricing_for_recapitalisationsen.pdf).



using add-on fees (e.g. add-on fee of 200 basis points per annum to the entry price of subordinated debt and add-on fee of 100 basis points per annum for ordinary shares) call options or conditional payment of dividends.

Government recapitalization has (or should have) been taking place without prejudice to supervisors' deciding whether banks should be restructured or wound up. Furthermore, distressed banks that have received State aid in the form of recapitalization and/or impaired asset support, which altogether exceeds 2% of the bank's total risk-weighted assets, are obliged by the Commission to present a restructuring plan.

#### *Specific characteristics of asset support by governments*

Government asset support in the first stage of the crisis took two forms: asset insurance schemes, which maintained the assets in the banks' balance sheet and asset removal schemes, which transferred the assets to a separate institution (bad bank) e.g. Germany<sup>16</sup> and Ireland.<sup>17</sup> In both cases, as highlighted by Stolz and Wedob (2010), asset support faces the challenge of pricing the impaired assets.<sup>18 19</sup> Asset support improves, *prima facie*, banks' solvency ratios to the extent that asset purchase prices are above their book values. In return, the bank pays a fee or insurance premium based on the riskiness of the insured portfolio, which takes into consideration, the difference between the asset book value and some measure of the asset "fundamental value." Moral hazard is, at least partly limited by conditioning government intervention to the bank having a minimum core capital and shareholders paying insurance premiums from distributable profits.

Regarding the relation between the different types of government support, Panetta *et al.* (2009) made a number of empirical observations based on the international experience that are worth highlighting since they also largely apply to the EU. First, almost all banks that received capital injections also participated in impaired asset support schemes (e.g. Hypo Real Estate, Commerzbank, ING and Royal Bank of Scotland). Moreover, purchases of impaired assets often occurred after earlier government capital injections, which seem to point to the same banks having solvency problems. Secondly, in the case of bank debt guarantees, approximately half of those that received capital injections also received government guarantees for their bank debts

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<sup>16</sup> The German scheme is a hybrid. Banks are shielded from losses only temporarily. Ultimately they have to bear all losses on assets transferred to a liquidating institutions supervised by its SoFFin (Financial Market Stabilization Fund).

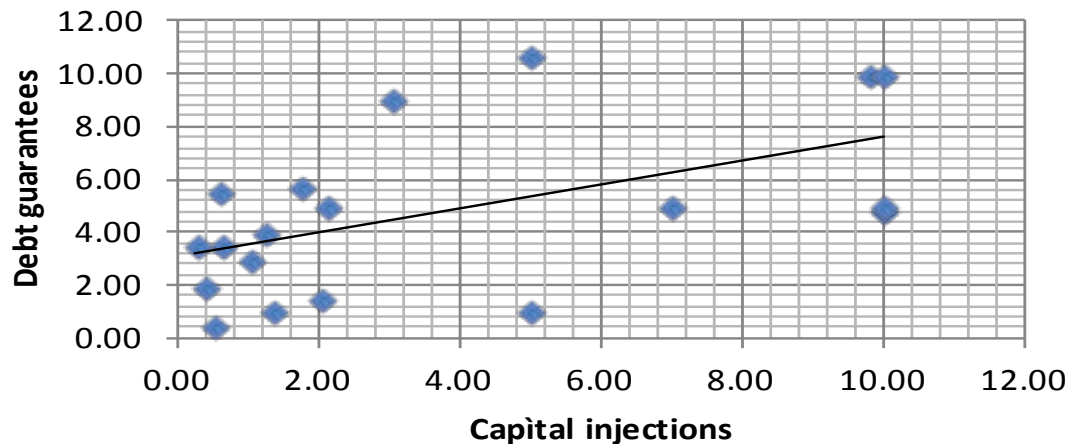
<sup>17</sup> In Ireland the National Asset Management Agency (NAMA) began acquiring assets from the five major Irish banks at an average 47% discount in March 2010.

<sup>18</sup> Typically the assets were impaired except in Spain where good quality assets were supported to provide liquidity to banks.

<sup>19</sup> If the guaranteed asset remains on the balance sheet, the bank usually assumes the first loss, e.g. 16% share of the portfolio in the case of Royal Bank of Scotland and 20% in the case of ING. The government assumes the subsequent (and larger share) of the potential losses on the insured portfolio of assets. Although assets continue in the banks' balance sheet, at least some associated "tail risk" is removed from the balance sheet.

(e.g. Commerzbank, Bayern LB, ING and Erste)<sup>20</sup> and, thirdly, banks that received bigger capital injections also tended to be the ones that have borrowed more under government debt guarantees,<sup>21</sup> confirming the substitutability between capital and liquidity in the short term. Liquidity provides a buffer from adverse shocks but in the form of time rather than loss absorption. Figure 2 shows a similar pattern in the case of banks in a sample of euro area countries.<sup>22</sup>

**Figure 2: Capital injections and debt guarantees in €bill (October, 2010)**



Source: Author's analysis of EU Commission data for German, French, Dutch, Austrian and Portuguese banks.

### 3. Rationale of BRRF: Is this a new concept?

Banking regulations had been outpaced by developments in the broad financial markets. For the purpose of our paper we are focusing on the rapid increase in leverage, particularly on the large dependence on wholesale markets rather than more stable sources of funding such as deposits (Figure 3).<sup>23</sup> In addition, legal systems were unable to effectively resolve financial institutions,<sup>24</sup> especially as resolution authorities lacked funding needed for efficient resolutions. Deposit guarantee schemes (DGS) for small depositors were unable to cope with the late 2008 panic in the wholesale funding markets.

<sup>20</sup> All Irish and Greek banks that received capital injections also received debt guarantees.

<sup>21</sup> See Figure 1.2 in Panetta et al. (2009).

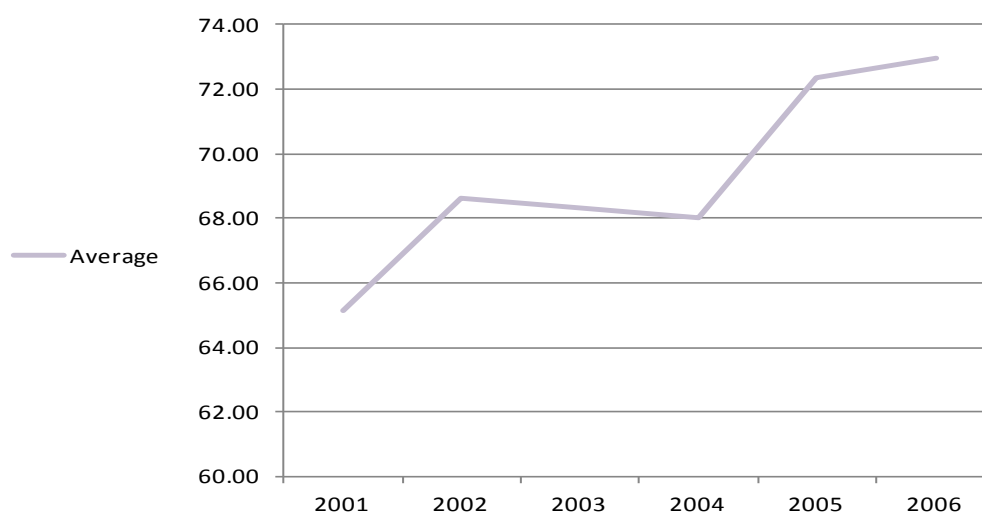
<sup>22</sup>  $r = 0.31$ .

<sup>23</sup> The IMF (2010b) and Herring and Carmassi (2010) point to banks' increased size, concentration, complexity, and interconnectedness, greater leverage, and reliance on volatile short-term funding with more maturity mismatches.

<sup>24</sup> For an analysis of the limitations of the reorganization and resolution procedures in the EU see Campbell (2003) and Garcia, Lastra, Nieto (2009).

Since the beginning of the crisis, academics and policymakers have been rethinking the design of the safety net. While capital requirements are now being tightened, the prudential regulatory toolkit extended, and supervision improved and further coordinated (to discourage supervisory arbitrage) under the European Banking Authority, several post-crisis improvements remain to be accomplished in order to complete the redesign. The rescue actions described in Section 2 were costly<sup>25</sup> and ran the risk of encouraging banks to take even more risks in the future because they expected to be bailed out if their actions misfired. This paper recommends BRRFs aimed at providing credibility to the reorganization and winding up of financial institutions by limiting LGD and allowing for balance in the sharing of costs between private investors and tax payers.

