Working Paper Series

No 56 / November 2017

A macro approach to international bank resolution

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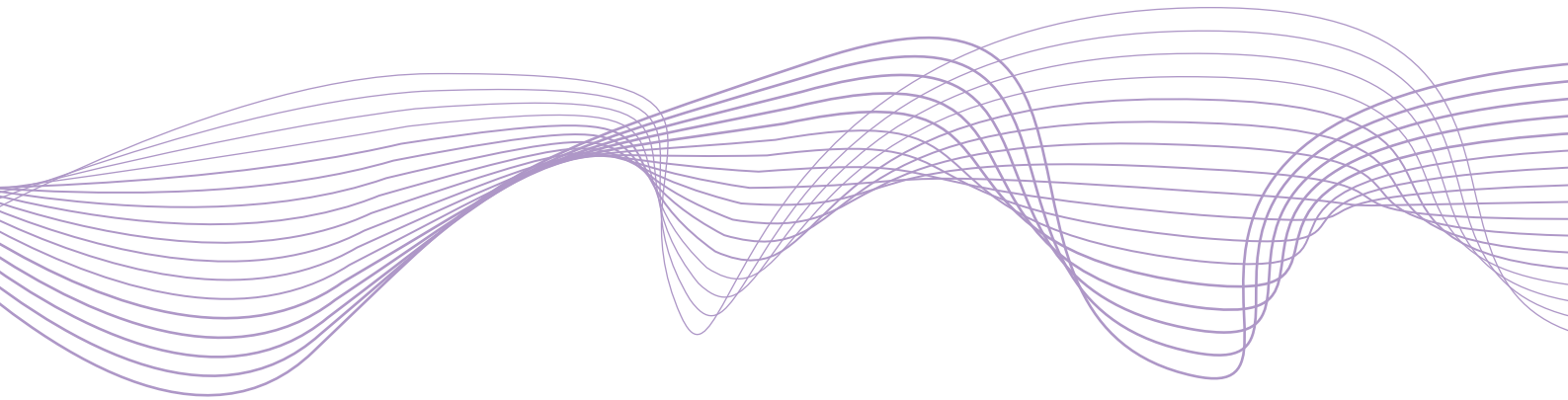


ESRB
European Systemic Risk Board
European System of Financial Supervision

Abstract

In the aftermath of the Great Financial Crisis, regulators have rushed to strengthen banking supervision and implement bank resolution regimes. While such resolution regimes are welcome to reintroduce market discipline and reduce the reliance on taxpayer-funded bailouts, the effects on the wider banking system have not been properly considered. This paper proposes a macro approach to resolution, which should consider (i) the contagion effects of bail-in, and (ii) the continuing need for a fiscal backstop to the financial system.

For bail-in to work, it is important that bail-inable bank bonds are largely held outside the banking sector, which is currently not the case. Stricter capital requirements could push them out of the banking system. The organisation of the fiscal backstop is crucial for the stability of the global banking system. Single-point-of-entry resolution of international banks is only possible for the very largest countries or for countries working together, including in terms of sharing the burden of a potential bank bailout. The euro area has adopted the latter approach in its Banking Union. Other countries have taken a stand-alone approach, which leads to multiple-point-of-entry resolution of international banks and contributes to fragmentation of the global banking system.

Keywords: bank resolution, international banking, single point of entry, multiple point of trilemma, banking union
JEL Classification: G01, G21, G28

1. Introduction

The focus of the regulatory reform agenda is shifting from supervision to resolution of financial institutions. While supervision remains important to reduce the likelihood of bank failures, it cannot prevent such failures in a market economy. A strong resolution regime with bail-in of debtholders is considered to be important to reinforce market discipline. But the leading economies, including the European Union and the United States, which have adopted and implemented resolution regimes, risk making the same mistakes they made with supervision.

Before the Great Financial Crisis, supervision took a micro approach, focusing on the strength and soundness of financial institutions without looking at the wider financial system. Financial imbalances, such as the housing bubble in the US, were allowed to build up in the run up to the Great Financial Crisis, because nobody felt responsible for monitoring the stability of the financial system as a whole (the macro dimension). Since the crisis, countries have adopted macro-prudential supervision in addition to micro-prudential supervision.

But history seems to repeat itself. The new resolution regimes are overly focused on the resolution of individual banks, with only a minor exemption for systemic risk. Lawyers are excited about the special features of bank resolution legislation as *lex specialis*, while economists are thrilled about the incentive effects of bail-in: managers (as agents of the shareholders) will reduce bank risk to minimise the possibility of bail-in, which would dilute existing shareholders. This all assumes that resolution of individual banks is feasible.

But the impact of resolution measures applied to one bank on the other banks has not been properly considered. The aim of this paper is to investigate the impact of resolution measures in calm times and in crisis times. Our main claim is that we need a macro approach to resolution that complements the micro rules. Moreover, it might not always be possible to avoid a conflict of objectives between the micro and macro approaches. For these cases we have to define a hierarchy of objectives (Schoenmaker and Kremers, 2015).

