

Thomas F. Huertas

Reset required: The euro area crisis management and deposit insurance framework

SAFE White Paper No. 85 | April 2021

Leibniz Institute for Financial Research SAFE
Sustainable Architecture for Finance in Europe

policy_center@safe-frankfurt.de | www.safe-frankfurt.de

Reset required: The euro area crisis management and deposit insurance framework*

Thomas F. Huertas, Goethe University Frankfurt, Center for Financial Studies, Institute for Law and Finance and SAFE

April 2021

Abstract

The crisis management and deposit insurance (CMDI) framework in the euro area requires a reset. Currently the framework is far more likely to manufacture a crisis rather than enable the authorities to manage one. Specifically, the current framework is far more likely to trigger the doom loop between weak banks and weak governments than to terminate or untie it. Nor will the current framework necessarily protect deposits. There is no guarantee that a euro in covered deposits will remain a euro, if the bank in which the deposit is held fails, and/or the Member State in which the failing bank is headquartered defaults.

The CMDI framework aims to enhance financial stability, limit recourse to taxpayer money, promote competition and protect depositors. These policy objectives remain valid. What needs to change is the method that authorities use to achieve those objectives. First, the approach needs to integrate micro- and macro- aspects of crisis management. In particular, the approach needs to take account of the prospective roles of the European Stability Mechanism, both as a provider of credit to Member States as well as a guarantor of the Single Resolution Fund. Second, the approach needs encompass the central bank as a provider of liquidity to banks individually and to the market as a whole. Finally, the approach needs to recognize that by the time any reform proposed as a result of this review would become effective, the SRB and the significant institutions in the euro area will have completed the transition and become fully resolvable via bail-in. This affords the euro area the opportunity to reset expectations about resolution.

The euro area should take this opportunity to make the crisis management and deposit insurance framework more European and more uniform. Specifically, there should be a single presumptive path for dealing with failed banks: the use of bail-in to facilitate the orderly liquidation under a solvent-wind down strategy. This will protect deposits and set the stage for the transformation of the Single

* SAFE policy papers represent the authors' personal opinions and do not necessarily reflect the views of SAFE or its staff. The author is grateful to Ignazio Angeloni, Tatiana Farina, Charles Goodhart, Jan-Pieter Krahenen, Karel Lannoo, Edith Rigler and Nicolas Véron for comments on earlier versions of this paper.

Resolution Fund (SRF) into the Single Deposit Guarantee Scheme (SDGS) with a backstop from the European Stability Mechanism (ESM). In addition, measures should be taken to avoid forbearance, including the transfer of responsibility for emergency liquidity assistance (ELA) from national central banks to the ECB to create a single lender of last resort. Finally, national deposit guarantee schemes should become investors of last resort in the gone-concern capital of the failing bank. This will ensure that the orderly liquidation approach extends to all banks, including those without access to capital markets. Together, these measures would complete Banking Union, promote market discipline, avoid imposing additional burdens on taxpayers, help untie the doom loop between weak banks and weak governments, strengthen the euro and enhance financial stability.

I. Introduction

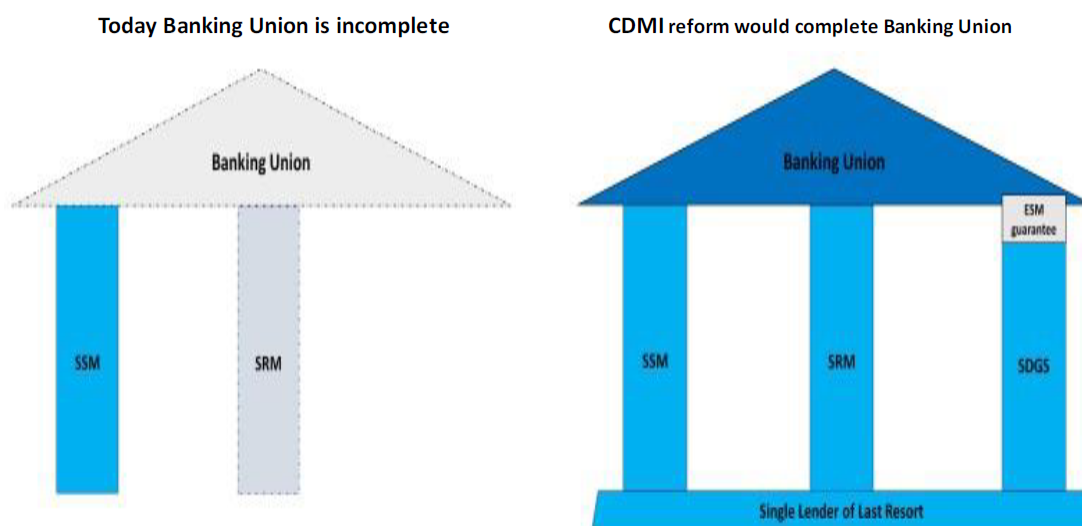
The crisis management and deposit insurance (CMDI) framework in the euro area requires a reset.¹ Currently the framework is far more likely to manufacture a crisis rather than enable the authorities to manage one. Specifically, the current framework is far more likely to trigger the doom loop between weak banks and weak governments than to terminate or untie it. Nor will the current framework necessarily protect deposits. There is no guarantee that a euro in covered deposits will remain a euro, if the bank in which the deposit is held fails, and/or the Member State in which the failing bank is headquartered defaults.

The policy objectives of the CMDI framework remain valid. What needs to change is the method that authorities use to achieve those objectives. First, the approach needs to integrate the micro- and macro-aspects of crisis management. In particular, the approach needs to take account of the roles that the European Stability Mechanism will play, both as a provider of credit to Member States as well as a guarantor of the Single Resolution Fund, if and when the Member States ratify the Recovery and Resilience Facility. Second, the approach needs encompass the central bank as a provider of liquidity to banks individually and to the market as a whole. Finally, the approach needs to recognize that by the time any CMDI reform would become effective, the transition period envisioned under the BRRD/SRMR will have ended and significant institutions in the euro area will have become fully resolvable via bail-in. This affords the euro area the opportunity to reset expectations about resolution.

¹ The European Commission has instituted a [Targeted Consultation](#) of the CMDI framework in the euro area. This paper represents part of the author's responses to that consultation.

