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Evaluating the effectiveness of the new EU bank regulatory framework: A farewell to bail-out?

Peter Benczur, Giuseppina Cannas, Jessica Cariboni, Francesca Di Girolamo, Sara Maccaferri*, Marco Petracco Giudici

Financial and Economic Analysis Unit, Institute for the Protection and Security of the Citizen European Commission, Joint Research Centre, Via E. Fermi 2749, 21027 Ispra, VA, Italy

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ABSTRACT

In response to the economic and financial crisis, the EU has adopted a new regulatory framework of the banking sector. Its central elements consist of new capital requirements, the single rulebook, and rules for bank recovery and resolution. These legislations have been adopted to reduce the call for government bail-out of distressed banks in future crises.

The present study performs a detailed quantitative assessment of the reduction in public finance costs brought about by the introduction of these rules. We use a microsimulation portfolio model, which implements the Basel risk assessment framework, to estimate the joint distribution of bank losses at EU level. The approach incorporates the complete safety-net set up in EU legislation to absorb these losses, explicitly modelling enhanced Basel III capital rules, the bail-in tool and the resolution funds.

Using a near-full sample of commercial, cooperative and savings banks in the EU, we quantify the cumulative effects of this safety-net and the contribution of each individual tool to the total effect. Considering a crisis of a similar magnitude as the recent one, our results show that potential costs for public finances decrease from roughly 3.7% of EU GDP (before the introduction of any new tool) to 1.4% with bail-in, and finally to 0.5% when all the elements we model are in place. This latter amount is very close to our estimate of leftover resolution funds and the size of the Deposit Guarantee Scheme.

This exercise extends the quantitative analyses performed by the European Commission in its Economic Review of the Financial Regulation Agenda by developing additional scenarios, crucial robustness checks, simulations for different annual data vintages, and by implementing some methodological improvements.

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1. Introduction

The world has experienced in recent years the most severe economic and financial crisis since the Great Depression of 1929. It started in 2007 in the US, with the collapse of the residential mortgage market and the collapse of Lehman Brothers. The crisis sent shock waves to the financial system worldwide: for the first time, giants of the financial world faced severe distress and some of them went into bankruptcy (see e.g. Blanchard, 2009; Claessens et al., 2010; Laeven and Valencia, 2013).

As a first response to the crisis, many governments and central banks intervened and bailed out failing banks. In the period 2008–2012, the total costs borne by European governments to support the financial sectors in the forms of capital injection and asset relief (excluding guarantees) amounted to 600 billion €, corresponding to 4.6% of 2012 European GDP (see European Commission, 2014b).

These numbers explain why a strong consensus emerged that *ad-hoc ex-post* financial support is no more sustainable, and one must find ways to resolve failing banks at no or limited costs to taxpayers and society (e.g. Huertas, 2010). There is a clear agreement on the need for a better designed, more efficient and more integrated framework to improve the stability of the banking sector and to protect public finances (Schoenmaker and Gros, 2012; Huertas and Nieto, 2012), capable of dealing effectively with a crisis situation, together with a more centralized supervision (Beck, 2012; Goyal et al., 2013; Dewatripont, 2014).

* Corresponding author. Tel.: +39 0332 783832; fax: +39 0332 785752.

E-mail addresses: peter.benczur@jrc.ec.europa.eu (P. Benczur), giuseppina.cannas@jrc.ec.europa.eu (G. Cannas), jessica.cariboni@jrc.ec.europa.eu (J. Cariboni), francesca.di-girolamo@jrc.ec.europa.eu (F. Di Girolamo), sara.maccaferri@jrc.ec.europa.eu (S. Maccaferri), marco.petracco@jrc.ec.europa.eu (M. Petracco Giudici).

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Regulators have proposed and adopted a number of different measures to limit the effects of bank losses and failures on the whole financial and economic system, in the case of future crises. The set of these financial instruments is generally referred to as the financial *safety-net*. A comprehensive summary of the financial reforms adopted by the European Union (EU) is discussed in the Economic Review of the Financial Regulation Agenda (from here onwards: ERFRA; see [European Commission, 2014a](#)). These reforms do not only address the banking sector, but they also look at financial markets and their infrastructure, shadow banking, the stability and resilience of the insurance sector.

In this paper, we model the impact of the following major reforms dealing with the banking sector:

- The new Capital Requirement Regulation and Directive IV (CRR/CRD IV, [European Parliament and Council, 2013](#)), which transposes the Basel III Accord into EU legislation and enhances the quality and quantity of capital that banks should set aside to tackle unexpected losses.
- The Bank Recovery and Resolution Directive (BRRD, [European Parliament and Council, 2014](#)), which sets up a series of rules and resolution tools, such as the sale of the business or shares of the institution under resolution, the setting up of a bridge institution, the separation of the performing assets from the impaired or under-performing assets of a failing institution, and the bail-in of shareholders and creditors of a failing institution. National resolution funds are also established to resolve distressed banks at national level.
- The Single Resolution Mechanism Regulation ([European Council, 2014](#)), which foresees that the resolution funds of countries participating in the banking union¹ are pooled into a single resolution fund.

We quantify the cumulative effects of the adopted pieces of legislation on government contingent liabilities, i.e., on public finance costs conditional on a (severe) financial crisis. Starting from publicly available balance sheet data of nearly all commercial, cooperative and savings banks in the EU, we use a microsimulation portfolio model (originating from [De Lisa et al., 2011](#)), which implements the Basel risk assessment framework, to estimate the joint distribution of bank losses at EU level. This model, which is referred to as SYMBOL (SYstemic Model of Bank Originated Losses), allows simulating the joint distribution of bank-level losses in excess of capital under various minimum capital requirement levels and safety-net tools such as bail-in and resolution funds. The model can thus be used to assess the reduction in the amount of losses that remains uncovered after the intervention of the available tools, and that could potentially hit public finances. Aggregating data over the entire banking system, our method allows assessing the overall reduction in potential public finance costs deriving from the adopted policies.

SYMBOL has been used by the European Commission as a tool for *ex-ante* quantitative impact assessments of a number of legislative proposals (see [Marchesi et al., 2012](#); [European Commission, 2011b](#); [Cariboni et al., 2012](#); [Cannas et al., 2013c](#)), for the cumulative evaluation of entire financial regulation agenda (ERFRA, [European Commission, 2014a](#)), and for the assessment of contingent liabilities linked to public support to the EU banking sector during the crisis ([European Commission, 2011a, 2012a](#); [Benczur et al., 2015](#)).

¹ The banking union transfers the banking supervision from national to European level and provides for a more centralised management of banking crises. It is made up of a single rule book for financial institutions, the Single Supervisory Mechanism, and the Single Resolution Mechanism, all of which are mandatory for all euro area Member States and open to all other countries in the EU.

Besides presenting a more detailed, formal and thorough version of the ERFRA exercise ([European Commission, 2014a](#); [Cariboni et al., 2014](#)), our paper extends its results along three major lines. First, it models the single resolution fund for countries participating in the banking union. Second, it performs the simulation using data from multiple years (2007, 2009, and 2012), documenting the impact of recent bank balance sheet trends on the results, and analysing the sensitivity of the findings to different data vintages. Third, it allows for a richer correlation structure among banks and evaluates its impact on the results.

This latter aspect is particularly important. [De Lisa et al. \(2011\)](#) demonstrated that the degree of commonality (correlation) among the shocks hitting banks has a major impact on the extreme tail percentiles of the distribution of deposit guarantee scheme losses, which increase strongly as the correlation coefficient increases. One of our main objectives with this paper is to explore the robustness of the Commission's ERFRA exercise to this key ingredient. This overall commonality among bank shocks can come from two main sources: exposure to common shocks and forms of contagion. Though we do not explicitly model contagion effects through the interbank market (*direct contagion*), our framework can represent different degrees of commonality by different shock correlation structures.

For our quantitative exercise, we make the following main assumptions. First, results are calibrated to match the gravity of the 2008–2012 crisis,² i.e. a severe and systemic crisis event. Second, we work under the conservative assumption that all simulated bank excess losses and recapitalization needs that cannot be covered by the safety-net fall on public finances.³ Third, we assume that full bail-out prevents the spreading of contagion through the interbank market. Fourth, the safety-net is considered able to fully rule out direct contagion effects; more specifically, we assume that all distressed banks are resolved and recapitalized.⁴

Our results show that potential costs for public finances of a crisis similar to the recent one decrease from roughly 3.7% of EU GDP (before the introduction of any new tool) to 1.4% with bail-in, and finally to 0.5% when all the elements we model are in place. We view this as a major reduction. According to these findings, bail-in is the tool that contributes most to the reduction in the potential costs for public finances. This reinforces results of [Breuss et al. \(2015\)](#), who find that bail-in is effective in reducing the fall of GDP in the Euro Area core countries, and thus has also advantages from a macroeconomic perspective.

At the same time, our results imply that the modelled safety-net design would still leave the possibility of some public finance costs in case of a very extreme crisis event. This is partly due to our conservative modelling approach to the safety-net, i.e. allowing the use of available tools at their minimum levels (see more details in Section 2). More importantly, supervisors have additional tools to absorb these residual losses, including among others the left-over resolution funds and parts of the Deposit Guarantee Scheme. We have estimated the additional capacity of these two tools to be around 0.3–0.4% of EU GDP, almost equalling our estimated 0.5%.

The discussion on the true effectiveness of the proposed tools is still ongoing. [Avgouleas and Goodhart \(2015\)](#) discuss in details the economic and legal pros and cons of bank bail-in regimes and in

² Bank losses and recapitalization needs triggered by the last crisis are proxied by state aid data, in particular the total recapitalization and asset relief provided to banks over 2008–12 (around 600 bn euro), see European Commission's DG Competition State Aid Scoreboard, [European Commission \(2014b\)](#) and [Benczur et al. \(2015\)](#).

³ The severity of the systemic crisis assessed in this exercise is higher than that of the "2014 EU-wide stress test" performed by the EBA and results cannot directly be compared due to different methodologies.

⁴ Potential contagion across banks through bail-in is disregarded due to scarce data. Some preliminary results are already available in [Fontana et al. \(2015b\)](#).

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