While bail-in is presented as substitute for bailout, bail-ins and bailouts are often complementary, allowing banks to be resolved without jeopardising the financial system. The challenge for policymakers is to find the right balance between the two.

2. The need for a macro approach to resolution

One of the major reforms ushered in by the Great Financial Crisis is the requirement to bail-in debt before a possible bailout of a failing bank can take place. The aim of the new bail-in regime is to reduce the costs of bank bailouts for taxpayers and thus to reduce moral hazard (see Philippon and Salord, 2017, for an excellent overview). While bail-in is appropriate for individual idiosyncratic failures, it might not be possible when a systemically important bank, or large parts of the banking system, fail. Bail-in of large banks might be adding to – rather than dampening – financial panic (Avgouleas and Goodhart, 2015; Chan and Van Wijnbergen, 2015; Dewatripont, 2014)[1].

Why are micro rules for supervision and resolution not sufficient? The fallacy of composition argues that the system as a whole behaves differently from its individual components (Brunnermeier *et al*, 2009). This fallacy derives from the fact that, when trying to make themselves safer, financial institutions can behave in ways that collectively undermine the stability of the system. Selling an asset when the price of risk increases might be a prudent response from the perspective of an individual financial institution, but if many financial institutions act in this way, the asset price will collapse, forcing financial institutions to take further steps to rectify the situation. The responses of the financial institutions themselves to such pressures lead to generalised declines in asset prices, and enhanced correlations and volatility in asset markets (Shleifer and Vishny, 2011). Another example is that at the top of the credit cycle, individual financial institutions look sound because measured risk is low, while the financial system becomes increasingly fragile as imbalances build up (Minsky, 1986). Insofar as they neglect these general equilibrium effects, micro-prudential policies can be destructive at the macroeconomic level.

Contagion

The main reason for this fallacy of composition is the presence of endogenous feedback loops (or contagion effects) in the financial system. De Bandt and Hartmann (2002) distinguished two main channels in banking markets through which contagion can spread problems from one bank to other banks or financial institutions:

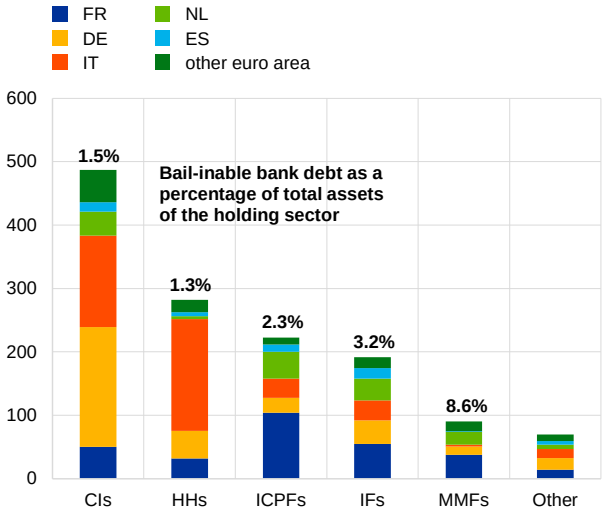
[1] The European bail-in regime allows a financial stability exception for government support under certain conditions (see Articles 32, 44 and 56, Bank Recovery and Resolution Directive, 2014/59/EU).

- The real or exposure channel (direct contagion) that refers to 'domino effects' resulting from real exposures, and
- The information channel (indirect contagion) that relates to the contagious withdrawals (bank runs) when depositors are imperfectly informed about the type of shocks hitting banks and about their physical exposure to each other (asymmetric information).

The major direct contagion effect of bail-in is the spread of losses to the holders of bail-inable debt (see also Avgouleas and Goodhart, 2015). While portfolio theory suggests that these debt holdings should be widely spread across different types of investors and across countries (ie international diversification), in practice these bail-inable bonds are primarily held within the financial sector, in particular the banking sector, with a strong home bias. Figure 1 shows that the euro-area banks (ie credit institutions) hold the largest share of bailin-able bonds issued by euro-area banks, with holdings close to €500 billion. The next category is households, with holdings amounting to €300 billion, followed by insurance companies and pension funds with holdings of just over €200 billion (ECB, 2016).