The euro area should take that opportunity to make the crisis management and deposit insurance framework more European and more uniform. Specifically, there should be a single presumptive path for dealing with failed banks: the use of bail-in to facilitate the orderly liquidation under a solvent-wind down strategy. This will protect deposits and set the stage for the transformation of the Single Resolution Fund (SRF) into the Single Deposit Guarantee Scheme (SDGS) with a backstop from the European Stability Mechanism (ESM). In addition, measures should be taken to avoid forbearance, including the transfer of responsibility for emergency liquidity assistance (ELA) from national central banks to the ECB to create a single lender of last resort. Finally, national deposit guarantee schemes should become investors of last resort in the gone-concern capital of the failing bank. This will ensure that the orderly liquidation approach extends to all banks, including those without access to capital markets.

Figure 1: CMDI reform is the road to Banking Union



Source: Own representation

Together these measures would complete Banking Union (see Figure 1).² They would also create constructive certainty: covered deposits will receive a credible, unconditional formal guarantee; other operating liabilities such as derivatives and deposits can expect to be exempt from bail-in, and investor obligations will always be exposed to loss. This will promote market discipline, avoid imposing additional burdens on taxpayers, help untie the doom loop between weak banks and weak governments, strengthen the euro, increase competition and enhance financial stability.

² For a fuller discussion of all aspects of Banking Union see (Angeloni, 2020).

II. The Crisis Management and Deposit Insurance framework

The review of crisis management and deposit insurance (CMDI) framework has several objectives. First, it seeks to limit potential risks for financial stability, specifically those caused by the failure of a bank and those that might arise in connection with handling cross-border crises. Second, the framework should protect depositors and minimise recourse to public financing / taxpayers' money. Last, but by no means least, the CMDI framework should “break the bank/sovereign loop and foster the level playing field among banks from different Member States, particularly in the banking union” (Targeted Consultation, p. 8).

Crisis management has both micro (institution-specific) and macro (market and economy-wide) aspects. Deterioration in the macro-economic environment, whether as a result of monetary/fiscal policy (such as increases in interest rates to reduce inflation) or external, real economy shocks (such as the pandemic), can cause individual banks to fail. Conversely, the failure of a specific institution could prove contagious and lead to the failure of other institutions as well as to disruption in financial markets and/or the economy at large.

The Targeted Consultation focuses on the latter aspect of crisis management. According to FISMA, the CMDI framework consists of measures to handle failing banks, including recovery and resolution, deposit insurance and state aid (see Table 1). Collectively, they determine the amount and distribution of loss given the failure of a bank. It is appropriate that these measures be reviewed in aggregate, for recovery and resolution policies determine whether the failure of a bank will result in a loss to covered deposits (and therefore a claim on the DGS), and the credibility of the guarantee given by the DGS influences the likelihood and timing of bank failure.

Table 1. Components of the FISMA Crisis Management and Deposit Insurance Framework

Topic	Legislative/ regulatory acts ^a	Summary
Recovery and resolution	BRRD	EU Directive establishing recovery and resolution regime for EU in accordance with FSB key attributes
	SRMR	Regulation applying BRRD to euro area and creating the Single Resolution Fund
Deposit insurance	DGSD	EU Directive establishing minimum standards for deposit guarantee schemes in the EU
State Aid	Banking Communication	European Commission statement of the state aid rules applicable to banks
^a Reference should also be made to the guidelines and technical standards applicable to such acts as well as to the national legislation implementing such acts.		

The current CMDI framework fails to meet these objectives. First, the playing field remains uneven among banks from different Member States. The risk of a claim on a bank, be it debt, derivative or deposit, varies across Member States. That is due to the fact that the Single Resolution Mechanism is not single at all. It is an amalgam of 19 different national insolvency regimes with a “European” option. These national insolvency regimes differ considerably, even with respect to the creditor hierarchy and the role that deposit insurance is expected to play. For depositors and other creditors of the failed bank, liquidation under national insolvency regimes can result in anything from bail-out to wipe-out (Schillig, 2021, pp. 7-9).

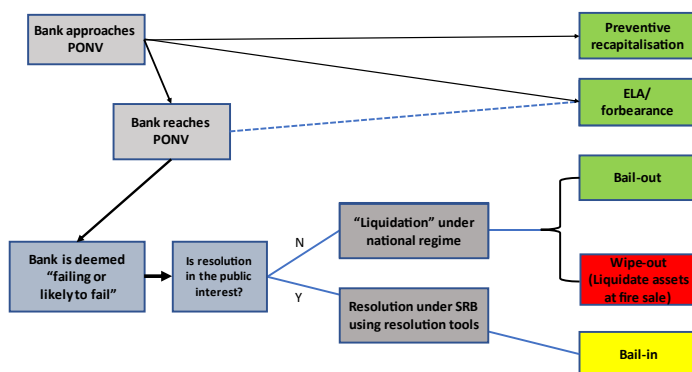
This diversity diminishes competition, undermines the Single Market and threatens financial stability.³ If the national route takes the form of bail out, investors might draw some comfort, at least in fiscally strong Member States. However, this comfort will be scant in Member States that are fiscally weak. Weak governments cannot bail out weak banks without raising concern about their own creditworthiness. If resolution of the failing bank takes the form of immediate liquidation, this will alarm counterparties and customers as well as investors in other banks, especially if the liquidation of the failed bank were to involve a fire sale of some or all of its assets. There will be a “flight to quality” and a run from banks perceived to be weaker, especially those headquartered in fiscally weaker Member States. In view of these options, the authorities might elect to kick the can down the road by exercising forbearance, especially if the failure of the troubled bank would expose the operational and/or financial fragility of the deposit guarantee scheme. But forbearance is a recipe for stagnation: zombie banks with non-performing loans to zombie firms is not a good basis for economic growth.

The reason for this state of affairs is simple. In the current CMDI framework national standards are the norm (see Figure 2). Bail-in and other resolution tools are only an option, not a requirement. Although the Single Resolution Mechanism Regulation (SRMR) empowers the Single Resolution Board (SRB) to establish resolution plans for significant institutions in the euro area and to set standards, including bank-specific targets for Minimum required own funds and eligible liabilities (MREL) to ensure that banks are resolvable, the SRMR does not empower the SRB to make the final choice on how authorities will handle a bank approaching the PONV. The SRB does not have the power of direction over national resolution authorities, much less over national central banks. Indeed, the SRMR mandates that bail-in pass a public interest assessment before it can be used. The resolution authority has to demonstrate that “resolution action... is necessary for the achievement of and is

³ (Targeted Consultation, pp. 3-4). See also (Restoy, Vrbaski, & Waters, 2020) who make the point that in jurisdictions where banks are subject to normal insolvency procedures the bank must be balance sheet insolvent before the authorities can intervene. This fosters forbearance and increases the likelihood that eligible liabilities will be insufficient to absorb losses incurred by the failing bank.

proportionate to one or more of the resolution objectives ... and winding up of the institution under normal insolvency proceedings would not meet those resolution objectives to the same extent” (SRMR 18(1)(c)(5)). During the entire interval since the introduction of the SRM in 2014, resolution has passed the public interest test just once.⁴ Although the Single Supervisory Mechanism may have made banks European in life, they remain national in death.⁵

Figure 2: In the current CMDI framework banks remain national in death



Source: own representation

The use of the national insolvency regimes does not limit recourse to taxpayer money. Indeed, it does exactly the opposite. Various national insolvency regimes permit the use of taxpayer money when handling a failing bank, in some cases under conditions that amount to bail-out on terms less stringent than would be required, if the failing bank were subject to resolution under the aegis of the SRB (Targeted Consultation, pp. 3-4).