**Figure 3. Loan to Deposit Ratios (average for the EU 27 countries)**



Source: BankScope and authors' analysis.

### 3.1 Policy Goals and Tools

Thus preserving and restoring financial stability is not policy makers' only current objective—governments now have an increased number of social objectives. As Brierley (2009) notes, while many EU countries do not describe their goals, the 2009 law embodying the UK's Special Resolution Regime (SRR) has five statutory objectives.<sup>26</sup>

Governments can use quantitative restrictions and/or price incentives to achieve their goals. Often a quantitative restriction or a priced incentive is designed to control bank

<sup>25</sup> The EU Commission estimates that the aggregated aid element of all government support measures to the financial sector represented 0.018% of EU-27 2009 GDP.

<sup>26</sup> They are: maintaining financial stability, ensuring confidence in the banking sector, protecting depositors, containing demands on public funds, and preserving property rights under the European Convention on Human Rights (ECHR).

behavior in a one-to-one relationship between the tool and the goal. It is wise to remember, however, that a policy instrument is best *not* regarded as having solely a direct relationship with its goal. Instead, a set of tools (that often includes both quantitative restrictions and prices) provides a complex web of interactions among themselves and with their objectives. Economists can model these interactions in a set of equations. In order to solve these equations to determine at what levels to impose the restrictions and prices, policymakers need at least one tool for each objective. In fact, in an uncertain world, they may be helped by redundancies among their tools. Our proposal aims at redirecting some of the proposed policy tools (i.e. taxes; capital add-ons) towards strengthening banks' resolution.<sup>27</sup>

### *3.2 Quantitative Restrictions, Taxes or Levies on Banks?*

In the crisis aftermath, policymakers are now placing new and/or more severe quantitative restrictions on certain bank activities (quantity regulation) to change the incentive structure that banks face and thus restrain excessive risk-taking.<sup>28</sup> Quantity regulation varies from strict forms, such as limits on banks' size and business activity, to capital and leverage requirements that limit the extent to which risky assets can be funded with debt. Yet recent research by Perotti, Ratnovski and Vlahu (2011) and by Duchin and Sosyura (2011) points to the inadequacies of relying on the currently emphasized bank capital regulation to contain either banks' idiosyncratic or systemic risks.

Economists frequently argue that adjusting prices via taxes/levies, as opposed to quantities, is a more flexible and effective way to influence bank behavior. As opposed to quantity regulation, taxes/levies take the funds off the financial institution's balance sheet and the proceeds are generally managed by the government or public institution.<sup>29</sup> Thus, in response to the crisis, a number of countries have imposed various new taxes/levies on banks (see Table 1). These taxes aim to raise revenue to compensate (at least partially) for states' large expenditures and also to provide disincentives for certain banking activities so that the same objective could be met via either by quantity regulation or taxes/levies. Perotti and Suarez (2009), for example, propose a tax that is higher for shorter-term

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<sup>27</sup> Some deposit insurance systems have responsibility for resolving failed banks, so that their premiums may already cover the potential costs of such action. However, risk based premia have typically been based on individual banks' riskiness (or, alternatively volume of deposits) neglecting the potential negative externalities that each particular bank may cause in the financial system.

<sup>28</sup> In the US, the 1995 Riegle-O'Neal Interstate Banking Act adopted a 10 percent limit on a bank's share of deposits nationwide. The Volcker amendment to the Dodd-Frank Wall Street Reform and Consumer Protection Act aims to reduce risk-taking and complexity by constraining banks' proprietary trading activities. In the UK, the 2011 ICB recommends ring fencing domestic retail banking activities from wholesale/investment banking.

<sup>29</sup> Doluca et al., 2010, p. 5, analyze the advantages of levies over capital surcharges.

funding and decreases to zero for medium-term liabilities, thus addressing the externality caused by funding fragility.

Along similar lines, Acharya and Richardson (2010) propose to exact a financial stability fee to discourage all bank activities – not just leverage – that create systemic risk, particularly in good times when risk-taking is financially attractive. As Table 1 shows, bonuses paid to management have been repeated targets of additional taxation, also a levy on larger institutions aim to discourage further consolidation and compensate for the negative externalities that could derive from their systemic character.

**Table 1. New Taxes on Financial Institutions**

COUNTRY	SCOPE	BASE	MONETARY AND POLICY GOALS
<b>Temporary Taxes for Gov't General Revenues</b>			
Austria, 2010-13	All financial institutions	0.055-0.85% assets by size	€300mn p.a.; penalize large size
Austria, 2011-13	All financial institutions	0.013% financial derivatives	n.a. reduce derivative risk
France, 2010-13	Financial institutions	On bonuses > €27.5K	€360mn-€504mn p.a.; contain bonuses
Hungary, 2010-14	Credit institutions	30% profits	n.a.; raise revenue, discourage risk
Hungary, 2010-14	Credit institutions	0.15-0.33% assets by size	HUF 187mn p.a.; penalize large size
UK, 2009	Banks, building societies	50% bonuses > £25k	£2bn; discourage large bonuses and risks
<b>Permanent Taxes for Gov't General Revenues</b>			
Austria,	All banks > €1bn	Balance sheet	n.a.; raise revenue, discourage large size
France, 2010 on	Regulated banks	0.25% minimum capital	€80mn in 2012; raise revenue
Italy, 2010 on	Financial institutions	10% large bonuses	€10mn p.a.; reduce large bonuses & risks
Latvia	Credit institutions	0.036% eligible liabilities	p.a.; contain bank size and risk
Portugal	Credit institutions	Eligible liabilities+ derivatives	n.a.; contain large size and derivative use
UK, 2009 on	Banks and building societies >£20bn	0.04-0.08% eligible liabilities	£1.7bn; £2.8bn in 2012; contain size & risk
<b>Proposed Taxes for Gov't General Revenues</b>			
Cyprus, 2011-12	Banks, coop societies	0.085% eligible liabilities	€80mn p.a.; contain size and risk
Italy	Banks, Invest cos. with equity>€300mn	0.25% minimum equity	€304mn p.a.; curb subsidy to big institutions and discipline their risk-taking
Slovenia, 2012-14	Financial Institutions	0.2% eligible liabilities	n.a.; contain size and risk
USA, not enacted	SIFIs	Most assets	\$117bn; repay TARP, end subsidy to SIFIs
EU Commission	Financial Activities Tax	Profits, wages	n.a.; raise revenue; discourage churning
IMF	All financial institutions	Excess profits, high pay	n.a.; contain risk and high compensation
<b>Permanent Taxes for Special Purposes</b>			
France, 2009 on	Credit Institutions	50% bonuses >€5K	€300mn; to contain bonuses and help SMEs
Slovenia, 2011 on	Banks with low lending	0.1% assets	€3mn; encourage banks to lend, fund loans
USA, 2011	Banks and savings institutions	Assets, not deposits, for deposit insurance premiums	\$0; increase large banks' share of deposit insurance funding

Sources: Authors' analysis of data from Schich and Kim (2010), IMF (2010a), Buessemaker (2011), Ireland (2011), FDIC (2011)

### 3.3 BRRFs: Objectives and functions

This paper advocates the creation of national bank resolution funds (BRRFs) funded by a systemic levy that is based on Basel Committee's methodology recently proposed for the capital surcharge on systemically important banks<sup>30</sup> that, in our proposal, would be applied to all national financial institutions (FIs). As in the case of the capital surcharge, our proposed levy aims at internalizing the potential negative externalities caused by the failure of FIs but it will not be managed either by the FI and/or the government. We envisage BRRFs as a reorganization and restructuring tool and, as such, one that demands, as necessary condition for its effectiveness, an effective and credible national legal framework for resolving FIs in crisis.

Similarly to Doluca et al., (2010), in our proposal BRRFs will be financed by levies based on FIs relative systemic importance but, in our proposal, all FIs would be contributors and not only those "ex ante" considered to be systemic. We propose that the levy would feed a fund that would enable burden sharing of tail risks between private investors and tax payers.

Furthermore, in our view, BRRFs could contribute to reduce LGD above a certain minimum level if an effective and credible resolution regime were in place. In sum, in our view, BRRFs aim at shifting the government's tradeoff between bailing out and restructuring troubled banks towards their restructuring and, if unsuccessful, their eventual winding up.