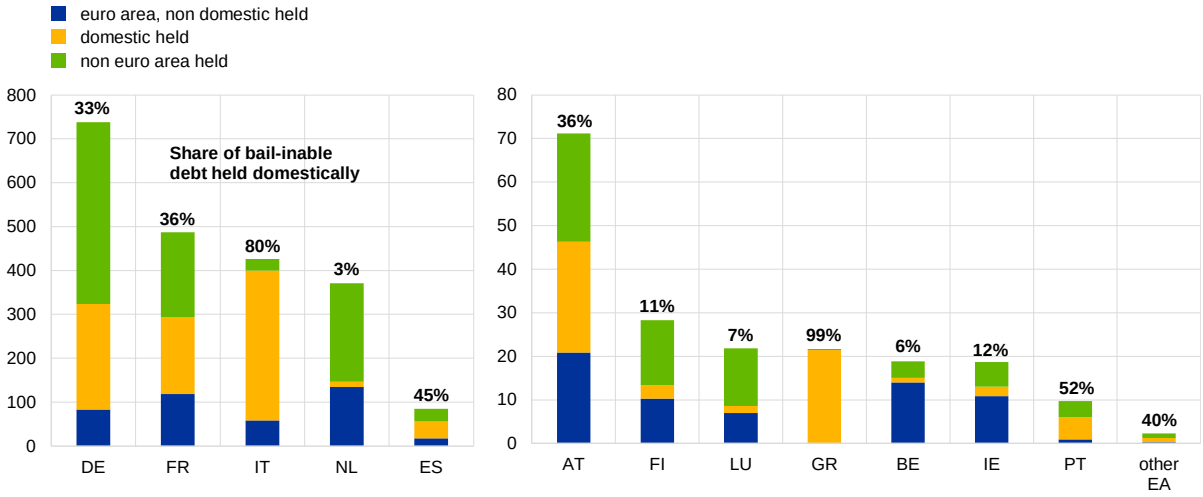
These findings show there is substantial potential for direct contagion within the financial sector. In particular in the banking sector, losses of one or more banks are to a great extent directly passed on to other banks in case of bail-in, which might impact their solvency and ability to provide credit. Figure 1 shows that bail-inable bank debt holdings by euro-area banks amount to 1.5 percent of total bank assets, while the overall core-equity capital of euro-area banks stands at 4.9 percent of total bank assets (Schoenmaker and Véron, 2016). This means that up to 31 percent (= 1.5 percent/4.9 percent) of the capital base of euro-area banks is at risk. Direct bank contagion is the strongest and most dangerous form of contagion. The failure of a large bank, or several medium-sized banks, could cause stress in the banking system, potentially leading to a full-blown banking crisis. So, when bail-inable bank debt is primarily held within the banking system, the overall stability of the banking system is weakened, should there be a bail-in following a large bank failure or multiple failures of smaller banks.

Figure 1: Bail-inable bank debt securities by holding sector (Q1 2016; € billions)



Sources: ECB (2016) based on ECB Securities Holdings Statistics by Sector.
Notes: CIs = credit institutions; HHs = households; ICPFs = insurance companies and pension funds; IFs = investment funds; MMFs = money market funds. Bail-inable debt includes senior unsecured and subordinated bank debt securities. Breakdowns in the chart show issuance by domicile of the issuing bank and holdings by euro area sectors. Percentages on top of columns show debt holdings relative to total assets (for financial sectors) and relative to financial assets (for households).

Figure 2: Bail-inable bank debt by domicile of investor (Q1 2016; € billions)



Sources: ECB (2016) based on ECB Securities Holdings Statistics by Sector.
Notes: Bail-inable bank debt includes senior unsecured and subordinated debt issuances and excludes secured issuances (e.g. covered bonds) and issuances for which a seniority flag was not available in the database.

Beck *et al* (2017) analysed the credit supply and real sector effects of bank bail-in following the unexpected failure and subsequent resolution of a major bank in Portugal (Banco Espirito Santo in August 2014). They showed that while banks more exposed to the bail-in significantly reduced credit supply after the shock, affected firms were able to respond to this credit contraction by turning to other sources of funding, including new lending relationships.

Nevertheless, Beck *et al* (2017) found a moderate tightening of credit conditions as well as lower investment and employment at firms more exposed to the intervention, particularly small and medium-sized firms (SMEs).

Next, the holding of bail-inable bank bonds by insurers and pensions funds is in principle useful. Problems at banks are then absorbed by long-term institutional investors, which have the capacity to absorb losses in their often internationally diversified portfolios. Using a dataset covering 1992 to 2003, Slijkerman *et al* (2013) used extreme value analysis to examine the systemic interdependencies within and between the European banking and insurance sectors during times of stress. While insurers exhibit a slightly higher interdependency in comparison with banks, the inter-dependency between the two sectors turns out to be considerably lower. So the insurance (and pension fund) sector is able to provide extra loss-absorbing capacity for the banking sector during most crises. However, during a very deep financial crisis such as the recent Great Financial Crisis when almost all asset classes are correlated in a downward spiral, bail-in would contribute to the pressure in the financial system, intensifying the crisis.

Finally, bail-in might politically not be feasible, when households hold a large part of bail-inable debt. This was the case in Italy in early 2017, when the Italian bank Monte dei Paschi di Siena (MPS) had to be bailed out (Véron, 2017). Figures 1 and 2 confirm that most of the bail-inable bonds of Italian banks are held by Italian households. While this should not have happened (mis-selling of risky bonds to small investors should have been prevented by the conduct-of-business supervisor), it did happen and MPS was bailed out instead of bailed in. Moran (1986) showed vividly how parliament has a strong inclination to demand protection of 'innocent' depositors (or in this case 'innocent' bail-inable debtholders), who are also voters. Deposit insurance gives the supervisor more leeway to close banks. Accordingly, bail-in of non-professional debtholders is near impossible without some form of compensation.