Nor does reliance on national insolvency regimes protect deposits or ensure the credibility of a national deposit guarantee scheme. Deposit insurance should assure the holder of a deposit covered by such insurance that s/he will not suffer a loss, if the bank issuing such a deposit fails. If the failure of the bank results in a loss to covered deposits, the deposit guarantee scheme should reimburse the holder of such deposits in full and take over the claim of the depositor on the failed bank. If there is a loss to covered deposits, the deposit guarantee scheme may well become the largest single creditor of the failed bank. Thus, deposit insurance is inextricably linked to resolution: the loss to covered

⁴ Even where authorities have determined that the bank was “failing or likely to fail,” authorities have generally applied the national insolvency regime rather than “resolution” As Elke König (2018), Chair of the SRB, commented, under current legislation resolution is “for the few, not the many” For fuller discussion see (Single Resolution Board, 2019); (Restoy, Vrbaski, & Waters, 2020).

⁵ This phrase stems from (M. Huertas 2020). Other aspects of the CMDI framework are national as well. Member States may initiate early intervention (SRMR (13)) and/or preventive recapitalisation (SRMR (18)(4)(d)(iii)), and national central banks may exercise forbearance by extending emergency liquidity assistance (ELA).

deposits depends on their position in the creditor hierarchy and whether the failed bank has liabilities junior to covered deposits.

More importantly, the loss to covered deposits depends on whether the authorities have exercised forbearance, that is whether they have allowed the bank to continue to operate past the point of non-viability, possibly even to the point where the bank has negative net worth. In fact, national central banks have extended ELA to banks at or near the PONV, as they are entitled to do under [ELA Procedures](#), and ELA in some cases has remained outstanding for many months or even years. Such extended liquidity assistance allows banks reaching the PO V to avoid being characterised as “failing or likely to fail,” and therefore enables such banks to postpone or avoid resolution. This in turn permits uninsured and unsecured creditors (including uninsured depositors) to run or seek to secure their claims. If the bank does enter resolution at some future point, losses to any liabilities that remain unsecured (including deposits) will have very likely increased.⁶

To defray potential losses in connection with resolution, banks in the euro area have already set aside funds equal to the target level (1% of covered deposits). National deposit guarantee schemes in the euro area have over €30 billion in funds that are available to absorb losses (see Table 2). Banks are due under the DGSD (Art 10[2]) to pay approximately €20 billion to national deposit guarantee schemes over the coming years in order to eliminate shortfalls to target funding levels (0.8% or more of covered deposits in all Member States except France [0.5%]). In addition, banks have contributed over €30 billion to the Single Resolution Fund, or approximately 0.5% of covered deposits and are scheduled to contribute over €35 billion more in the coming years to bring the SRF to its target level of 1% of covered deposits (approximately €70 billion from 1 January 2024)

However, these resources are not pooled together, and there are restrictions on their use. If the failing bank is resolved under the aegis of the SRB, recourse to national deposit guarantee schemes is limited to the amount of loss attributable to covered deposits (given the super seniority of such deposits, this amount is likely to be very low). The SRF does not explicitly protect covered deposits. The SRF may only be employed where the SRB uses resolution tools such as bail-in to handle the failed bank, and then, if and only if the amount of liabilities bailed in exceeds 8% of the total of own funds and eligible liabilities. Furthermore, recourse to the SRF in any one case is limited to 5% of the Fund’s assets (this would have amounted to €1.6 billion at the end of 2019). If the authorities deal with the failing bank under the national insolvency regime, national deposit guarantee schemes may only be used to absorb

⁶ For discussion of the legal basis for the allocation of responsibility for ELA see (Gortsos, 2015). For a discussion of the economic aspects see (Huertas T. F., 2019, pp. 125-6, 128, 130-1). See also (Lastra, 2015). On forbearance see (Advisory Scientific Committee European Systemic Risk Board, 2012).

losses in connection with banks that are members of that particular scheme, but the use of such funds is not necessarily restricted to protecting covered deposits. Various Member States allow DGS funds to be employed in “alternative uses” Finally, national deposit guarantee schemes have significant concentration risk, both with respect to economic conditions in and the fiscal condition of the Member State as well as to the failure of their largest member bank(s).

Table 2. Funds available to national deposit guarantee schemes and to the Single Resolution Fund, euro area, year-end 2019

Member State	Type of scheme	Covered deposits €' billions	Share of total in %	Funding available €'billions	Funding ratio in %	Funding target in %	Shortfall to target € billions
Austria	ex post funded	179.2	2.9%	0.69	0.38%	0.80%	0.75
Belgium	ex ante funded	303.1	4.9%	3.96	1.31%	0.80%	0.00
Cyprus	ex ante funded	26.1	0.4%	0.07	0.25%	0.80%	0.14
Estonia	ex ante funded	14.3	0.2%	0.24	1.70%	1.66%	0.00
Finland	ex ante funded	134.0	2.2%	1.21	0.90%	0.80%	0.00
France	ex ante funded	1,212.9	19.7%	4.48	0.37%	0.50%	1.58
Germany	ex ante funded	1,899.2	30.8%	9.02	0.48%	0.80%	6.17
Greece	ex ante funded	110.8	1.8%	1.55	1.40%	1.39%	0.00
Ireland	other	110.0	1.8%	0.44	0.40%	0.80%	0.44
Italy	ex post funded	631.5	10.2%	1.43	0.23%	0.80%	3.63
Latvia	ex ante funded	8.4	0.1%	0.03	0.30%	0.80%	0.04
Lithuania	ex ante funded	13.3	0.2%	0.11	0.81%	0.80%	0.00
Luxembourg	ex post funded	33.4	0.5%	0.28	0.85%	1.60%	0.25
Malta	ex ante funded	13.0	0.2%	0.12	0.93%	1.30%	0.05
Netherlands	ex post funded	513.1	8.3%	1.82	0.36%	0.80%	2.28
Portugal	ex ante funded	148.5	2.4%	1.80	1.21%	0.80%	0.00
Slovakia	ex ante funded	36.5	0.6%	0.21	0.58%	0.80%	0.08
Slovenia	ex post funded	20.1	0.3%	0.07	0.37%	0.80%	0.09
Spain	ex ante funded	759.7	12.3%	3.09	0.41%	0.80%	2.99
subtotal		6,167.2	100.0%	30.60	0.50%		18.49
Single Resolution Fund				33.00	0.54%		
Total		6,167.2	100.0%	63.60	1.03%		