To meet these objectives, BRRFs could provide:

- a) Guarantees for the issuance of banks' senior debt, when normal access to the capital market is not possible in a systemic crisis. Such guarantees would exclude subordinated debt, bail-inable debt and contingent convertible debt aimed at conversion into risk capital because such debts are explicitly designed to impose risks on banks' own investors before sharing the burden with other FIs also BRRF's contributors (as described below BRRF will take first losses). Such guarantees should only be provided to banks undergoing formal restructuring proceedings.
- b) Capital for weak banks in the context of an effective formal reorganization and resolution process either directly via ordinary shares or as funding for a bridge bank that buys time for an orderly resolution. Hence, it is not aimed at keeping alive any failed institution, but to (i) preserve the infrastructure functions of the failed institution (i.e. large value payment) and (ii) prevent any fire sale of assets that could negatively affect solvent banks, limiting the possibility of triggering a systemic crisis. Such funds should ideally be provided in the form of core equity capital if markets are to be fully reassured.

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<sup>30</sup> See <http://www.bis.org/publ/bcbs201.htm> accessed 18th August, 2011.

(Non-core equity in Tier 1, as well all the elements in Tier 2, are by definition bail-inable debt whose conversion should have been triggered by the time that the BRRF capital injection is needed in a credible resolution regime.<sup>31</sup>) Similarly, there is also no case for injecting capital in the form of contingent convertible debt because the trigger (generally at or above 7% of risk weighted assets) for converting such debt would already have been passed.

- c) Funding for the acquisition of banks' impaired assets in the context of a formal reorganization and resolution procedure in order to avoid a contagious fire sale of assets.

Thus BRRFs can be designed to cover, at least partly, the costs that bank failures impose on the tax payers and ultimately on the whole economy but, in order to do so, they need to be backed by an effective and credible resolution regime for financial institutions that ultimately aims at limiting the cost of failure.<sup>32</sup>

### *3.4 The Legal Framework*

For BRRFs to successfully restore viable institutions to independent operation and efficiently and safely wind up nonviable credit institution each EU member state needs an appropriate legal framework for bank recovery and resolution. As Garcia, Lastra and Nieto (2009) have noted, such a framework was lacking in most EU countries before the crisis.

The Commission (2011a) issued a proposal on resolution for banks and banking groups for comment in January 2011. While "the general rule should be that failing credit institutions should be liquidated under ordinary insolvency proceedings, ..., in some cases orderly winding down through resolution will be necessary for reasons of financial stability" (page 8).<sup>33</sup> Since

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<sup>31</sup> Conversion should be triggered at the earlier of: (a) the point of non-viability as decided by the supervisor or, (b) the decision for the public sector to inject capital (proposal by the Basle Committee on Banking Supervision to ensure the loss absorbency of regulatory capital at the point on non-viability, August, 2010).

<sup>32</sup> BRRFs are funded by a national levy, so it does not aim to cover the costs that a country's failed banks impose on other countries' economies. The possibility of covering other countries' costs is left to future analysis.

<sup>33</sup> This Commission's proposal foresees a several-step process beginning with improved supervision for all institutions and offering weak banks and groups an opportunity to recover independently, while operating under extraordinary supervision. The bank would form a recovery plan to be reviewed and approved by the supervisory authorities; increase its capital by retaining its profits or raising new funds; make changes to management; restrict business activities; and develop a plan to restructure its debt. If the credit institution did not then recover, it would be placed under special management (administration) and resolved. In this resolution process shareholders stand first in line to incur losses and unsecured creditors next. An explicitly designated resolution authority should have the power to replace senior management, sell all or parts of the business, create a bridge bank, and/or

the crisis, a number of countries (including Belgium, Denmark, France, Germany, Ireland, and the UK) have enacted new laws to govern the resolution of their banks and, at the time of writing this paper, the EU Commission is due to issue a Directive in this regard.

As Table 2 illustrates, the Commission's proposals have not all been reflected in the laws of a number of EU countries. Not all countries, for example, provide for all of the legal powers necessary for an effective BRRF, such as a recovery plan; ability to change owner rights; reduce claims, transfer assets, liabilities and/or shares; create a bridge bank; and/or provide funding. Frequently, a resolution authority is not designated, and the timing permitted for resolution ranges from six months to five, even 10 years.

**Table 2. Powers in Restructuring, Reorganization and/or Winding UP**

	<b>Supervisor</b>	<b>Bank</b>	<b>Court</b>	<b>Minister</b>	<b>Administrator</b>	<b>DGS</b>
<b>Who Can Request Reorganization</b>	Austria,Bulgaria <sup>1</sup> Spain, <sup>1</sup> Denmark, France, Hungary, Ireland <sup>1</sup> Italy <sup>1</sup> Poland, Portugal, Romania*UK	Austria Bulgaria Germany Spain				
<b>Who Decides On Reorganization</b>	Denmark, Poland, Spain <sup>1</sup> UK		Austria, <sup>2</sup> Belgium Bulgaria, France, Ireland, Portugal <sup>2</sup> Romania	Italy		
<b>Who Executes Reorganization</b>	Hungary, Ireland <sup>1</sup> , UK <sup>4</sup>	Denmark			Austria, Bulgaria, France, Germany, Italy, Poland <sup>3</sup> , Portugal, Romania	Belgium, Spain
<b>Require recovery plan for Reorganization</b>	Denmark, Germany, Ireland, Poland, Romania, UK					
<b>Can Change owner rights</b>	Austria, Bulgaria, Germany, Ireland, Italy, Poland, Portugal, Romania, Spain <sup>5</sup> , UK <sup>5</sup>					
<b>Reduce claims</b>	Austria, Bulgaria, Denmark, France, <sup>5</sup> Germany, Portugal, UK <sup>5</sup>					
<b>Transfer asset, business, and/or liabilities</b>	Belgium, Denmark, France, Germany, Hungary?, Ireland, Italy, Poland, Portugal, Romania, Spain, UK.					
<b>Create Bridge Bank</b>	Denmark, Germany, Ireland, Romania, Spain, UK					
<b>Duration</b>	6months: Bulgaria; 1year: Austria, Italy, Portugal; 18 months: Belgium; short-term: France; 5 to 10 years: Denmark, Poland.					
<b>Can Provide Funding</b>	DGS: Austria, Bulgaria, Denmark, Portugal, Spain, UK. BRRF: Denmark, Germany, Ireland, Spain.					
<b>Appeal Possible</b>	Austria, Germany, Ireland, Portugal, Romania, UK.					

**Sources:** Authors' analysis of data from the EU Directive and Country laws (for Austria, Belgium, Bulgaria, Germany, Hungary, Ireland, Italy, Poland, Romania, and Spain) on Bank Reorganization and Winding Up, and/or on depositor protection, Brierley (2009), Buessemaker (2010), Chihak and Nier (2009), Mayer-Brown (2009), and Pawlilowski (2009).

**Notes:** <sup>1</sup>The central bank is the supervisor. <sup>2</sup>The court consults the supervisor. <sup>3</sup>In Poland administrator/attorneys, appointed by the DGS, execute the reorganization. <sup>4</sup>The Bank of England executes the reorganization. The UK government has said it intends to restore the Bank of England as the supervisor. <sup>5</sup>The ability to change owners' rights is limited.

### *The Restructuring Authority and the Deposit Guarantee Scheme*

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transfer assets, liabilities, and shares. The Commission proposes that the special management regime would last for one year, but could be extended to two years.



With separate funding, the task of restructuring could be allotted to the deposit insurance agency, as has been done in the U.S. While this might be workable in those EU countries that endow their DGS with broad powers, such a model is relatively rare in the EU where many DGS have authority limited to compensating depositors in failed banks. In these countries a new agency might be created to restructure troubled banks. (The supervisor would not be the restructuring agency because, with conflicting responsibilities, it might be tempted to forbear on disciplinary action. It would however have a seat on the restructuring agency's board.) Such an arrangement would permit banks to request reorganization. Alternatively, the BRRF might merely collect FIs' contributions and deploy funds to the separate body that would be responsible for restructuring and resolution—in a manner similar to that of narrow European DGS—but such an arrangement would be unlikely to be effective because of supervisory forbearance.

What remains to be identified is the sources of funding for national BRRFs. Laws already provide that banks submit deposit insurance premiums to protect small depositors from loss at failed banks. Deposit insurance premiums are not meant to be used to protect failed banks' large clients, nor customers of bankrupt nonbank financial institutions. Nor, in European countries with narrow systems of deposit insurance, are premiums intended to prevent banks from failing. Consequently, given, authorities' almost universal reluctance to let systemically (and not so) important financial institutions fail, a new source of funding is needed to facilitate the restructuring of troubled banks (and other systemically relevant financial institutions).

Our first choice for funding efficient reorganization and winding up is contributions by financial institutions that would take first losses and, hence, limiting moral hazard. Alternatively, as it is the case in the US, the government might provide the funding for bank resolution temporarily and hope to recover the funds expended later after the bank's remaining assets are sold.<sup>34</sup> It might fund resolution outlays from the general budget, while imposing new taxes on financial institutions. In our view, as compared to our proposal, this alternative approach is more prone to moral hazard. Table 1 above shows that a number of countries have already imposed new levies on banks to, at least, partly recovers the cost of financial crisis.

#### **4. Operational and governance aspects of the Bank Recovery and Resolution Fund**

##### *4.1 Intervention capacity: Amount of funds to be mobilized*

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<sup>34</sup> The resolution of systemically important financial institutions under the Dodd-Frank Act in the US follows this funding path.

In this section, we analyze BRRFs intervention capacity including the EU Commission's proposal that is based on a percentage of the total eligible liabilities of the contributing institutions (bank liabilities net of Tier 1 capital and deposits covered by the deposit insurance scheme). In light of the experience of the recent crisis, we propose a double reference for assessing BRRF's intervention capacity: government bank capitalization in the context of the present crisis and dependence of wholesale markets (excluding own funds).

As we showed in Section 2, regulators often treated banks' solvency problems as if they were liquidity crisis. Also, capitalization is the form of government intervention, which implies both the strongest bank financial support since all the other obligations are senior to shareholders' capital and also the intervention with the largest potential impact on the fiscal accounts from the moment it is granted.<sup>35</sup> Banks' capital is needed to support the transfer of healthy assets to another bank or to allow for the transfer and, subsequently, orderly winding-down of impaired assets, while enabling the bank to be accepted as a counterparty in money and derivatives markets. On those grounds, the nominal amount of government bank capitalization over GDP used in the context of the present crisis has served as a valid reference for the intervention capacity of BRRF funds. In the EU, the median amount of capital injections by Member Countries was 2.2 percent of their own GDP (the arithmetic mean was 5 percent) as of end 2010. The IMF based on its global experience has indicated that on the basis of past experiences of crises, approximately 2-4 percent of each countries' GDP should suffice for the provisioning of resolution funds (this corresponds to the direct costs of the ongoing banking crisis) (IMF, April 2010a). In Sweden, the already established BRRF is targeted to reach 2.5 percent of its GDP, while Germany's is targeted to reach almost 4 percent of the 2009 German GDP.

Table 2 shows the target size of the BRRF of the EU countries assuming an overall intervention capacity of 4 percent of the respective 2009 GDP ("target size of the BRRF") as compared to the average size of the 2009 national "eligible liabilities." Note that our definition of "eligible liabilities" is somewhat different from that of the Commission Working Document for the calculation of the target size of the BRRF.<sup>36</sup> Table 2 includes an approximation, called "adjusted eligible liabilities," that employs total liabilities minus own funds and customer current, savings

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<sup>35</sup> Government guarantees of bank debt are shown in the government accounts only when guarantees have to be effective. In some cases, such as Royal Bank of Scotland, government bail-out went hand-in-hand with imposing losses on subordinated debt holders.

<sup>36</sup> The EU Commission's definition of eligible liabilities--liabilities of contributing institutions net of Tier 1 capital and covered deposits-- does not include the nominal value of financial derivatives, which are off-balance sheet but which Germany, Austria and Portugal have included in the calculation of their bank taxes.

and term deposits. We also exclude Tier 2 capital from the definition of eligible liabilities.<sup>37</sup> This is consistent with the proposal by the Basle Committee on Banking Supervision to ensure the loss absorbency of regulatory capital at the point on non-viability (August, 2010), which establishes the trigger for write-down of all non-common Tier 1 and Tier 2 instruments. Ideally, intragroup debt transactions and any type of bail-inable debt (our public data base made not possible that distinction) should also be excluded from the definition of eligible liabilities. Nonetheless, the “adjusted eligible liabilities” are not themselves subject to any guarantee and their value is only as a reference, since no bank credit-holder of any of those adjusted eligible liabilities will have any right to the BRRF, unlike insured depositors in a deposit insurance fund.<sup>38</sup>

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<sup>37</sup> Includes not only banks but, in general, depository institutions (credit cooperatives and savings banks) on a nonconsolidated basis. Alternatively, a narrower definition of “adjusted eligible liabilities,” could consider interbank deposits outside the financial group; non bank financial sector deposits and non financial sector corporate deposits.

<sup>38</sup> The Luxembourg central bank proposes to launch a Fond de Stabilité Financière that includes a Deposit Guarantee System and a Bank Resolution Fund. The latter would be expected to reach €1.9 bill in 10 years, which represents approximately 5 percent of 2009 GDP. The large size of the proposed Bank Resolution Fund seems to be explained by the large average size of the Luxembourg banks (€7.69 bill) as compared to its GDP. The Fund would be fully financed by banks based on a fee (1.5 percent) of eligible banks liabilities. The Bank Resolution Fund could issue debt guaranteed by the government to temporarily complete the target amount. The proposed target level of the Luxembourg Bank Resolution Fund implies an intervention capacity of the BRRF measured by the ratio of the target size of the BRRF over the average eligible liabilities of 0.5 percent as compared to 0.4 percent in our proposal.

**Table 2: BRRF Intervention capacity**

	<b>BRRF mill (4% 2009GDP)</b>	<b>Average Bank Eligible Liabilities</b>	<b>BRRF/ Avg Bank Eligible Liab %</b>
Germany	96364.0	26715.7	3.61
Austria	10972.8	1159.3	9.46
Belgium	13491.4	21081.6	0.64
Bulgaria	1355.1	1007.5	1.34
Cyprus	677.8	3064.5	0.22
Denmark	8915.7	4226.1	2.11
Slovakia	2533.3	1525.5	1.66
Slovenia	1395.8	1541.9	0.91
Spain	42046.0	27982.2	1.50
Estonia	549.2	701.3	0.78
Finland	6852.6	31795.0	0.22
France	76285.8	21397.7	3.57
Greece	9499.8	14326.8	0.66
Holand	22808.3	41850.4	0.54
Hungary	3723.4	2233.5	1.67
Ireland	6541.7	38907.4	0.17
Italy	60834.8	8084.9	7.52
Latvia	741.6	785.3	0.94
Lituania	1066.0	1340.2	0.80
Luxembourg	1505.8	3834.8	0.39
Malta	228.8	1286.5	0.18
Poland	12403.0	2233.5	5.55
Portugal	6705.3	11511.1	0.58
Czeck Republic	5489.8	5573.3	0.99
Romania	4634.8	1503.2	3.1
Sweden	11707.2	4996.8	2.34
UK	62527.4	33670.0	1.86

Source: ECB (EU banking Structures, Sept 2010 <http://www.ecb.int/pub/pdf/other/eubankingstructures201009en.pdf>); BankScope and author's analysis. It does not exclude intergroup transactions and any bail-inable debt other than that included in Tier 2.

It could be argued that countries with large banking systems as compared to their GDP and/or banking systems that operate with comparable higher levels of dependence on the wholesale markets (either because they have comparatively lower levels of regulatory capital or a lower customer deposit base) should require their national banks to make larger contributions to BRRFs as a means to internalize larger potential negative externalities.<sup>39</sup>

Against this background, we propose that the minimum national BRRF intervention capacity would be defined according to the following formula for a given year:

National Intervention Capacity of the BRRF = Max. [4% GDP; Avg. bank adjust. eligible liabilities] (1)

<sup>39</sup> As an example, in the Netherlands, the cost of the capitalization of Fortis was €17 bill (October 2008). In January 2009, the Dutch government also committed €28 bill as a backstop facility for a portfolio of mortgages held by ING. According to our proposal, if the BRRF would have been in place and fully funded in 2008, the leverage criteria would have been the binding restriction of its intervention capacity in the Netherlands (€41.85 in 2008 as shown in Table 2) covering over 90 percent of the fiscal cost.

That would imply in our proposal, presented in Table 2, that the “Average bank’s adjusted eligible liabilities” would be the deciding factor in 12 countries. Unless their prudential regulators penalize larger leverage in the wholesale market (through liquidity prudential regulation) so that banks reduce their dependence on wholesale markets in these countries. Finally, a regular review process would need to be established in order to assess whether the BRRF’s intervention capacity remains adequate in light of market and institutional developments.

In order to put in perspective the size of the proposed BRRFs, Table 3 presents the financial support received from the IMF- EU by Greece, Ireland and Portugal as of September, 2011. These governments are therefore already receiving funds to finance the reorganization and restructuring of their banking sectors that would have corresponded to “hypothetical” BRRFs. In the case of these three countries, the “average bank’s adjusted eligible liabilities” would have been the reference for the definition of their respective “hypothetical” BRRFs intervention capacity.

**Table 3: Financial support to program countries over the program period (% 2009 GDP)**

	<b>Total Support % GDP</b>	<b>Fin Sector Support % GDP</b>	<b>Average Bank Eligible Liabilities / GDP(%)</b>
IMF-EU program Ireland	51.97	21.40	23.79
IMF-EU program Portugal	46.53	7.16	3.32
IMF-EU program Greece	46.32	4.21	6.03

Source: EU Commission. In Portugal, largest share of the financial sector support is government guarantees for bank bond issuance. All programs involve the authorities commitment to establish a resolution fund with a view to strengthen depositor protection and adequately fund resolution of distressed credit institutions, in consultation with EC, the ECB and the IMF, IMF-EU program conditionality extends over a 3 years period although repayment is over 7,5 years

#### *4.2 Characteristics of the banks’ contribution (levy)*

In the context of the financial crisis, some EU countries have launched special funds to provide financial support to banks. Not all of them could be considered “strictu sensu” BRRFs, as defined in the EU Commission proposal, because not all of them have the legal mandate to resolve failing banks or have the resolution tools envisaged in the Commission proposal. The existing funds vary from pure “ex ante” private contributions (the Swedish Fund managed by the government is the closest to the proposal in terms of intervention capacity) to a mix private-public contribution (German Restrukturierungsfondsgesetz – RStruktFG is also a resolution fund) and almost entirely public (Spanish Fondo de Reestructuración Ordenada Bancaria with some but limited tools to resolve failing banks). Some of these funds could lever themselves with a government guarantee—a guarantee that varies according different levels of risk assumed by the State. See Table 4 for a description of the private-public financing of the funds.

**Table 4: Private-public financing of selected national funds aimed at supporting banks in crisis**

Entity	Financing structure
Restrukturierungsfondsgesetz – RStruktFG (German Bank Restructuring Fund)	<p>Federal special-purpose vehicle, to finance future bank restructuring and winding-up measures. Federal Authority for Financial Market Stabilisation (Finanzmarktstabilisierungsanstalt) is responsible for administering the Restructuring Fund and implementing restructuring measures.</p> <p>Contributions by the German credit institutions. The level of contributions is based on banks' contribution to systemic risk based on their size and cross-linkage of the credit institutions within the financial market, and if necessary, including other indicators</p> <p>State contributions (loans and / or guarantees) up to a maximum of EUR 20 billion</p> <p>Envisages the possibility of leverage up to 20 times the collected funds up to a maximum of € 100 billion (approximately 4% 2009 GDP)</p>
French Société de Financement de l'Economie Française (SFEF)	<p>Overall intervention capacity of up to €77billion (approximately 4% 2009 GDP)</p> <ul style="list-style-type: none"> <li>• French State contribution 34%</li> <li>• French credit institutions 66%</li> <li>• In operation 2008-9 to borrow funds with a government guarantee and make loans to French banks so that they could continue lending in order to sustain the French economy, and especially Airbus/EADS.</li> </ul> <p>It should be considered de facto a "bail-out" fund</p>
Swedish Financial Recovery Fund	<p>The Stability fund, is targeted to reach 2,5 % of GDP</p> <p>The National Debt Office is responsible for managing the Fund</p> <p>financed 100% with bank / and other credit institutions fees, which amounts to 0.036 % (adjusted by risk) on all credit institutions liabilities excluding equity capital, junior debt securities that are included in the capital base, according to capital adequacy rules, and group internal debt transactions.</p> <p>The Fund bears all the costs of any support measure. The Swedish government has initially allocated funds from the central government budget to the fund, but the aim is that the costs should be carried by the industry itself.</p> <p>The National Debt Office acts as a restructuring authority and it has the right to redeem all outstanding shares in an institution that either has a capital ratio below 2 percent or refuses to reach an agreement and it is of extraordinary importance from the public perspective that the state takes control.</p> <p>Institutions participating and issuing debt within the guarantee scheme (deposit insurance) are allowed to deduct an average of their guaranteed liabilities during a year from the basis on which the stability fee is calculated.</p>
Fondo de Reestructuración Ordenada Bancaria (FROB)	<p>The Fund has a similar stand as the deposit insurance but it is separated from it.</p> <p>The Fund acquires ordinary shares, or other convertible securities of restructuring banks. The beneficiary bank must submit a recapitalisation plan that has to be approved by the Banco de España. Fund was initially funded of €9 bill (Deposit Insurance Fund contributed €2.25bill and State contributed €6.75 bill) Envisages the possibility of leverage up to 10 times the initial amount of €9 bill by means of government guaranteed debt issued by FROB</p>

Source: Author's analysis<sup>40</sup><sup>40</sup> See (i) [http://www.frob.es/general/dotacion\\_en.html](http://www.frob.es/general/dotacion_en.html); (ii) [www.riskgalden.se](http://www.riskgalden.se); (iii)[http://www.challenges.fr/depeches/politique\\_economique/20081024.FAP2551/la\\_societe\\_de\\_financement\\_de\\_l](http://www.challenges.fr/depeches/politique_economique/20081024.FAP2551/la_societe_de_financement_de_l)

Privately funded BRRFs, where banks share the risk, would imply an additional layer of monitoring by the market and a limit to moral hazard (an ubiquitous concept) under stress situations. Banks' equity contributions would absorb first losses by the BRRF intervention and Government support would be provided in exceptional circumstances in the form of government guarantees of the BRRF's debt issued in the capital markets (akin to the back-up line that the FDIC has with the US Treasury). Banks would have to repay the BRRFs for the amount borrowed (or the Government in the case where guarantees have to be made effective).<sup>41</sup> Moreover, in order to minimize moral hazard: (a) as a condition for maintaining a national bank charter, all banks legally incorporated in each country would pay contributions "ex ante" (bank branches would be excluded because they would be covered by fees paid by their parent bank);<sup>42</sup> (b) fees would take into consideration each bank's structural systemic importance;<sup>43</sup> (c) BRRF should be "housed" in the resolution authority that would operate under a structured early intervention and resolution framework for bank reorganization and resolution.

The calculation of fees should take into consideration that the BRRF would be funded over a sufficiently long period of time so that it would have a limited impact on banks' profitability. (As noted above, Luxembourg, for example, imposes a cap on banks' pre-tax income). In

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[economie\\_francaise\\_a\\_acco.html](http://economie.francaise.a_acco.html) ; and (iv)

[http://www.cliffordchance.com/publicationviews/publications/2010/10/german\\_bank\\_restructuringactimpactonnetting.html](http://www.cliffordchance.com/publicationviews/publications/2010/10/german_bank_restructuringactimpactonnetting.html).

<sup>41</sup> Politically, it would be increasingly difficult going forward to find acceptance for up-front government contributions. Moreover, such contributions would burden government budgets at a time when they are already under stress should the BRRFs be activated (but not until that moment). Having banks pay in the equity tranche and use government support only in the form of guarantees could ease budgetary pressures. Alternatively, an amount put into the fund upfront by the government could be gradually reduced over time as banks paid in their fees. This would allow a minimal intervention capacity to be quickly assembled with funds being regularly returned to the general budget over time.

<sup>42</sup> It is explained below that contributions are paid ex ante and are adjusted for the contribution to the systemic risk. This counteracts the pro-cyclicality of BRRFs funding. An *ex post* resolution fund to recover the costs of financial crisis would be even more pro-cyclical, because premiums would be collected during the economic downturn. Furthermore, *ex post* levies do not address moral hazard.

<sup>43</sup> There are at least four approaches to measuring systemic importance (Nieto, 2011). (1) The "indicator approach" uses balance sheet indicators to act as proxies for factors that policy makers consider to be ex ante determinants of systemic importance, such as size, interconnectedness and substitutability. Scores for each indicator and each financial institution are used to produce a synthetic measure of structural systemic importance. (2) The "network approach" uses network theory to map interconnections among financial institutions. Simulating shocks to specific institutions then allows supervisors to assess the domino effects on other institutions in the network. The assessment of systemic importance is measured as a function of the strength of those effects. (3) "Market information based approaches" use the information content of market prices, such as CDS spreads and equity prices, as inputs to assess the systemic importance of financial institutions. (4) Co-Risk measure, based on stock returns, such as the change in the conditional VaR as developed by Adrian and Brunnermeier (2010), measure the effect that individual banks have on the health of other banks.

extraordinary circumstances when the BRRFs were not sufficiently capitalized to undertake all necessary financing of the resolution measures, BRRFs could be leveraged via market financing using government guarantees in addition to the banks “equity” contribution to the fund. Banks would have to repay the BRRFs for the amount borrowed (or the Government in the case where guarantees have to be made effective). The size of the BRRF raises the important issue of where those funds should be invested when not needed. In good times, geographic diversification within the EU would, partly make up for excess concentration when funds need to be deployed to manage national financial crisis.<sup>44</sup>

In a stylized fashion, the systemic risk contributions ( $c_i$ ) of  $i$  –  $th$  member in each EU country could be defined as:

$$c_i = EUSAC\beta_i x_i \quad (2)$$

Where:

*EUSAC* = EU-systemically adjusted coefficient (b.p.) that accounts for the overall systemic risk level in the EU (under normal circumstances *EUSAC*= 1; in heightened systemic risk situations *EUSAC* > 1<sup>45</sup>). *EUSAC* Accounts for financial institutions and national regulators potential negative spill overs into other Member States not captured in the pricing of explicit forms of national government support. Calibration should be at the EU level since explicit support is largely harmonized in the EU. In the case of banks, investment firms and property and casualty insurance, it is possible to identify the sources of such government support although it would be more complex to quantify what represents explicit and implicit support respectively. Moreover, policy action in support of financial institutions changes market sensitiveness to conventional firm-specific default risk measures over time (Nieto, 2011) adding an additional source of complexity to the quantification of this component.<sup>46</sup>

$c_i$  = Contribution of financial institution  $i$  to the national level of systemic risk (after normalization, taking into consideration the number of financial institutions within each EU country, it will give the percentage to be paid by each bank contributing to the BRRF, whose intervention capacity is defined in formula (1))

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<sup>44</sup> This, in turn, is a strong reason for having a European resolution fund (definitely for the euro area countries). As a reminder, it should also be born in mind that, our proposal involves a levy on banks whose proceeds would be managed collectively as opposed to banks capital add on that would be managed individually by each bank.

<sup>45</sup> Calibration is left for further work.

<sup>46</sup> The quantification of explicit support would be definitely more controversial if contributors are also shadow banking institutions for which there is no formal explicit support.



$\beta_i$  = Systemically adjusted coefficient assigned to the  $i$  –  $th$  member (b.p.) in each EU country calibrated at national level that accounts for the government implicit support that a financial institution could receive due to its systemic importance at national level. As an example, the systemic risk factor  $\beta_i$  could vary between 75% and 200%<sup>47</sup> in a discrete fashion (five buckets) and it could be estimated by linear transformation of an indicator, which proxies the  $i$  –  $th$  member’s contribution to the national financial system’s systemic risk as proposed in the BCBS methodology based on a set of three indicators that measure size, connectivity and substitutability: Total Assets; interbank assets; interbank liabilities; wholesale funding; share in the large value payments; position in the league of debt capital market (including Asset Backed Securities). A more refined measure of these three indicators would adjust for risk (i.e. risk based assets; funding maturity mismatches). All financial institutions contribute. This avoids arbitrage and it is commensurate to the benefits of financial stability for all institutions in the financial system even if they are not direct recipients of the funds of the BRRFs.

$x_i$  = Total amount of adjusted eligible liabilities of the  $i$ -th member, in each country as per our definition

A systemically adjusted premium that is based on structural factors of “systemicity” responds to the criticism of pro-cyclicality in the *ex ante* resolution fund whose premia are lower in good times and higher in bad times. (Schoenmaker (2010) similarly argues that an insurance fund is typically pro-cyclical.) Such a systemic-based contribution would help to internalize the costs that a bank’s failure imposes on others, including the costs that are associated with moral hazard. However, measuring systemic importance faces at least two methodological challenges: (i) systemic importance is time dependent and (ii) it is difficult to separate the externalities that the failure of a large firm can cause on the financial system though spill overs from the externalities associated with common exposure to a common shock. These challenges render the *ex ante* assessment of systemic importance very difficult (Nieto, 2011). Nonetheless, the structural aspects of a financial institution’s “systemicity” can be proxied by its size, connectivity (e.g. exposure to the interbank market –assets and liabilities-) and substitutability (e.g. share in the large value payment system) using the above mentioned indicators.

In the case of highly and increasingly leveraged banking systems, banks’ contributions would increase according to formula (1). Since bank contributions to the BRRF are aimed at internalizing the negative externalities that their risk-taking imposes on the financial system and the economy as a whole. Hence, there is not a threshold size for the total amount of the BRRFs, which could be different by country and over time within the same country.

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<sup>47</sup> The range for the systemic risk factor  $\beta_i$  (75% and 200%) is similar to the one used by the Proposal for a Directive of the European Parliament and the Council on Deposit Guaranteed Schemes. It aims to penalize exponentially to the most risky/systemically important institutions. Com (2010) 368 Final. Brussels 12.7.2010.

Furthermore, the rationale proposed by Hardy and Nieto (2008) for establishing deposit insurance “caps” on pay outs (in order to induce countries to tighten supervision and thus move closer to the cooperative optimum particularly in the absence of full centralization of supervision in the EU) is not applicable in the context of the BRRFs to the extent that it is not a guarantee fund and disbursements are conditioned to banks undergoing formal restructuring proceedings.

#### *4.3 BRRFs Governance arrangements*

As we have argued above, the BRRF should also be the body charged with reorganizing and liquidating financial institutions. In some European countries (Austria, Belgium, Bulgaria, France, Germany, Italy, Latvia, Poland, Portugal, Romania, Slovenia, and Spain) the countries’ deposit guarantee systems (DGSs) already have some responsibility for failed bank resolution and reorganization.<sup>48</sup> It makes sense to utilize the even limited experience that these DGS already have regarding restructuring. Consequently, the governance structure of the DGS would likely be shared with the BRRF in at least some of these countries even if the funding of DGS and BRRFs are kept separate and if the trigger events for disbursement differ. As Table 5 illustrates, however, DGS currently have widely divergent powers, so that not all of the EU countries mentioned would be suitable candidates to share their governance structures with the BRRF and assume the responsibility to reorganize and resolve failing banks especially as most have small staffs.<sup>49</sup>

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<sup>48</sup> While the FSCS in the UK has some power, it has been only recently acquired.

<sup>49</sup> Moreover, the deposit insurance systems for savings and cooperative banks in Austria and Germany (that have the power to intervene to resolve troubled banks) are privately owned and run and they are funded ex post. Consequently, they are not in a good position to operate resolution systems funded ex ante by large amounts of money. Italy’s and the UK’s systems have in the past been also funded ex post, so they too lack experience in handling large funds. Further, the staffs of even those agencies that have broad powers range from no staff in Slovenia to 65 persons in Poland, so they would need to be expanded to handle additional responsibilities associated with BRRFs.

**Table 5. DGS Resolution Powers**

<b>EU Member</b>	<b>Powers</b>
Austria (10 staff)	Contribute to reorganizing a distressed credit institution and impose a stay on payments with the consent of its members.
Belgium (5 staff)	Can help to reorganize, take over or liquidate a member institution in order to lower the cost of resolution and/or preserve financial stability
Bulgaria (24 staff)	The fund can intervene and acquire shares in a member bank if that costs less than paying off depositors.
Denmark (1.5 staff)	A sub ex post fund of the DGS will cover losses from the New (bridge) Bank.
France (4 staff)	The DGS can accept or reject request from the Commission Bancaire to assist a troubled bank by giving financial aid by purchasing shares or financing to permit a total or partial sale or winding up.
German (private) (77 (all systems))	The fund is a self-help system that has all intervention powers to prevent a failure or reduce risk to the fund. It can make payments, give guarantees, assume obligations for a bank in difficulties.
Italy (22 staff)	The fund can intervene by providing credit and guarantees, buying equity, and transferring assets and liabilities in a bank in special administration (in extraordinary administration?) and support a P&A for a bank in compulsory liquidation.
Latvia (2 staff)	The DGS has the right to take over an insolvent bank.
Poland (65 staff)	The fund can provide medium-term (5-10 years) financial assistance on subsidized terms for the rehabilitation of banks threatened with insolvency by acquiring the bank, assisting the acquirer in a bank merger, providing loans, purchasing shares, and guarantees and by acquiring a troubled bank's debts. It requires collateral and repayment and an reorganization plan approved by Commission for Banking Supervision. Support must be less than the sum of covered deposits.
Portugal (9 staff)	The fund can participate in short-term rescues to restore members' solvency and liquidity by lending, providing guarantees and acquiring credits or other assets from its members under a BoP reorganization plan.
Romania (30 staff)	The DGS can be appointed by the NBR as an interim special administrator to restore a bank or act as its liquidator. It can offer guarantees, acquire and transfer assets and liabilities.
Slovenia (0 staff)	The BoS, which runs the DGS can intervene to prevent failure or initiate bankruptcy.
Spain (16 staff)	The DGS has wide powers to enhance solvency of troubled CIs. It can buy bad assets, give soft loans, provide subsidies, inject liquidity, facilitate acquisitions and mergers, and transfer business lines.
UK (168 staff)	Can help cover resolution costs under the new Special Resolution Regime and finance the transfer of eligible deposits.

Sources: Authors' analysis of information from the EU Commission (2008, restricted), EU Commission (2010c, Annex D; EU Commission, Denmark (2010d); CESifo DICE for Slovenia, and various deposit insurance web sites.

It must be recalled that while there are potential synergies between DGS and BRRFs, they do have different objectives and they are funded by bank contributions that are risk based premiums in the case of the DGS and levies aim at internalizing systemic risk importance in the case of BRRFs.<sup>50</sup> Also, funding of the BRRFs should be kept separated from the DGS in so far the later primary function is to repay insured depositors.<sup>51</sup> With regard to apportioning funding responsibility in a bridge bank, the first step would be to grant priority over the assets of a troubled bank to depositors (either all depositors or insured depositors). Then, when insured deposits are conveyed to a bridge bank, it is likely that enough assets would be available to cover the total amount of insured deposits. The deposit insurance fund would contribute to the bridge bank only to the extent that the bridge bank's assets were insufficient to cover insured deposits. The BRRF would be responsible for funding all other transferred deposits and liabilities that exceed the value of transferred assets.

<sup>50</sup> For this reason, the Luxembourg Central Bank proposes to house two separate funds (one for depositor protection and the other for bank resolution) in separate bodies under an overarching Financial Stability Fund. The two separate funds would both rely on funds from member banks, and have back-up financing from the government. The Financial Stability Fund would have a board of directors and each component fund would have its own board of directors, where certain board members might serve on two or more boards.

<sup>51</sup> Bank resolution measures could be (and some already are) be co-financed with funds from the deposit guarantee schemes and from the BRRFs, but the funds for repaying insured depositors must not be compromised.

The optimal governance arrangements should take into consideration the involvement of fund contributors together with the need for credible resolution regimes, so that representatives from the contributing credit institutions would be involved in the financial management of the BRRFs (i.e. calculation of levies) <sup>52</sup>but not in the decision to resolve a bank. The intervention modalities of the Fund should be established by the law on bank resolution; *ex ante* rules on the conditions of access to the BRRFs would contribute to limit moral hazard. BRRFs should remain separate from the national budget and should be used only to finance the costs of banking crises.

The triggers for disbursements would be legally established: Either a voluntary request of the insolvent financial institution, or the decision of the Board of the resolution authority where the supervisor is represented but decisions of the Board are aimed at limiting the costs of bank resolution. The decision would be based on the proven inability of the bank to fulfill its obligations. In the case of banks that are quoted in the stock market or that trade CDS on their debt, market-based benchmarks should be established to guarantee prompt action and limit supervisory forbearance. (See the proposal by Hart and Zingales, 2011 for incentive-compatible, market-based bank resolution.)

To the extent that financial institutions operate within the EU, the range of financial institutions that are obliged to contribute to the BRRFs must be harmonized. BRRFs' intervention capacity and the criteria for determining fee contributions also need to be harmonized to limit potential negative spill overs that could arise from different degrees of BRRF stringency. Also, an unlevel playing field may result in regulatory arbitrage i.e. banks' dispersing wholesale financing to other countries. It must also be ensured that the financial institutions are required to pay into only one BRRF scheme. This is subsidiaries of large cross border banks should contribute to the host country BRRF and the parent bank/financial institution and its foreign branches should contribute to the home country BRRF. In the absence of a centralized resolution authority in the EU, Member States should create a network of harmonized national BRRFs coordinate the funds' activities for their cross border banks.

## 5. Policy conclusions

In the context of the current decentralized safety net in the EU, this paper advocates the creation of national BRRFs under the management of a national resolution authority

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<sup>52</sup> Along similar lines, the BCBS has disclosed the methodology and the values of the systemic importance indicator so banks, regulators and market participants can understand how actions that banks take could affect their systemic importance score (see <http://www.bis.org/publ/bcbs201.pdf>). Members agree that a path should be set toward making the data more reliable and public.

separated from the prudential supervisor. BRRFs aim at providing credibility to the reorganization and winding up of financial institutions by limiting LGD and allowing for balance in the sharing of costs between private investors and tax payers. As a necessary condition for BRRFs' to be an effective policy tool, countries must have in place a structured early intervention and resolution framework for financial institutions and particularly for banks. Moral hazard concerns should be reduced by the limits to risk taking that are imposed by the legal framework that limits supervisors' forbearance. Also reducing moral hazard is the fact that the BRRF is not an insurance fund so that banks' contributors will take first losses when funds are deployed. Further, the BRRF would internalize any change in the potential impact of their higher risk taking on the national financial sector stability via a periodical reassessment of banks' contributions to the BRRF. This paper focuses on aspects that would demand minimum harmonization throughout the EU such as objectives and funding of BRRF. Regarding the objectives, BRRFs could:

- a) Guarantees for the issuance of banks' senior debt, when normal access to the capital market is not possible in a systemic crisis. Such guarantees would exclude subordinated debt, bail-inable debt and contingent convertible debt aimed at conversion into risk capital because such debts are explicitly designed to impose risks on banks' own investors before sharing the burden with other FIs also BRRF's contributors (as described below BRRF will take first losses). Such guarantees should only be provided to banks undergoing formal restructuring proceedings.
- b) Capital for weak banks in the context of an effective formal reorganization and resolution process either directly via ordinary shares or as funding for a bridge bank that buys time for an orderly resolution. Hence, it is not aimed at keeping alive any failed institution, but to (i) preserve the infrastructure functions of the failed institution (i.e. large value payment) and (ii) prevent any fire sale of assets that could negatively affect solvent banks, limiting the possibility of triggering a systemic crisis. Such funds should ideally be provided in the form of core equity capital if markets are to be fully reassured. (Non-core equity in Tier 1, as well all the elements in Tier 2, are by definition bail-inable debt whose conversion should have been triggered by the time that the BRRF capital injection is needed in a credible resolution regime.<sup>53</sup>) Similarly, there is also no case for injecting capital in the form of contingent convertible debt because the trigger (generally at or above 7% of risk weighted assets) for converting such debt would already have been passed.

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<sup>53</sup> Conversion should be triggered at the earlier of: (a) the point of non-viability as decided by the supervisor or, (b) the decision for the public sector to inject capital (proposal by the Basle Committee on Banking Supervision to ensure the loss absorbency of regulatory capital at the point on non-viability, August, 2010).

- c) Funding for the acquisition of banks' impaired assets in the context of a formal reorganization and resolution procedure in order to avoid a contagious fire sale of assets.

National BRRFs would be financed "ex ante" by all legally incorporated banks. Funding would be stretched over a sufficiently long period of time to limit concerns over pro-cyclicality. National BRRFs' minimum intervention capacity would be set by taking into consideration EU governments' capital injections during the present crisis and would aim at discouraging banks' excess systemic risk creation and particularly their reliance on the intra-financial system leverage. More specifically, we propose that national BRRFs would be able to mobilize funds in an amount up to the larger of 4% of their national GDP or the national average value of the adjusted eligible liabilities (that is, wholesale funding excluding own funds and bail in able debt). We envisage the possibility that BRRFs could tap the financial markets with government guarantees for additional funds if they are insufficient to finance orderly bank resolutions. Banks would have to repay the BRRFs for the amount borrowed (or the Government in the case where guarantees have to be made effective). Banks' contributions would be defined by their adjusted eligible liabilities (that is, their wholesale funding, excluding their own funds) that has been adjusted by the structural aspects of each bank's systemic importance (i.e. its size, connectivity and substitutability) so that BRRFs could vary among countries and over time in a particular country. The range of FIs that should contribute to the BRRF as well as both intervention capacity and contributions should be harmonized within the EU in the present context of the decentralized safety net in order to limit the possibility of negative spill overs between countries.

## 6. References

- Acharya, Viral and Mathew Richardson (2010), "Making sense of Obama's bank reform plans", VoxEU.org, 24 January.
- Adrian, Tobias, and Markus K. Brunnermeier (2010), "CoVaR" Princeton University Working Paper.
- Brierley, Peter, (2009) "The UK Special Resolution regime for Failing Banks in an International Context," Bank of England, *Financial Stability Paper*, No. 5, July.
- Buessemaker, Arnold (2011), Cross-Border Update on German Restructuring—Who Pays Next Time? Bankruptcy Blog, Part I on February 1, 2011; Part II on February 16, 2011; and Part III on March 3, 2011, Accessed April 16, 2011, at <http://business-finance-restructuring.weil.com/cross-border-update/cross-border-update-on-german-restructuring-%e2%80%93-who-pays-next-time-3/#more-1725>.
- Campbell, A. (2003), 'Issues in Cross-Border Bank Insolvency: The European Community Directive on the Reorganization and Winding Up of Credit Institutions' in *Current Developments in Monetary and Financial Law*, Vol. 3, International Monetary Fund, Washington DC, 2003.

Chailloux, A., Simon Gray y Rebecca McCaughrin (2008), "Central Bank Collateral Frameworks: Principles and Policies" International Monetary Fund WP/08/222. Washington DC.

Cihak, Martin., and Erlend Nier (2009) "The Need for Special Resolution Regimes for Financial Institutions—the Case of the European Union," IMF Working Paper WP/09/200, September 1.

CESifo DICE (2008) Report: Data Base on Deposit Insurance and Bank Insolvency, April .

Commission of the European Communities (2008) Investigating the Efficiency of EU Deposit Guarantee Schemes, May at [http://ec.europa.eu/internal\\_market/bank/docs/guarantee/deposits/report\\_en.pdf](http://ec.europa.eu/internal_market/bank/docs/guarantee/deposits/report_en.pdf) accessed December 2, 2008.

\_\_\_\_\_ (2010a), Technical Details of a Possible EU Resolution Framework for Bank Recovery and Resolution, January 6.

\_\_\_\_\_ (2010b) State Aid Scoreboard Report on State aid granted by the EU Member States - Autumn 2010 Update - Brussels, 1.12.2010 COM(2010) 701.

\_\_\_\_\_ (2010c) *Impact Assessment*, Accompanying the document proposing a recast Directive on Deposit Guarantee Schemes, SEC (2010) 364/2.

\_\_\_\_\_ (2010d) State Aid N 407/2010—Denmark "Danish Winding Up Scheme, September 30 C(2010) 6788 final accessed April 20 2011 at [http://ec.europa.eu/eu\\_law/state\\_aids/comp-2010/n407-10-en.pdf](http://ec.europa.eu/eu_law/state_aids/comp-2010/n407-10-en.pdf)

\_\_\_\_\_ (2010e) 'A Framework for Crisis Management in the Financial Sector,' *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Central Bank*, October 20, COM (2010) 579 FINAL.

Doluca, Hasan, Ulrich Kluh, Marco Wagner, Beatrice Weder di Mauro (2010) "Reducing Systemic Relevance: A Proposal," German Council of Economic Experts Working Paper 04/2010, May

Duchin Ran, and Denis Sosyura (2011) "Safer Ratios, Riskier Portfolios: Banks' Response to Government Aid," paper presented at the FDIC/Journal of Financial Services Research Conference, September.

Eisenbeis, R.A. and George Kaufman (2007), "Cross border banking: challenges for deposit insurance and financial stability in the European Union", in Benink, H., Goodhart, C.A.E. and Lastra, R.M. (Eds), Prompt Corrective Action and Cross-Border Supervisory Issues in Europe, LSE's Financial Markets Group Special Paper No. 171, Financial Markets Group, London, April.

European Council (2010, June) (*mentioned on p. 7*)

Federal Deposit Insurance Corporation (2011) Deposit Insurance Assessments Webpage, accessed August 24, 2011 at [www.fdic.gov/deposit/insurance/assessments/](http://www.fdic.gov/deposit/insurance/assessments/)

- Financial Stability Board (2011a), "Progress in the Implementation of the G20 Recommendations for Strengthening Financial Stability Report of the Financial Stability Board to G20 Finance Ministers and Central Bank Governors" 10, April, 2011  
([http://www.financialstabilityboard.org/publications/r\\_110415a.pdf](http://www.financialstabilityboard.org/publications/r_110415a.pdf) accessed 25 April, 2011)
- \_\_\_\_\_ (2011b) Effective Resolution of Systemically Important Financial Institutions: Recommendations and Timelines, Consultative Document, July 19.
- Garcia, Gillian, Rosa Lastra and María J. Nieto (2009) Bankruptcy and reorganization procedures for cross-border banks in the EU: Towards an integrated approach to the reform of the EU safety net. *Journal of Financial Regulation and Compliance* Vol. 17 No. 3, pp. 240-27.
- Goodhart (2010) (*mentioned on p. 4*)
- Hardy, Daniel C. and Maria J. Nieto (2008), Cross-Border Coordination of Prudential Supervision and Deposit Guarantees, International Monetary Fund Working Paper 08/283, December.
- Hart, Olivier and Luigi Zingales (2010), "A New Capital Regulation For Large Financial Institutions" paper presented at the 13th International Banking Conference organized by the Federal Reserve Bank of Chicago and the International Monetary Fund on Macroprudential Regulatory Policies: The New Road to Financial Stability? (September 23-24, 2010)
- Herring, Richard, and Jacob Carmassi (2010) "The Corporate Structure of International Financial Conglomerates: Complexity and its Implications for Safety and Soundness," in the *Oxford Handbook of Banking*, ed. Allen N. Berger, Philip Molyneux and John Wilson (Oxford, Oxford University Press).
- International Monetary Fund (2010a) A Fair and Substantial Contribution by the Financial Sector. IMF Final Report for the G-20. June, 2010.
- International Monetary Fund (2010b) "Understanding Financial Interconnectedness," October 4.
- Ireland (2011) Draft "Central Bank and Credit Institutions (Resolution) Bill 2011: Explanatory and Financial Memorandum," February, accessed October 25, 2011 at <http://www.irisheconomy.ie/index.php/2011/02/28/central-bank-and-credit-institutions-resolution-bill-2011/>.
- Mayer-Brown (2009) Summary of Government Interventions in Financial Markets: Denmark, May 26, accessed April 20, 2011 at <http://www.mayerbrown.com/publications/article.asp?id=7661&nid=6>
- Nieto, Maria J. (2011) "What role, if any, can market discipline play in supporting macroprudential policy?" in Stijn Claessens, Douglas D. Evanoff, George G. Kaufman and Laura Kodres (editors) *Macroprudential regulatory policies: The new road to financial stability?* World Scientific Publishers, Inc. forthcoming.
- Panetta, Fabio, Thomas Faeh, Giuseppe Grande, Corrinne Ho, Michael King, Aviram Levy, Federico M Signoretti, Marco Taboga and Andrea Zaghini (2009) "An assessment of financial sector rescue programmes" BIS Working Papers N° 48, July 2009.



- Pawlikowski, Adam, (2005) "The Polish Deposit Insurance Scheme: Compared to Arrangements adopted in other EU Countries, *Materialy I Studia*, June.
- Perotti, Enrico, and Javier Suarez (2009), "Liquidity Insurance for Systemic Crises", CEPR Policy Insight 31, February.
- Perotti, Enrico, Lev Ratnovski and Razvan Vlahu (2011) "Capital Regulation and Tail Risk," Paper presented at the FDIC/Journal of Financial Services Research Conference, September.
- Schoenmaker, Dirk (2010) Do we need a separate resolution fund? 14 January, 2010  
(<http://www.voxeu.org/index.php?q=node/4487> access 25 April, 2011)
- Schich, Sebastian, and Byoung-Hwan Kim (2010) "Systemic Financial Crises: How to Fund Resolution," *OECD Journal: Financial Market Trends*, Vol. 2010 Issue 2, accessed March 30, 2011 at <http://www.oecd.org/dataoecd/16/16/46681329.pdf>
- Stolz, Stéphanie and Michael Wedow (2010) "Extraordinary measures in extraordinary times: Public measures in support of the financial sector in the EU and the USA" Occasional Paper Series N. 117 / July 2010.