On the information channel (indirect contagion), the act of bail-in of bank debt sends a signal that there are problems with a bank and that bail-in is needed to restore capital. While a supervisor can tell investors and depositors that the bank is well capitalised after the bail-in, why would investors and depositors believe the supervisor? Given the asymmetric information, investors and depositors have no way to check whether more problems are looming. Chan and van Wijnbergen (2015) examined CoCos (contingent convertible capital), which are designed to convert from debt to equity when banks need it most. They show that while the CoCo conversion of the issuing bank might bring the bank back into compliance

with capital requirements, it will nevertheless increase the probability of a bank run happening, because conversion is a negative signal to depositors about asset quality.

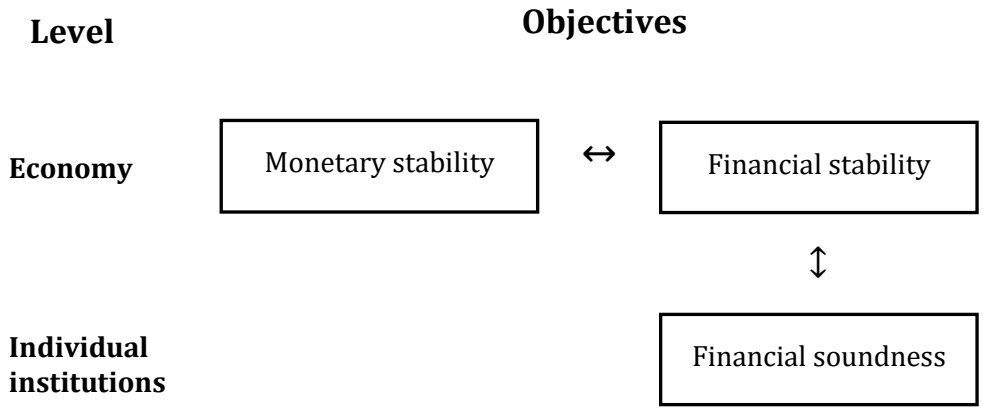
Moreover, conversion imposes a negative externality on other banks in the system in the likely case of correlated asset returns, so bank runs elsewhere in the banking system also become more probable and systemic risk will actually increase after conversion. CoCos thus lead to a direct conflict between micro- and macro-prudential objectives. The link between CoCo conversion and systemic risk highlights the trade-offs that supervisors face in deciding to convert CoCos, providing a possible explanation for regulatory forbearance.

Hierarchy of objectives

The micro approach to resolution involves the application of the bail-in rules in order to preserve market discipline. The assumption is that upholding market forces has a disciplining effect, deterring bank managers from excessive risk-taking and thus fostering the financial soundness of individual banks. The macro approach to resolution might forego bail-in, or only partially apply bail-in, in order to preserve financial stability. Which approach should prevail if there is a conflict of objectives between the micro and macro approaches to resolution?

If there is a conflict, it is unavoidable to define a hierarchy of objectives. For supervision, Schoenmaker and Kremers (2015) argued that the macro-prudential concerns should clearly override the micro-prudential concerns in such situations, because the stability of the system is more important than the soundness of the components. Figure 3 depicts the hierarchy of objectives for the wider economic and financial system. The same hierarchy should be applied to resolution: if the bail-in of one or more (large) banks were to destabilise the financial system (the core banking system or the wider financial system), it would be counterproductive. The override should be reversible to prevent moral hazard. Partial bail-in, or bail-in at a later stage, should not be ruled out in order to retain the disciplining force of bail-in. When a negative bank shock happens, for example, bail-in rules could be temporarily (and partially) lifted to avoid a wider financial crisis. But there must be a clear exit. Otherwise problems might scale up and become worse.

Figure 3. Hierarchy of objectives



Source: Schoenmaker and Kremers (2015)

Fiscal backstop

In a full-blown systemic crisis, there is still a need for the government to provide a fiscal backstop to preserve the stability of the financial system (see, for example, Cecchetti and Schoenholtz, 2017; Schoenmaker, 2015a). While making public funding available comes at the loss of market discipline, Cecchetti and Schoenholtz (2017) argued that some forms of moral hazard are unavoidable. They claimed that a resolution regime without the possibility of government funding in extreme circumstances is not credible. The lack of a credible resolution scheme also creates moral hazard: that a future government facing a crisis will enact a bailout just as the US government did with TARP (the Troubled Asset Relief Program) in 2008[2].

The fiscal backstop can be either direct to recapitalise ailing banks (with only partial or no bail-in), or indirect as a backstop for the central bank and the resolution and deposit insurance fund. Schoenmaker (2015a) provided an overview of the arguments on the need for a fiscal backstop in a fractional reserve banking system. The standing of a banking system depends on the strength and credibility of the fiscal backstop (Goodhart, 1998).

When assessing the need for a fiscal backstop, it is important to have an overview of the overall size of a banking system and the make-up of the system. Table 1 lists the world's major banking systems and the largest banks (the so-called global systemically important

[2] This is an example of time inconsistency: when faced with a severe crisis, the government might break its prior commitment not to bail out in order to preserve financial stability.

banks) within these banking systems. It shows that these large banks have $2-$3 trillion in total assets. It also illustrates that most of these large banks have a strong international presence with assets in the rest of the region and the rest of the world.

Table 1: The major banking systems and their largest banks, 2015

Banking systems	Total assets ($ billions)	Geographical spread		
		Home	Region	World
Euro-area banking system	**30,208**			
BNP Paribas	2,166	25%	47%	28%
Groupe Crédit Agricole	1,845	81%	10%	8%
Deutsche Bank	1,769	26%	28%	46%
Santander	1,456	28%	43%	29%
Société Générale	1,449	72%	18%	11%
Groupe BPCE	1,267	91%	3%	6%
Unicredit Group	935	40%	57%	3%
ING Bank	911	36%	47%	17%
BBVA	815	39%	14%	47%
Commerzbank	579	52%	35%	13%
Large euro-area banks	13,192	49%	30%	22%
US banking system	**15,564**			
JP Morgan Chase	2,352	77%	2%	21%
Bank of America	2,144	86%	1%	12%
Wells Fargo	1,788	97%	1%	2%
Citigroup	1,731	51%	9%	40%
Goldman Sachs	861	52%	4%	44%
Morgan Stanley	787	68%	4%	28%
Bank of New York Mellon	394	76%	0%	24%
State Street	245	74%	2%	24%
Large US banks	10,303	75%	3%	22%
Chinese banking system	**30,730**			
Industrial and Commercial Bank of China	3,421	93%	5%	3%
China Construction Bank	2,826	94%	3%	3%
Agricultural Bank of China	2,740	96%	2%	1%
Bank of China	2,590	73%	17%	10%
Large Chinese banks	11,577	90%	6%	4%
UK banking system	**10,179**			
HSBC	2,410	36%	6%	58%
Barclays	1,651	40%	20%	40%
Royal Bank of Scotland	1,202	83%	5%	12%
Lloyds Banking Group	1,189	96%	2%	1%
Standard Chartered	640	18%	10%	72%
Large UK banks	7,092	53%	9%	38%
Japanese banking system	**9,415**			
Mitsubishi UFJ FG	2,602	60%	9%	31%
Mizuho FG	1,883	65%	9%	26%
Sumitomo Mitsui FG	1,600	70%	8%	21%

Large Japanese banks	6,086	65%	9%	27%
Swiss banking system	**3,027**			
UBS	942	33%	24%	43%
Credit Suisse	827	27%	20%	53%
Large Swiss banks	1,769	30%	22%	48%
Swedish banking system	**1,676**			
Nordea Bank	703	28%	69%	3%
Large Swedish banks	703	28%	69%	3%

Notes: The geographical segmentation of assets covers the home country, the rest of the region or continent (Americas, Europe and Asia) and the rest of the world.
Source: Schoenmaker (2017a).

3. The international dimension

For international banks, the question arises whether the countries where the bank has a presence can jointly provide the fiscal backstop through some form of burden sharing (Goodhart and Schoenmaker, 2009; Faia and Weder di Mauro, 2016; Schoenmaker, 2016). A joint fiscal backstop, or a full backstop by the home country, for the entire bank facilitates single-point-of-entry (SPE) resolution. By contrast, when the involved countries only stand behind the respective domestic parts of an international bank, multiple-point-of-entry (MPE) resolution is unavoidable.

Faia and Weder di Mauro (2016) found, on the basis of international banks' resolution plans filed at the Federal Reserve, that the vast majority of banks aim for SPE resolution. But are these SPE resolution plans credible? Crisis management, with large sums of money involved, can be seen as a one-shot game. Game theory indicates that in such a case the non-cooperative equilibrium dominates. This is an application of the prisoner's dilemma. The countries involved do not take into account any foreign externalities of a potential bank failure, and are only prepared (and politically authorised) to backstop their respective domestic part.

More formally, the financial trilemma states that the objectives of (1) financial stability, (2) international banking, and (3) national financial policies for supervision and resolution, are incompatible (Schoenmaker, 2013). Any two of the three policy objectives can be combined but not all three; one has to give. Policymakers must choose between three equilibrium outcomes for the structure of the international banking system, which differ in viability and stability. Eatwell, Gossé and Alexander (2014) developed similar, though slightly different, scenarios. We find that the equilibrium outcomes for large international banks are as follows (Schoenmaker, 2016):

A. Global banks, headquartered in large countries: giving up objective (1);

B. Multinational banks, based on national subsidiaries: giving up objective (2); and
C. Global or regional banks, based on burden sharing: giving up objective (3).

The starting point for analysing these equilibria is the credibility of the banking system's fiscal backstop. From earlier financial crises, we establish that the threshold for a credible fiscal backstop is about 8 percent of GDP (Hüttl and Schoenmaker, 2016). Systemic bank failures tend to be clustered because of common factors, such as a severe economic downturn, a housing bust and/or a currency crisis (Laeven and Valencia, 2013). Using a conservative scenario, we assume that up to three of a country's largest banks might need to be recapitalised in a severe systemic crisis. Next, recapitalisation aims to restore the equity of the failing bank, provided that the financial stability benefits exceed recapitalisation costs. Dermine and Schoenmaker (2010) argued that a bank's equity is a good proxy for recapitalisation costs. Recapitalisation is standardised at 4.5 percent of total assets in our calculations.

Table 2 shows that the potential 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 (equilibrium A, with SPE resolution). Table 2 also shows that the potential fiscal costs for Germany, Italy and Austria are within the 4 to 5 percent range, but these countries are not home to global banks with €2-€3 trillion in total assets, with the exception of Deutsche Bank.

The other euro-area countries (with large banks) and the UK, Sweden and Switzerland face potential fiscal costs for bailing out the largest banks ranging from 8.4 to 13.5 percent of GDP. The credibility of the fiscal backstop for these countries can be questioned, both in terms of the budgetary capacity (exceeding the indicative hurdle rate of 8 percent of GDP) and the political willingness to spend such large amounts. We should note that these calculations do not take into account (partial) bail-in, which would lower the potential costs for the government, or the fiscal space of individual countries.

Table 2: Potential fiscal costs for major countries, 2015 (% of GDP)

Countries	Assets in $ billion	Recapitalisation in $ billion	Fiscal costs % of GDP
Top 3 banks China	8,987	404	3.7%
Top 3 banks US	6,086	274	1.6%
Top 3 banks Japan	6,023	271	6.6%
Top 3 banks Euro Area	5,781	260	2.3%
Top 3 banks France*	5,465	246	10.2%
Top 3 banks Germany*	2,794	126	3.7%
Top 3 banks Spain*	2,646	119	9.9%
Top 3 banks Netherlands*	2,064	93	12.3%
Top 3 banks Italy*	1,854	83	4.6%
Top 3 banks UK	5,262	237	8.4%
Top 3 banks Switzerland	1.989	90	13.5%
Top 3 banks Sweden	1.297	58	11.8%

Notes: The largest three home country banks (ie headquartered in the home country) are chosen for each jurisdiction. Recapitalisation is standardised at 4.5 percent of total assets. The fiscal costs represent the potential fiscal costs of recapitalising the largest three banks as percentage of GDP. The countries indicated by * are members of the European banking union.
Source: Hüttl and Schoenmaker (2016).

The European countries made different choices in the aftermath of the Great Financial Crisis. The United Kingdom and Switzerland have enacted major reforms (both structural reforms and higher capital charges) with the official aim of increasing the resilience of their banking systems, and the intended side effect of simultaneously downsizing their large banks and reducing their foreign activities. The new requirements have been disproportionally stringent on the largest banks compared to the rest of the banking system. One example is the Vickers separation of retail and wholesale banking, which affects the large UK banks. The main purpose of this separation is to limit the contingent liability of the UK taxpayer to support the British banking system (Goodhart, 2012). Moreover, the UK and Switzerland have imposed higher capital surcharges than other countries on their large banks. The UK and Switzerland have implicitly opted for equilibrium B, with MPE resolution.

Sweden has also been increasing the regulatory, resolution and tax burden on its large banks. In response, Nordea decided to leave Sweden and relocate to Finland in the euro area (Schoenmaker, 2017b). While the relocation is an immediate response to the higher burden, it is also a stable long-term solution for Nordea with a credible fiscal backstop from the European Stability Mechanism (ESM), as explained below.

By contrast, the major euro-area countries have implemented some lighter 'Liikanen' reforms (Liikanen, 2012) than the UK and Switzerland. With the implementation of the Single Supervisory Mechanism (SSM) and the Single Resolution Mechanism (SRM), the euro area can already be considered as a single jurisdiction, based on SPE resolution within the euro area (equilibrium C). An open issue is whether policymakers will shift the fiscal backstop for the euro-area banking system from the country to the euro-area level (see section 4). Table 2 suggests that the required fiscal backstop for the euro-area banking system would amount to $260 billion (which is €230 billion at today's exchange rate). The European Stability Mechanism (ESM) provides a fiscal backstop of €500 billion for country members and banks, which seems to be more than sufficient. There is currently a limit of €60 billion for direct recapitalisation of banks (ESM, 2014), but that can be raised if and when needed.

4. Policy recommendations

To encourage bail-in to the maximum extent possible (the micro objective of resolution to foster market discipline), we can redesign the system to minimise the macro concerns (the macro objective of resolution to maintain financial stability). We make several recommendations to reduce the potential macro impact.

Reducing the potential for bank contagion

We first look at direct contagion within the banking system. The current capital treatment of bank instrument holdings is symmetric and works as follows. A bank needs to deduct holdings of bank equity from its core-equity Tier 1 (CET1) capital, while holdings of CoCos, which form additional Tier 1 capital (AT1), are deducted from AT1 capital, and holdings of subordinated debt, which is known as Tier 2 capital (T2), are deducted from T2 capital[3]. Similarly, the European Commission proposes to deduct holdings of bail-inable debt in other banks from a bank's own bail-inable debt[4].

[3] For equity see Article 36 of the Capital Requirements Regulation (CRR; EU/575/2013), for CoCos Articles 45-48 of the CRR and for Tier 2 capital Articles 56-60 of the CRR.
[4] The requirement to hold bail-inable debt is technically called Minimum Requirement for Own Funds and Eligible Liabilities (MREL) and amounts to 8 percent on top of a bank's capital. The European Commission proposes to deduct bail-inable debt holdings from a bank's own MREL (see Amendment to CRR/EU/575/2013; COM(2016) 850 final). This proposed requirement is only for global systemically important banks (G-SIBs) and for holdings of bail-inable bonds of G-SIBs.

We recommend that all bank instrument holdings should be deducted from CET1 capital. At bail-in, CoCos (AT1), subordinated debt (T2) and bail-inable debt are either converted into equity or lead directly to a loss. In both cases, the surviving bank, holding this paper, has to deduct the bailed-in amount – either as new bank equity holdings or as a realised loss– from its own CET1 capital. When a bank holds extra capital for this event (ie the bank has already deducted any bank instrument holdings from its CET1 capital requirement in advance), the bank can absorb losses from these holdings and the second round effect of the first bank failing is limited. By contrast, the current symmetric treatment leads to second-round effects, as banks have to deduct bailed-in debt from their CET1 capital. If as a consequence their CET1 ratio dropped below their required CET1 ratio, a further round of bail-ins would be triggered – and further subsequent rounds as necessary. While small bank failures will not set off substantial second-round effects, medium-sized and large bank failures can cause a cascade of losses through the banking system under the current combination of bail-in and capital regulations.

The systemic capital surcharge for global systemically important banks (G-SIBs) is not enough to absorb losses from bail-in debt, which can amount to 1.5 percent of total assets. The average G-SIB surcharge is 1.33 percent of risk-weighted assets. As the risk-weighted assets form about 34 percent of total assets for G-SIBs, the surcharge is then only 0.45 percent (= 34 percent * 1.33 percent) of total assets (Schoenmaker, 2017a).

Moreover, banks are allowed to apply a lower risk weight to bank exposures than to corporate exposures, which provides banks with an incentive to hold bank bonds. If the above recommendation of full deduction of bail-inable bank bond holdings from CET1 capital is not followed, we propose at the minimum that unsecured or subordinated bank bonds should be given a similar risk weight to comparable corporate bonds. That would end the favourable treatment of bank bonds. The recommended strict treatment of deducting bail-inable bank instruments from CET1 capital and/or the higher risk weights for these instruments would raise banks' funding costs, because contagion risks would become partly internalised by the banking system. The higher capital requirements might help push bank bonds outside the core banking system.

Turning to indirect contagion, it is important that the supervisor, lender of last resort and resolution authority work together to combat information-induced banking crises, such as the potential writing down of subordinated debt during the Irish banking crisis. The European Central Bank (ECB) argued strongly against a write down to prevent information contagion to

the wider European banking system, which was financed with large amounts of subordinated debt. However, Ireland had to pay the bill of higher bail-out costs on its own. In an earlier assessment (Schoenmaker, 2015b), we argued that these costs should have been shared at the European level because the stability benefits accrued to the entire European banking system. Sapir and Schoenmaker (2017) argued for an integrated approach with the ECB as supervisor and lender of last resort, a newly formed Single Resolution and Deposit Insurance Board as resolution and deposit insurance authority, and the ESM for direct capitalisation.

Strengthening the fiscal backstop

Large institutional investors, such as insurance companies and pension funds, are well-placed to absorb banking losses in return for a higher interest rate (risk premium on bail-inable bank bonds). But during a very deep financial crisis when asset returns are correlated, the authorities might need to support the wider financial system. The presence of a strong and credible fiscal backstop to the banking system and the wider financial system is thus important to maintain financial stability.

We recommend that the euro-area countries organise the fiscal backstop at the euro-area level. The ESM was created as fiscal backstop for member countries with sovereign debt problems. Under the current arrangements, it provides a very partial backstop to the banking union banking system. A member country can receive an ESM loan to recapitalise its banks (the indirect recapitalisation of Article 15 ESM Treaty). Only when a member's fiscal sustainability is in danger (ESM, 2014), can the ESM directly recapitalise banks from that member country under certain conditions (eg an own contribution by the member country and a bail-in of 8 percent of a bank's total liabilities) and with unanimity of votes, which might lead to protracted negotiations with an uncertain outcome. The current ESM Direct Recapitalisation Instrument falls thus short of being an *ex-ante* credible fiscal backstop at the euro-area level.

A first step to complete the ESM as a fiscal backstop to the banking system would be to enable direct bank recapitalisation from the ESM, without first waiting for the country to go bankrupt and subsequently meeting prohibitive conditions and voting procedures. A second step would be to establish a Single Resolution and Deposit Insurance Fund, with a credit line from the ESM, similar to the Federal Deposit Insurance Corporation (FDIC), which has a US Treasury credit line (Gros and Schoenmaker, 2014).

Reducing bail-in debt held by households

The final recommendation concerns the holdings of bail-inable bank debt by households. These large holdings can be explained by the fact that the bail-inable bonds are seemingly attractive to households because they offer a higher interest rate than savings accounts with deposit insurance. However, the higher interest rate reflects the higher risk of bail-in without deposit protection.

In the context of the resolvability assessment, the Single Resolution Board (SRB) has to evaluate the effective bail-inability of certain liabilities. An important element of this evaluation is the holding structure of these liabilities (since liabilities held by retail investors are more difficult to bail in)[5]. While the SRB can estimate the percentage of retail holders, it cannot assess whether the individual holders of the liabilities can bear the losses. The holders – and their financial position – cannot be known for publicly issued and traded securities. Moreover, the Bank Recovery and Resolution Directive (BRRD; 2014/59/EU) does not allow discrimination between different holders of debt of the same class when bailing in. Nevertheless, in its communication the SRB discourages banks from selling bail-inable instruments to retail clients and encourages banks to ensure maximum disclosure on potential bail-in risk.

To avoid mis-selling, the conduct-of-business supervisor should ensure that banks fully explain the riskiness of these bail-inable bonds to households (see also Philippon and. Salord, 2017). These risks include not only the usual losses at failure but also the possibility of conversion into equity prior to failure.

Experience suggests that it is very difficult for the average household to fully grasp these risks (Abrue and Mendes, 2010). Moreover, marketing of bail-inable bank bonds is often aimed at a bank's own customers (ie depositors), which perceive their banks as safe. Such captive selling is very delicate. A bank will have to tell its customers simultaneously that it is safe to deposit their money in the bank, but that buying the same banks' bonds might entail losses. In practice, the bank often promotes its bonds to its customers as attractive because of the higher interest rate, with limited explanation of the risks.

[5] The SRB receives the information on the holding structure through the Liability Data Template, which is collected for MREL purposes.

At the macro-level, households will ultimately bear the loss of bail-in. The key point here is that households should not individually become too exposed to bail-inable debt. The risk should rather be spread through participation by households in funds, either directly in mutual funds or indirectly in pension funds or insurance companies.

An alternative solution to strengthened conduct-of-business supervision would be that regulation could ban the sale of bail-inable bonds to non-professionals. In that way, the resolution authority would face less political pressure to suppress bail-in.

5. Conclusions

The new resolution regimes adopted in the EU and the US have an important and welcome disciplining effect on the banking sector. However, the impact of bail-in on the wider banking system has not so far received sufficient attention. This Policy Contribution highlights the need for a macro approach to resolution to complement the current micro approach. This macro approach should consider the contagion effects of bail-in and stress the continuing need for a fiscal backstop.

A large volume of bail-inable bank bonds is held by the banking sector, which increases the potential for direct contagion because losses are distributed throughout the banking sector. This weakens the banking sector when bank failures happen. The favourable capital treatment of bank bonds encourages banks to buy these products. We recommend stricter capital requirements for bail-inable bank bonds, which would push them to non-banks, such as insurance companies and pension funds.

Even when bail-inable bank bonds are held more widely, there remains a need for a fiscal backstop to the financial system in the case of a full-blown financial crisis. To complete the banking union, we recommend that the European Stability Mechanism (ESM) becomes the fiscal backstop to the euro-area banking system. The ESM would then be able directly to recapitalise ailing banks and to provide a credit line to the Single Resolution and Deposit Insurance Fund, if and when needed.

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Imprint and acknowlegements

This paper is forthcoming as a chapter in Research Handbook on Cross-Border Bank Recovery and Resolution, edited by Matthias Haentjes and Bob Wessels, Routledge

The author is grateful to Maria Demertzis, Pia Hüttl and Alexander Lehmann for useful comments.

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ISSN	2467-0677 (online)
ISBN	978-92-95210-43-1 (online)
DOI	10.2849/88978 (online)
EU catalogue No	DT-AD-17-023-EN-N (online)