Source: (EBA 2020a); (SRB 2020a). In Member States (e.g., Germany) with more than one DGS, the amount for the Member State is the sum of the amounts at each of the schemes, and the ratios are the weighted average of the ratios for the schemes.

Together, this concentration risk, the prevalence of forbearance and the conditions under which the DGS may use the funds available to it make it essential that a DGS have a backstop. This backstop must come from an entity that is unquestionably able to provide it, if and when called upon to do so. For deposit insurance to work, the guarantee to depositors must be unconditional. The guarantee cannot

be subject to preconditions, contingent on the scheme's operational capabilities or limited to the amount of assets in the fund. Were these assets exhausted and/or the scheme fail to perform, deposit insurance will not curtail contagion but ignite it.⁷

Indeed, it is the strength of the backstop that gives the DGS its credibility (Bonfim & Santos, 2020). In most cases, it suffices if the backstop comes from the national government of the jurisdiction in which the covered deposit is held. But, for the euro area, such a backstop is not good enough. For a euro in covered deposits to remain a euro, the backstop to the deposit guarantee scheme must come from an entity can fulfil such a commitment without propelling itself into or close to default. Thus, for fiscally weak Member States backstopping the national DGS could start the doom loop from bank failure to Member State default and possibly even exit from the euro.

In sum, the current "national" CMDI framework fails to meet its policy objectives It should therefore be replaced with a framework that does. And, the sooner this reform is done, the better. As the ECB noted in November 2020 [Financial Stability Review](#),

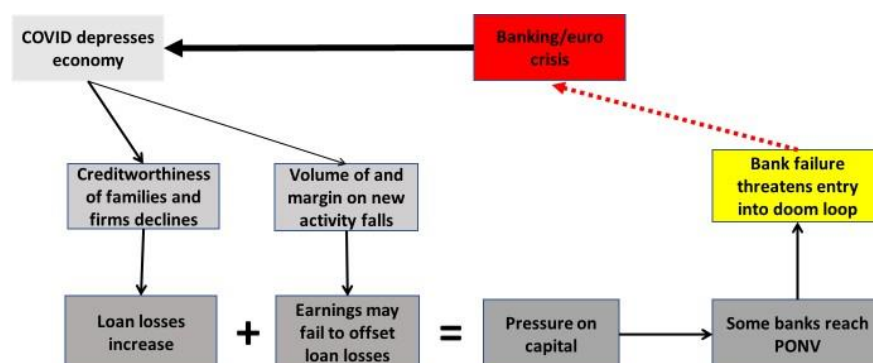
Medium-term vulnerabilities have increased with rising debt burdens and signs of an adverse sovereign-corporate-bank feedback loop emerging. Euro area banks, which have been resilient so far, face a combination of growing asset quality concerns, persistent structural problems and ongoing pressures on profitability.

Although banks currently have high levels of capital, their condition could erode rapidly, especially if the mutations in the virus render vaccines ineffective and make continued lockdowns necessary. Even if the vaccines are effective, both unemployment and insolvencies could surge as government support programmes come to an end. This could lead to an increase in non-performing exposures, particularly at banks with large exposures to sensitive industries, such as tourism and commercial real estate, as well as to highly leveraged and/or lower rated borrowers ([European Central Bank 2020, Schnabel 2021](#)).

Euro area banks have little ability to offset these losses via increased earnings. Negative interest rates depress the return on assets, ECB bond-buying programmes compress credit spreads, and the flat yield curve limits the reward from maturity transformation. In addition, structural problems persist. Overcapacity depresses margins and limits the ability to make the investments necessary to improve cost-efficiency ([Joint ESA Committee 2020, European Central Bank 2020](#)).

⁷ For a review of the voluminous literature on the economics of deposit insurance see Anginer & Demirguc-Kunt (2018). Dobler, Emre, Gullo, & Kale (2020) review the economics of depositor preference. (Restoy, Vrbaski, & Waters, 2020) make the point that super seniority for covered deposits may be counterproductive.

Figure 3: Bank failure could threaten entry into doom loop



Source: Own representation

Taken together, higher loan losses and low earnings spell weaker capital and the possibility that some banks, perhaps many, will reach the point of non-viability (PONV), particularly in Member States where a high proportion of loans is already non-performing. If those Member States are also highly indebted, resolution of the failing bank(s) could threaten to trigger the doom loop:⁸ if the Member State had to bear the cost of failure, it could push the Member State toward or into default. That would further weaken banks, especially in Member States where banks held a high proportion of their assets in the bonds issued by the Member State in which they are headquartered. The result could be a banking and/or euro crisis. If such a crisis were to erupt, it would surely compound the economic downturn due to COVID (see Figure 3). And, if such a crisis were to occur at any one of the Member States (Cyprus, Greece, Italy, Malta, Portugal, Spain) meeting all three criteria (high NPLs, high debt, high holdings of government debt) it would be difficult to confine it to that Member state. Contagion could easily occur.

III. The new CMDI framework should take a comprehensive approach

To achieve policy objectives, the FISMA CMDI Framework should be put into a broader context, one that considers both the macro and micro aspects of crisis management, the role of central banks and the importance of expectations. Although banks fail for idiosyncratic reasons, they also fail for

⁸ On the doom loop see Schnabel 2021; Alcidi & Gros 2019; Farhi & Tirole 2018.

systemic ones common to all banks, such as external shocks to the real economy or policy-induced contractions in the economy.

Crisis management broadly defined therefore consists not only of measures to handle the failure of a single bank and limit the impact that such a failure could have on financial markets and the economy at large, but also measures to limit the risk that systemic factors could cause individual banks to fail either one after the other or en masse. At its very broadest level, the CMDI Framework would include:

- fiscal and regulatory measures that loosen the link from weak governments to weak banks;
- regulatory and supervisory measures to:
 - limit the probability that systemic factors could cause banks to fail; and
 - reduce the adverse impact that such failures could cause; and
- measures taken by the central bank to support:
 - the economy at large;
 - the banking system as a whole; and
 - specific institutions, via emergency liquidity assistance (ELA).

Measures to loosen the link from weak governments to weak banks

As the phrase “doom loop” implies, weak governments can imperil weak banks, particularly where banks have significant exposures to such governments. Weak governments have a combination of high debt to GDP and a high budget deficit to GDP, and such governments must usually pay a significant spread relative to stronger governments to reflect the fact that weak governments are more likely to default. As the rating of the sovereign sets a ceiling on the rating which companies incorporated in that jurisdiction can hope to achieve, the diversity in rates at which Member States in the euro area can borrow tends to fragment the euro-area capital market. This in turn diminishes the effectiveness of monetary policy and increases the rates at which strong companies headquartered in Member States with weak governments can borrow (European Systemic Risk Board, 2015). More importantly, at least from the aspect of crisis management, any further weakening of the position of weak governments, would impose economic losses on banks holding exposures to such governments. Such a development could arise as a result of the tapering or cessation of the ECB’s bond-purchasing programme and/or a worsening of the Member State’s fiscal deficit. Such economic losses could undermine the capital position of banks so exposed and push such banks toward the PONV.

The euro area is taking two fiscal measures to reduce this risk, namely, the introduction of the Recovery and Resilience Facility and the strengthening of the European Stability Mechanism. If and when ratified by the Member States, the former will provide very significant assistance to Member States to enable them to cope the effects of the pandemic, and it will do so in the form of grants as

well as loans. This increases the ability of heavily indebted Member States to continue spending on corona-relief programmes as well as to repair and improve their infrastructures without fear that they will default on their external debt. If the Member State nonetheless comes under budgetary pressure, it may seek assistance from the European Stability Mechanism without necessarily having to submit to a restructuring programme monitored and controlled by the EU and euro area authorities. These steps lengthen the distance that a Member State would have to travel until it might default. They therefore loosen the section of the doom loop leading from weak governments to weak banks.

In addition, the two measures also weaken the link from weak banks to weak governments. The Recovery and Resilience Facility allows the EU to issue significant amounts of debt in its own name. This will provide banks with an alternative to domestic government bonds when investing in high-quality liquid assets in fulfilment of liquidity requirements. The amendments to the ESM Treaty allow the ESM to guarantee the obligations of the SRF, including any guarantees that the SRF might give to banks in connection with resolution. This would allow the SRB to resolve a failing bank without having to rely on the resources of the Member State.

However, the euro area should also consider imposing capital requirements on bank's exposures to Member States. This would ensure that the banks had capital to offset some or all of the losses that the bank might incur if the value of its claims on Member States were to decline. But any such measure would have to overcome the political resistance to acknowledge the economic reality that a Member State can default on its debt. There are a variety of ways to do this (European Systemic Risk Board, 2015), but perhaps the simplest is to require banks to hold exposures to Member State governments in the trading book, where they would be subject to capital requirements on interest rate risk (Huertas 2019).

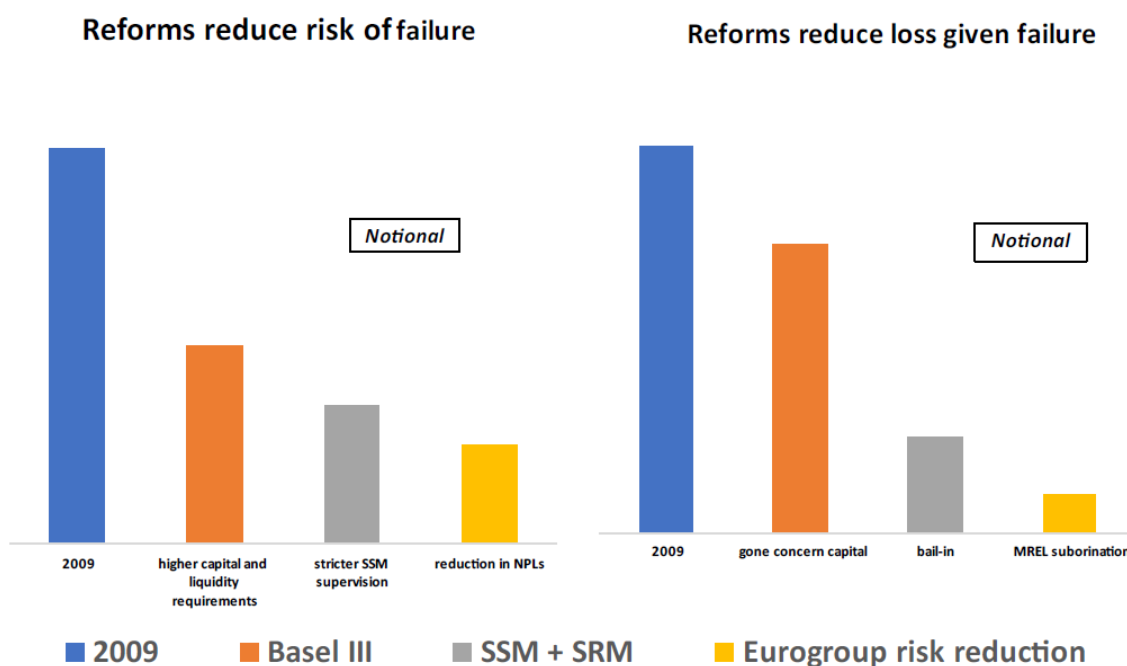
Regulation and supervision

The EU and the euro area have implemented regulatory and supervisory measures to reduce the risk that a bank will fail and to reduce the adverse impact that a bank failure might have (see Figure 4). Basel III and "Basel IV" substantially increase capital and liquidity requirements. This reduces the risk of bank failure, as do supervisory measures such as asset quality reviews, stress testing and recovery planning. Of particular importance is the EBA/SSB initiative – partly at the behest of the Eurogroup finance ministers -- to induce banks to reduce non-performing loans and to provision adequately for those remaining.⁹

⁹For a review of the current situation see: (Kasinger, et al., 2021)

Even more important – at least with respect to the CMDI review – are the measures taken to improve the resolvability of banks. Two of the most important are the standardization of the creditor hierarchy and the introduction of MREL subordination requirements. These make resolution via bail-in feasible and therefore credible – a fact that should shape decisions about how to handle banks that reach the PONV (see below).

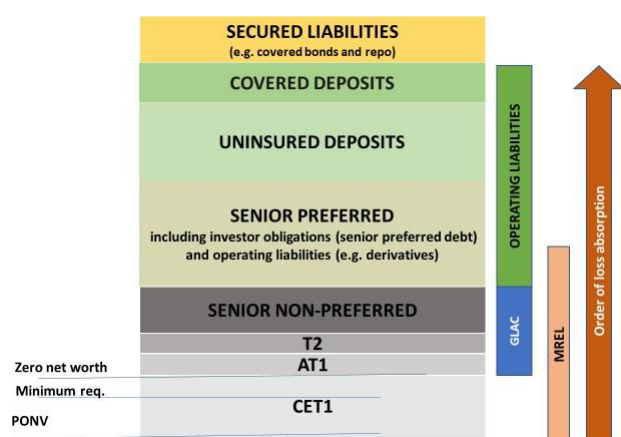
Figure 4: Reforms reduce the risk of bank failure as well as the loss given failure



Source: own representation

The creditor hierarchy defines the order in which bail-in would occur if the failing bank is resolved under the aegis of the SRB rather than “liquidated” under the applicable national insolvency regime. In the context of the CMDI review three elements of this hierarchy deserve emphasis. The first is the super seniority accorded to covered deposits. Covered deposits are subject to bail-in (and therefore expose the DSG to loss), if and only if all liability classes junior to covered deposits have previously been bailed in. Covered deposits are therefore protected not only by the institution’s CET1 capital, but also by its gone-concern loss-absorbing capacity, its senior preferred obligations, and its uninsured deposits (see Figure 5). Thus, the super-senior position of covered deposits greatly reduces the risk to the DGS. It also facilitates the transfer of insured deposits from the bank in resolution to another bank. As covered deposits enjoy super seniority, the resolution authority would be entitled to select the most liquid items from the bank’s unencumbered assets, package such assets with the failed bank’s covered deposits, and transfer the package to a third party.

Figure 5: Creditor hierarchy under BRRD/SRMR



Source: own representation

The second aspect of the creditor hierarchy deserving emphasis is the separation of operating liabilities, such as derivatives and deposits, from investor obligations and the subordination of the latter to the former.¹⁰ Investor obligations include own funds (CET1 capital), and “eligible liabilities” (AT1 and T2 capital, senior non-preferred debt, and senior preferred debt). Subject to certain additional limitations such as the time remaining to maturity, these obligations count toward the bank’s MREL requirement. To ensure that bail-in stops short of operating liabilities such as derivatives and deposits MREL subordination requirements (see Table 3) mandate that the bank have an amount of “eligible liabilities” sufficient to recapitalize the bank and restore market confidence in the bank. If there has been no forbearance, such requirements protect deposits and other operating liabilities as well as remove the need for taxpayer money (see Box 1).

Table 3. Minimum subordination requirements for MREL at significant institutions in the euro area

	TREA	LRE	TLOF
G-SIIs	18% + CBR	6.75% + CBR	8%
Other SIs	13% + CBR	5% + CBR	8%

Source: [Single Resolution Board 2020](#). TREA refers to total risk exposure amount, LRE to leverage risk amount and TLOF to total liabilities and own funds CBR refers to the bank’s combined buffer requirement (capital conservation buffer, countercyclical buffer and SIFI surcharge (if applicable)).

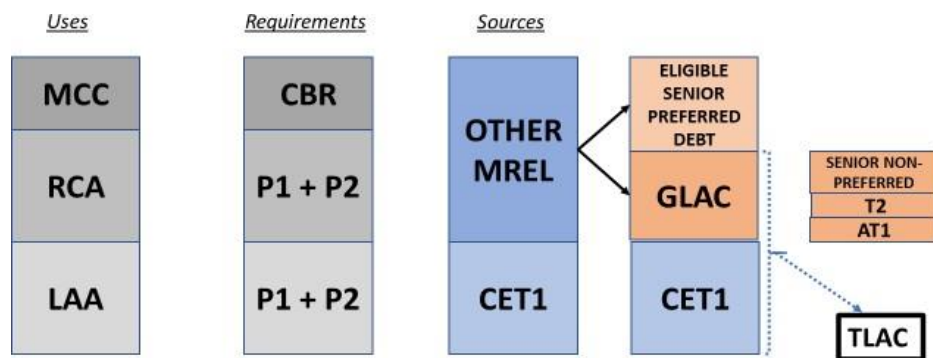
¹⁰ The senior preferred class contains (i) investor obligations statutorily subject to bail-in; (ii) operating liabilities statutorily exempt from bail-in; and (iii) operating liabilities subject to bail-in but eligible for exclusion from bail-in (if the resolution authority decides that the cost of including the liability in bail-in exceeds the benefit).

If the resolution authority excludes these “optional” operating liabilities from bail-in, investors in senior preferred debt would bear the entire loss attributable to the senior preferred class. This effectively subordinates senior preferred debt to operating liabilities. By including senior preferred debt in MREL, the SRB implies that such debt would be subordinated to operating liabilities. But note that under the no creditor worse off principle, investors in senior preferred debt are entitled to compensation, to the extent that their losses exceed those that they would have incurred had the bank been liquidated under national insolvency proceedings.

Box 1: Minimum Requirement for Own Funds and Eligible Liabilities (MREL)

Bail-in depends critically on the failed bank having sufficient loss-absorbing capacity at the point at which it enters resolution to do three things: absorb losses, recapitalise the bank and restore market confidence in the bank. Accordingly, regulation determines how these requirements should be calculated and how they should be met.

Figure 6: MREL Uses, requirements and sources



Source: Own representation

The Loss Absorption Amount (LAA) equals the higher of the amount of capital sufficient to meet the bank's

- Pillar 1 and Pillar 2 requirements under the risk-weighted approach; and
- Minimum leverage ratio.

The LAA will be sufficient to absorb actual losses at the point of resolution, if the supervisor (for SIs in the euro area this is the ECB) puts the bank into resolution – as it should – at the point where the bank fails to meet its minimum capital requirement, i.e., at a point where the bank still has positive net worth. Note that actual losses may exceed the amount of CET1 capital remaining at the failed bank at the point at which the bank enters resolution, particularly if the authorities have exercised forbearance.

Together, the Recapitalisation Amount (RCA) and the Market Confidence Charge (MCC) are the amount of CET1 capital that the bank-in-resolution will require in order to be able to reopen. The RCA equals the LAA. In other words, the RCA fully replenishes the amount of capital that the bank-in-resolution would need in order to meet its capital requirements. At the point of resolution, the actual RCA may exceed the ex-ante RCA, if the actual LAA exceeds the amount of CET1 capital available.

The MCC is a supplement to the RCA to enable the bank-in-resolution to obtain market confidence so that it can meet its funding needs without recourse to extraordinary financial support. This is sized at an amount equal to the bank's combined buffer requirement (capital conservation buffer, countercyclical buffer and SIFI surcharge (if applicable)).

To satisfy the MREL requirement banks must keep a combination of CET1 capital and eligible liabilities. Banks must satisfy the LAA component of the requirement with own funds (CET1 capital) and they should have "eligible liabilities" greater than or equal to the RCA and MCC. Broadly speaking, these eligible liabilities include:

- additional Tier 1 capital, Tier 2 capital and qualifying senior non-preferred debt (together gone concern loss absorbing capacity (GLAC)); and
- other eligible liabilities (principally senior preferred debt).

Banks are making significant progress in meeting MREL subordination requirements. At the end of the third quarter 2020 large banks headquartered in the euro area had nearly reached the bank-specific targets set by the SRB for subordinated eligible liabilities. The total of shortfalls to such targets amounted to €17.3 billion, or approximately 0.3% of TREA, over half of which was attributable to banks headquartered in Greece. At these banks, the total of shortfalls to the MREL subordination requirement amounted to €9.7 billion (5.9% of the TREA at those banks). In contrast, large banks headquartered in Germany, France, the Netherlands and Belgium had fully met MREL subordination requirements and those headquartered in other Member States in the euro area had come close to doing so.¹¹

The role of central banks in crisis management

Central banks are at the intersection between the macro- and micro- aspects of crisis management, and therefore central banks play a significant role in managing crises. Indeed, many central banks have an explicit mandate to preserve financial stability, alongside their mandates to maintain price stability and, in some cases, promote full employment. In eleven of the nineteen Member States in the euro area, the central bank is also the national competent authority (supervisor), and in nine Member States the central bank is also the national resolution authority.

¹¹ SRB (2021, p. 5). For banks headquartered in other Member States the total of the shortfalls to MREL targets for subordinated eligible liabilities amounted to less than 2% of TREA. At banks headquartered in Italy and Spain the total of shortfalls to the MREL subordination targets amounted to 0.1% and 0.2% of TREA, respectively. The SRB data refer to 77 large banking groups headquartered in the euro area, excluding such banks that are subsidiaries of third country institutions.

Box 2. The digital euro: creative construction or destructive disruption?

No review of crisis management would be complete without some reference to how other proposals under consideration might affect both the likelihood of crises and the ability to manage them. One such proposal is the possibility that the European Central Bank will introduce the digital euro as a central bank digital currency ([European Central Bank, 2020c](#)).

But the euro is already digital. The overwhelming proportion of euros on the liability side of the ECB balance sheet are entries in a computer data base, not physical bank notes. The ownership of these entries can be shifted from one account holder to another in real time.

So, what would be so revolutionary about the digital euro? Not the speed of payments – bank deposits can be transferred in real time. What would be different is the identity of entities entitled to have an account at the central bank. Today, that is limited to banks and certain public sector entities, such as the national government or public debt office. Under a central bank digital currency all institutions and possibly all individuals could have a direct account at the ECB.

That would be a radical change. In a world where each depositor at a bank also has an account at the ECB, it becomes very simple to sweep all of one's deposit at the bank into one's deposit at the ECB. This would greatly accelerate any run that had started on a troubled bank. It might also induce depositors at a weakening bank to run earlier, lest they get stampeded by others who run before they do.

Allowing any entity to have a direct account at the ECB threatens to put the ECB into direct competition with the banks that it licenses, regulates and supervises. This would aggravate the structural problems afflicting banks in the euro area. Indeed, as Vitor Constâncio ([2017](#)), when Vice President of the ECB; remarked: “[a central bank] digital currency open to all citizens without limits would be really disruptive. This would be a radical political choice that ... could end banking as we know it”

Banks should not necessarily draw comfort from initial proposals to introduce the CBDC but set limits on the amount that citizens and corporations may hold in their accounts at the central bank. Such limits can and undoubtedly would change over time.¹²

¹² For further discussion of the prospects for and consequences of a digital euro see (European Central Bank, 2021).

Although central banks occasionally take policy decisions that cause stress, central banks focus on how to insulate the financial system from external shocks as well as how to shield the financial system and the economy at large from the shock that the failure of a bank could create. And, by virtue of its decision on whether or not to grant ELA to a troubled bank, it is often the central bank that effectively determines whether and when a bank is “failing or likely to fail”. Finally, what the ECB decides with respect to the digital euro will have an impact on crisis management (see Box 2).

Central banks have such a significant role because they provide liquidity to banks and they do so on the basis of the collateral that banks pledge to the central bank. Indeed, the provision of liquidity to banks is the primary channel through which the ECB implements monetary policy. To do so the ECB has developed a variety of liquidity facilities that banks across the system may access. By varying the terms and conditions of these facilities for banks, the ECB can influence the volume and terms of credit that banks offer to institutions and individuals in the euro area and therefore influence and therefore employment and output in the economy at large. In other words, banks are an integral part of the monetary transmission mechanism.

A key element of the liquidity facilities that the ECB provides to banks is the collateral that the ECB demands that the bank pledge to the ECB in order to secure the facility. To qualify as collateral, an asset must meet eligibility requirements set by the ECB. Banks able to pledge eligible collateral may access or, in the case of auctions, bid for the funds that the central bank makes available. Banks unable to pledge such eligible collateral must seek emergency liquidity assistance if they need funds and they are unable to raise the funds they need in the market, either by selling assets or refinancing maturing liabilities.

Since the financial crisis the ECB has engaged in what might be termed “eligibility easing” as a complement to quantitative easing.¹³ Therefore, absent a technology or operations glitch, if a bank requests ELA, the bank is very likely near or at the PONV. In such a situation, if the central bank denies the bank’s request for ELA, it is effectively determining that the bank is “failing or likely to fail” (FOLF). Both the supervisor and the resolution authority – the entities responsible under the BRRD and SRMR for making the FOLF determination – have little choice but to agree with the assessment of the central bank, for they have no authority and no means to provide the funds that the troubled bank needs in order to meet its obligations. Indeed, if the bank does not receive ELA, it may actually default on some or all of its maturing obligations.

¹³ See (Huertas 2017). Note that changes in eligibility requirements as well as changes in the haircuts applied to eligible collateral that banks pledge could be used as a macro-prudential tool. This would complement and arguably be more effective than counter-cyclical capital requirements in dampening the credit cycle.

Similarly, it is extremely unlikely that either the supervisor or the resolution authority will attempt to overrule the central bank once the central bank has decided to grant ELA to the distressed bank; especially where the central bank is the national competent authority (supervisor) and/or national resolution authority. Indeed, prior to extending ELA, the central bank will have received assurance from the supervisor that the request for ELA has come from a bank that is troubled, but still solvent¹⁴ (i.e. the value of its assets exceeds the value of its liabilities).¹⁵

In evaluating whether to extend ELA to the bank requesting it, the central bank should compare two situations: that which is likely to prevail if the central bank refuses to grant ELA and that which is likely to prevail if the central bank grants ELA. Note that the “no ELA” situation is likely to be worse, if this forces the authorities to determine that the bank is “failing or likely to fail,” and this results in a

¹⁴ Note that this criterion implies forbearance. A bank fails to meet threshold conditions when its net worth (CET1 capital) slips below the minimum requirement (4.5% of RWAs) and this is the point at which the bank should be declared “failing or likely to fail”. But rules for ELA permit the national central bank to grant ELA to a bank that fails to meet minimum capital requirements, as long as it remains “solvent”. Indeed, in some Member States, a bank may only enter “liquidation” under the national insolvency regime, if it is insolvent (value of its liabilities exceeds the value of its assets).

¹⁵ This solvency test sounds exact. It is not, for valuation depends on the market liquidity of the assets that might have to be sold, as well as on the funding liquidity available to the bank until the assets are sold and settled. If the only assets the bank held were highly liquid securities traded in amounts less than the daily turnover in such securities in two-way markets, is it likely that value realised in liquidating the asset will equal the market value of the asset prior to liquidation. Depart from any of those assumptions, and the value realized in liquidation is likely to fall below the “market value” of the asset.

Start with the assets themselves. Valuation is an estimate of the price a willing seller would receive from a willing buyer if the asset were sold under normal procedures. Like any estimate, there will be a range of possible answers. For Level I (mark-to-market) assets the range is narrow: these assets trade frequently in large quantities at readily observable prices. For Level II (mark-to-model) assets the range is broader: these assets trade infrequently and value must be estimated on the basis of observable market factors. For Level III (“mark-to-myth”) assets, such as revolving credit facilities, the range is broader still: these assets trade infrequently and value must be estimated on the basis of factors that may be unobservable. As bank assets contain a high proportion of Level II and Level III assets, there is a considerable range of “correct” values of the bank’s total assets at the PONV.

This range expands significantly if one drops the assumption that the seller is a going concern. If the seller becomes a gone concern, this may trigger the rights of the bank’s counterparties to sell any collateral that the bank had pledged to the counterparty in connection with executory contracts such as repurchase agreements. Such sales pose the risk that the bank will lose some or all of the value of the “haircut” that the bank’s counterparty had imposed. In addition, the transition to a gone-concern may trigger the close out of derivatives and the valuation of the bank’s obligations to the counterparty at the counterparty’s replacement cost rather than the market mid-point at which the exposures had been valued under the assumption that the bank was a going concern. This shift in the basis for valuation can cause a very significant losses for the bank that has become a gone concern.

Finally, the range expands further still, if the bank as a gone concern does not have access to the liquidity necessary to enable it to hold the asset for the period sufficient to enable the bank to follow the normal procedure for selling the asset. In this case the bank will be forced to conduct a fire sale of its assets. This will increase losses not only at the bank which has become a gone concern, but across the entire market, if the fire sale price becomes the market price to which other banks must mark their books. For further discussions see Single Resolution Board 2019a.

situation where the resulting resolution (under the SRB) or “liquidation” under national insolvency regime would entail putting CCPs into resolution¹⁶ and/or exposing the inability of the deposit guarantee scheme to fulfil its operational or financial commitments in a timely manner. Such outcomes would have significant adverse effects on the financial system as a whole, and such a situation is more likely to develop if the “no ELA” decision means that the troubled bank would have to conduct a fire sale of its assets (Bindsell, 2013). In other words, if the central bank judges that refusing to grant ELA will not only aggravate losses at the troubled bank but also undermine financial stability, the immediate and highly likely adverse consequences of doing so may outweigh the longer-term benefits of promoting market discipline (Huertas 2015).

In contrast, granting the troubled bank’s request for ELA defers such problems and may well dampen the political repercussions that the failure of the bank could cause. Unless the central bank is highly confident that resolution under the SRB will occur without adverse consequences, the central bank may defensibly draw the conclusion that forbearance is the lesser risk and that it would be in the public interest to accede to the troubled bank’s request for ELA.¹⁷

The role of expectations

Given the experience to date, many observers expect that resolution will remain an option that authorities refuse to use on the grounds that it would be too disruptive to deploy. Indeed, if bail-in were to contradict market expectations, it could be disruptive.¹⁸

But that is no reason to abandon bail-in. Refraining from using resolution during the transition period may well have made sense, but it is not an argument for doing so past the end of the transition period.

¹⁶ Although CCPs require members to margin any exposure that the CCP has to the member, CCPs rely for their own resolution and recovery upon a default fund representing contributions from the members. This fact is especially relevant in the case of global systemically important institutions (G-SIIs) who are major dealers in derivatives and members in the principal CCPs. If one of these institutions were to enter resolution, this could place all CCPs under pressure at the same time and cause one or more of the CCPs to initiate calls on members to replenish its default fund, just at a time when the market is likely to be in turmoil, haircuts on collateral are increasing and the demand for collateral for bilateral transactions such as repo are increasing. Ultimately, therefore, CCPs can mutualize risk. This could turn idiosyncratic bank-specific risk into systemic risk. For further discussion see Financial Stability Board 2021, Huertas 2016.

¹⁷ If the central bank does provide ELA to the troubled bank, it should be on the basis of a clear set of covenants supported by a memorandum of understanding approved by the bank’s Board of Directors to constrain the risk the bank can take. Without such restrictions, management would be free to gamble for resurrection. Even with such restrictions, creditors, counterparties, and uninsured depositors will very likely seek to secure their claims or run from the bank. The longer ELA lasts, the greater is the danger that it will become in effect a bail out and a drain on the taxpayer.

¹⁸ Avgoulos & