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# Fiscal capacity to support large banks

Pia Hüttl and Dirk Schoenmaker

## Executive summary

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**PIA HÜTTL** is an Affiliate Fellow at Bruegel ([pia.huettl@bruegel.org](mailto:pia.huettl@bruegel.org)).

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**DIRK SCHOENMAKER** is a Senior Fellow at Bruegel ([dirk.schoenmaker@bruegel.org](mailto:dirk.schoenmaker@bruegel.org)).

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**DURING THE GLOBAL FINANCIAL CRISIS** and subsequent euro-debt crisis, the fiscal resources of some countries appeared to be insufficient to support their banking systems. These countries needed outside support to stabilise their banking systems and thereby their wider economies.

**THIS POLICY CONTRIBUTION** assesses the potential fiscal costs of recapitalising large banks. Based on past financial crises, we estimate that the cost to recapitalise an individual bank amounts to 4.5 percent of its total assets. During a severe crisis, a country might have to recapitalise up to three of its large systemic banks. We assume that bail-in of private investors is not fully possible during a systemic crisis.

**OUR EMPIRICAL FINDINGS** suggest that large countries, such as the United States, China and Japan, can still provide credible fiscal backstops to their large systemic banks. In the euro area, the potential fiscal costs are unevenly distributed and range from 4 to 12 percent of GDP. Differences in the strengths of the fiscal backstops in euro-area countries contribute to divergences in financing conditions across the banking union.

**TO COUNTER THIS FRAGMENTATION**, we propose that the European Stability Mechanism (ESM) could be used as a fiscal backstop to recapitalise systemically important banks directly within the banking union, in the case of a severe systemic crisis. But this would be only a last resort, after other tools such as bail-in have been used to the maximum extent possible. The governance of the ESM should be reconsidered, to ensure swift and clear application in times of crisis.

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## Introduction

The aim of the European Union's new bail-in regime is to reduce the cost of bank bailouts for taxpayers. While bail-in of private investors is appropriate for one-off failures, it might not be fully possible in the case of the failure of a systemically important bank or large parts of the banking system. There is concern that a bail-in of large banks might add to – instead of dampen – a financial panic<sup>1</sup>. The European bail-in regime permits ‘government financial stabilisation tools’ as a last resort after other resolution tools have been assessed and deployed to the maximum extent practicable to maintain financial stability (Articles 32 and 56, Bank Recovery and Resolution Directive (BRRD), 2014/59/EU)<sup>2</sup>.

There is a lack of experience in handling large bank failures under the new resolution regime, both under the BRRD in Europe and under the Dodd-Frank Act in the US. Large bank failures might have contagion effects (De Bandt and Hartmann, 2002). The contagion can spread through the real exposure channel because of direct financial linkages between banks (the so-called domino effect) or through the information channel, with the failure of one bank potentially causing contagious withdrawals at ‘similar’ banks, when creditors are imperfectly informed about whether the shock is a one-off or more widespread.

Even if private investors are bailed-in, there is thus still a need for the government to maintain a fiscal backstop in case of a full-blown systemic crisis (Schoenmaker, 2015). In such a systemic crisis, the government might need to directly recapitalise systemically important banks. Goodhart (1998) argues that the standing of a banking system depends ultimately on the strength and credibility of the fiscal backstop.

During the global financial crisis and subsequent euro-debt crisis, some countries’ fiscal resources to support their banking systems appeared to be insufficient. These countries needed outside support from the International Monetary Fund, the European Financial Stability Facility and subsequently the European Stability Mechanism to stabilise their banking systems and thereby their wider economies. This Policy Contribution develops a method to assess the potential fiscal costs for countries required to support their banking systems. In particular, we investigate the fiscal support for large systemic banks with assets of over €150 billion<sup>3</sup>.

**Bail-in might not be fully possible in the case of the failure of a systemically important bank or large parts of the banking system.**

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## Fiscal costs in past crises

Fiscal capacity refers to the ability of the state to extract revenues to provide public goods. Applying this concept to banking, Pauly (2014) defines the fiscal capacity of a country as the budgetary capacity to provide a credible fiscal backstop to its banking system and the political capacity to activate the budget. An example of the lack of political capacity is the dithering approach of the Japanese Ministry of Finance in its attempts to deal with severe banking problems during the 1990s. The Japanese parliament did not approve any recapitalisation of ailing Japanese banks beyond the bare minimum, which prolonged the banking crisis, culminating in the infamous lost decade of growth. In terms of budgetary capacity, we can approximate the potential budgetary needs for the recapitalisation of a country’s large banks based on earlier episodes. Laeven and Valancia (2013) provide a global overview of the fiscal outlays during past crises. The direct fiscal costs of banking crises from 1970 to 2011 were on average

1 There have been warnings from academics (eg Avgouleas and Goodhart, 2015; Chan and Van Wijnbergen, 2015) and policymakers (eg Dewatripont, 2014; Geithner, 2014).

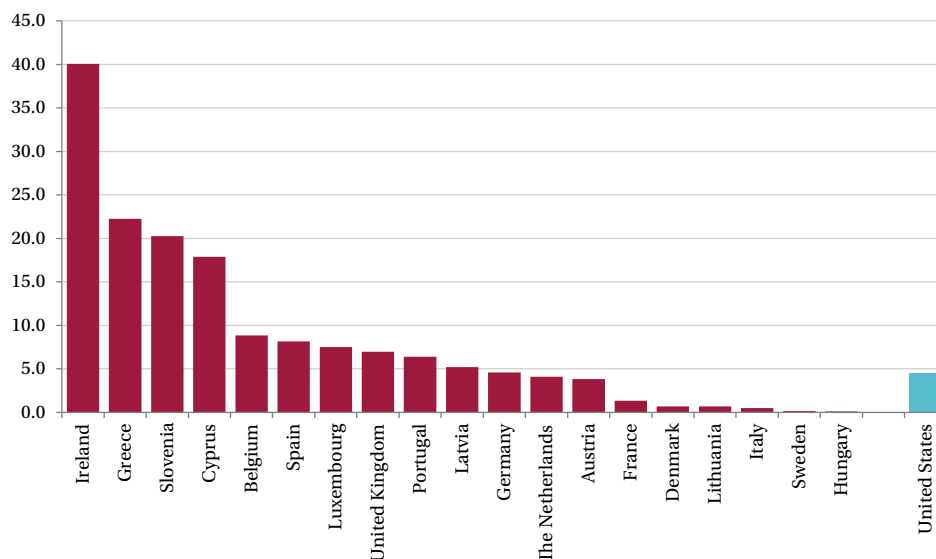
2 Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0059&from=en>.

3 Gandhi, Lustig and Plazzi (2016) provide evidence that in the event of a financial crisis, stock investors price in the implicit government guarantees extended to large financial institutions, but not to small ones.

4 percent of GDP for advanced countries. More importantly, the subsequent increases in debt (21 percent of GDP) and output losses (33 percent of GDP) were multiples of the direct fiscal costs on average. For the euro area, recent figures are slightly worse. The European Central Bank found that the direct fiscal costs of the banking crisis were 4.8 percent of euro-area GDP over 2008-14 (ECB, 2015)<sup>4</sup>.

Hüttl and Wolff (2016) provide a more granular overview with exact recapitalisation amounts for European banks during the global financial crisis and subsequent euro-debt crisis. Figure 1 shows that the direct fiscal costs related to financial assistance to the EU and US banking systems varied from country to country, with the variation resulting mainly from the depth of the crisis and the size of the banking system in each country. Recapitalisation of the Irish banking system represented 40 percent of GDP, while government banking assistance in France did not exceed 1.4 percent of GDP. The four countries with the highest recapitalisation costs (Ireland, Greece, Slovenia and Cyprus) needed external assistance from the IMF and the EU. Belgium and Spain with recapitalisation costs of about 8 percent of GDP were borderline cases with respect to external assistance. While Belgium could support the recapitalisation of its banking system without outside help, Spain needed external financial assistance for the recapitalisation and restructuring of its banking system, partly as a consequence of far worse macro-economic conditions in Spain in 2012.

**Figure 1: Direct costs of financial assistance to the European and US banking systems 2008-14 (% of GDP)**



Source: Bruegel based on Bruegel state aid database and Eurostat for EU and IMF WEO and US Treasury data on the TARP for the US. Note: Financial assistance includes recapitalisation and asset relief for both regions.

For our purposes, we are interested in the costs of recapitalisation of large international banks, with total assets of at least €150 billion in the case of European banks and \$165 billion in the case of US banks. Table 1 shows that the fiscal costs of recapitalisation and asset relief for each of Europe’s 22 large banks were on average 2.7 percent of these banks’ total assets. Applying a 99 percent confidence interval, we find a range from 1.1 to 4.3 percent of total bank assets.

<sup>4</sup> Laeven and Valencia (2013) show that the direct fiscal costs of bank bailouts are comparable for the euro area at 3.9 percent of GDP and the US at 4.5 percent of GDP.

**Table 1: Direct recapitalisation of large European banks (2008-13)**

#	Bank name	Country	Total assets* (€ billions)	State aid** (€ billions)	State aid as % of total assets
1	BNP Paribas	FR	2,070.0	10.8	0.2%
2	Royal Bank of Scotland Group	UK	2,050.0	81.1	4.0%
3	Crédit Agricole Group	FR	1,740.0	6.0	0.3%
4	Société Générale	FR	1,075.0	3.4	0.3%
5	Groupe BPCE	FR	1,030.0	0.5	0.05%
6	ING Bank	NL	960.0	15.0	1.6%
7	Commerzbank	DE	735.0	18.2	2.5%
8	Lloyds Banking Group	UK	715.0	28.3	4.0%
9	Crédit Mutuel Group	FR	580.0	2.4	0.4%
10	BNP Paribas Fortis	BE	530.0	10.8	2.0%
11	Dexia	BE	520.0	17.4	3.4%
12	Nordea Bank	SE	510.0	0.5	0.1%
13	Landesbank Baden-Württemberg	DE	410.0	14.0	3.4%
14	ABN AMRO Group	NL	380.0	16.9	4.4%
15	Bayerische Landesbank	DE	380.0	10.8	2.6%
16	Hypo Real Estate Holding	DE	345.0	10.7	3.1%
17	KBC Group	BE	340.0	10.8	3.2%
18	NORD/LB	DE	225.0	3.1	1.4%
19	Banca Monte dei Paschi di Siena	IT	215.0	5.8	2.7%
20	HSH Nordbank	DE	175.0	3.0	1.7%
21	Bank of Ireland	IE	170.0	7.1	4.2%
22	Allied Irish Banks	IE	150.0	21.4	14.1%
<b>Average</b>					<b>2.7%</b>
<b>Lower and upper bounds***</b>					<b>1.1 – 4.3%</b>

Source: Bruegel based on Bruegel state aid to banks database, SNL financials, and banks annual reports. Note: reported are the banks with total assets above €150 billion; \* figures refer to the year when state aid was given, ranging from 2008 to 2013; \*\* including recapitalisation and asset relief; \*\*\* based on 99 percent confidence interval.

Similar calculations can be done for the US. We use data from the Capital Purchase Programme (CCP), which was part of the Troubled Asset Relief Programme (TARP) put into place after the collapse of Lehman Brothers in October 2008<sup>5</sup>. Table 2 shows that in the US, the 13 large banks received on average 2.5 percent of their total assets through the bank support programmes under TARP. The range for the 99 percent confidence interval is from 0.8 to 4.2 percent of total bank assets. The US numbers are similar to those for Europe.

5 The amount of capital provided through the Capital Purchase Programme (CCP) was about \$205 billion, benefiting 707 institutions. The CPP's mechanism to inject capital was based on purchases of senior preferred stock and warrants exercisable for common stock with a promised dividend of 5 percent for the first five years and 9 percent thereafter. In addition to CCP, we also consider the funds given to Bank of America and Citigroup under the Targeted Investment Programme (TIP) and the funds given to Ally Financials under the Automotive Industry Financing Programme (AIFP), because these also concern financial institutions that provide credit to the economy.

**Table 2: Direct recapitalisation of large US banks (2008-09)**

#	Bank name	Total assets (\$ billions)	State aid (\$ billions)	State aid as % of total assets
1	JPMorgan Chase & Co.	2,175.0	25.0	1.1%
2	Citigroup	1,940.0	45.0	2.3%
3	Bank of America Corporation	1,820.0	45.0	2.5%
4	Wells Fargo & Company	1,310.0	25.0	1.9%
5	Goldman Sachs Group*	850.0	10.0	1.2%
6	Morgan Stanley*	770.0	10.0	1.3%
7	PNC Financial Services Group	290.0	7.6	2.6%
8	U.S. Bancorp	270.0	6.6	2.5%
9	Bank of New York Mellon Corporation	240.0	3.0	1.3%
10	SunTrust Banks	190.0	4.9	2.6%
11	State Street Corporation	175.0	2.0	1.1%
12	Ally Financial*	170.0	17.5	10.2%
13	Capital One Financial Corporation	165.0	3.6	2.1%
	<b>Average</b>			<b>2.5%</b>
	<b>Lower and upper bounds**</b>			<b>0.8 – 4.2%</b>

Source: Bruegel based on US Treasury data on TARP and SNL financials. Note: reported are the banks with total assets above \$165 billion end-2008; \* total assets available only for 2009; \*\* based on 99 percent confidence interval.

## Potential fiscal costs in future crises

What is a credible fiscal backstop of a country's banking system? We map out scenarios for the fiscal costs of a systemic bank bailout. In this context, it is important to note that while bail-in is the normal procedure under the EU's new BRRD regime, it might be left aside for broader financial stability considerations, as explained in the introduction. Our first step was to determine the potential recapitalisation costs for one bank. Tables 1 and 2 show that the recapitalisation costs for different banks varied considerably during recent financial crises, with individual cases of 10 to 15 percent of total bank assets. The 99 percent confidence interval provides a reasonable estimate for the recapitalisation costs and ranges from 0.8 to 4.3 percent of total bank assets. Taking the upper limit for the recapitalisation of EU and US banks as a conservative estimate, we standardise recapitalisation costs at 4.5 percent of total assets.

The standardised recapitalisation costs are close to the average capital ratio (ie leverage ratio) of the large European banks found by Schoenmaker and Véron (2016). The fact that the costs amount to the average ratio basically means that the assumed losses wipe out a bank's equity and the authorities have to replenish that equity to assure the continuity of that bank's critical functions. Similarly, Dermine and Schoenmaker (2010) argued that a bank's equity is a good proxy for potential recapitalisation costs. Our second step was to determine the range of bailout costs during a severe systemic crisis. We assume a scenario in which the three largest banks might need to be recapitalised. In doing so, we can establish a country's total potential costs. An alternative scenario of a systemic banking crisis is that a large part (say X percent) of the banking system, covering both small and large banks, is under strain (such as in Spain).

In that scenario, 4.5 percent of X percent of total banking system assets would be our proxy for potential bailout costs. However, this scenario is beyond the scope of this paper, which focuses on the recapitalisation of large banks.

Table 3 shows that bailout costs for the top three banks range from 1.6 to 3.7 percent of GDP for large economies, such as China, the US and the euro area. Japan follows closely with 6.6 percent of GDP. These figures are sufficiently low to make a fiscal backstop for the large banks in these countries credible. Table 3 also shows that the potential costs for Germany and Italy are within the 4 to 5 percent range, but these countries are not home to global banks with €2 to €3 trillion in total assets, with the exception of Deutsche Bank. Similarly, Belgium and Austria face potential costs of 5 to 7 percent of GDP.

The other euro-area countries with large banks such as France, Spain and the Netherlands, and non-euro area countries such as Denmark and Sweden, could face potential fiscal costs for bailing out the largest banks of 10 to 12 percent of GDP, according to our calculations. Switzerland would face slightly higher, and the UK slightly lower, bail-out costs. The potential fiscal costs for these countries are at the high end, when compared with past crises (see Figure 1). By contrast, the central and eastern EU member states face relatively low equity-to-GDP ratios, because their banking sectors are characterised by large shares of foreign owned banks, as opposed to home-country banks. Many of these foreign owned banks have parent banks with headquarters in the euro area, and the ultimate costs of financial support will fall on countries where the headquarters are located (Hüttl and Schoenmaker, 2016).

Overall, the credibility of the fiscal backstop in some countries is less strong. We should note that these calculations do not take into account bail-in, which would reduce the potential costs for the government, or the fiscal space in individual countries (on the latter, see Demirgüç-Kunt and Huizinga, 2013).

**For euro-area countries, potential fiscal costs are unevenly distributed and range from 4 to 12 percent of GDP.**

**Table 3: Potential fiscal costs for major countries, 2015 (as a % of GDP)**

Countries	Assets in \$ billions	'Equity' in \$ billions	Equity/GDP
Top 3 banks China	8991	405	3.7%
Top 3 banks US	6287	283	1.6%
Top 3 banks Japan	6023	271	6.6%
Top 3 banks euro area	5785	260	2.3%
Top 3 banks France	5465	246	10.2%
Top 3 banks Germany	2794	126	3.7%
Top 3 banks Spain	2646	119	9.9%
Top 3 banks Netherlands	2064	93	12.3%
Top 3 banks Italy	1854	83	4.6%
Top 3 banks Belgium	716	32	7.1%
Top 3 banks Austria	377	17	4.5%
Top 3 banks UK	5288	238	8.4%
Top 3 banks Switzerland	1989	90	13.5%
Top 3 banks Sweden	1298	58	11.7%
Top 3 banks Denmark	760	34	11.6%

Source: Bruegel based on 'Assets from Top 1000 World Banks' (*The Banker*, July 2016) and GDP from Worldbank. Note: The largest three home-country banks in terms of total assets are chosen for each jurisdiction. Equity is standardised at 4.5 percent of a bank's total assets.

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## Policy implications and conclusions

This Policy Contribution outlines a fiscal cost scenario for the recapitalisation of large banks during a severe systemic crisis. Such support is a last resort, and should only be considered if and when the financial stability benefits exceed the recapitalisation costs. Equally important, the political willingness to spend large amounts on bank bailouts is much diminished in the aftermath of the recent financial crises. This reduced willingness to spend public resources on banks is the rationale behind the new bail-in regime, which should indeed be used to the maximum extent possible.

Our calculations indicate that large countries, such as the US, China and Japan, would face limited potential fiscal costs in the event of a large systemic crisis and can therefore provide a credible fiscal backstop to their banking systems. Our calculations also suggest that the credibility of the fiscal backstop in individual European countries is less strong. For euro-area countries, potential fiscal costs are unevenly distributed and range from 4 to 12 percent of GDP. Moreover, differences in the strength of the fiscal backstops of euro-area countries contribute to divergences in financing conditions in the banking union (Schoenmaker and Wolff, 2015).

If the fiscal backstop were moved to the euro-area level, it would become as credible as that of the US and China. To do so, we propose exploring the idea of using the European Stability Mechanism (ESM) as the fiscal backstop to the Single Resolution Fund. We also propose to improve the so-called ESM Direct Recapitalisation Instrument (DRI), under which the ESM can recapitalise systemically important banks directly within the banking union. However, as pointed out by Véron (2015) and Merler (2014), the language surrounding direct recapitalisation changed from ‘breaking the sovereign nexus’ in 2012 to ‘the remaining building blocks of the banking union would most likely achieve this aim without the need for DRI to provide substantial amounts of fund’ in 2014<sup>6</sup>. Hence, the importance of this tool has been reduced, while our analysis puts into question the fiscal capacity of single countries to sustain their banking sectors in a systemic crisis.

The conditions for activating the DRI should be reconsidered. Currently, a euro-area country can receive an ESM loan to recapitalise its banks, the so-called ‘indirect’ recapitalisation of Article 15 in the ESM Treaty. Only when a member’s fiscal sustainability is in danger (ESM, 2014) can the ESM directly recapitalise banks from that member country, as long as the conditions are met of an own contribution from the member country and a bail-in of 8 percent of a bank’s total liabilities. Moreover, unanimity of votes is required, which might lead to protracted negotiations. None of this will help to find swift and clear answers in a crisis, when they will be most needed. The current ESM Direct Recapitalisation Instrument thus falls short of an *ex-ante* credible fiscal backstop at euro-area level, and its governance should be reconsidered.

Addressing the fiscal implications of banking union is a necessary step for the greater stability of the euro area. We have argued that it is also important in order to be able to deal with large systemic banking crises. Moving in that direction is difficult because of the potentially large-scale fiscal risk sharing that would have to happen, and because of a current perception that risks are not equally spread across the banking union. In addition to the different sizes of banking systems documented in this paper, banks are differently exposed to sovereign debt<sup>7</sup>. Addressing risk reduction certainly appears necessary from a political point of view to finalise banking union.

6 For the changes in language see the Euro-area Summit Statement of 29 June 2012 (available at [http://www.consilium.europa.eu/uedocs/cms\\_data/docs/pressdata/en/ec/131359.pdf](http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/131359.pdf)), compared to European Stability Mechanism, ‘FAQ on the preliminary agreement on the future ESM direct bank recapitalisation instrument’, June 2014, available at <http://www.esm.europa.eu/pdf/FAQPreliminaryDRIJune2014.pdf>.

7 Risk reduction can be achieved, for example by introducing some form of large exposure rules on sovereign bond holdings or risk weights for sovereign bond holdings (Brunnermeier *et al*, 2016).

**We propose exploring the idea of using the European Stability Mechanism (ESM) as the fiscal backstop to the Single Resolution Fund.**

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Bruegel, Rue de la Charité 33,  
B-1210 Brussels  
(+32) 2 227 4210  
info@bruegel.org  
www.bruegel.org

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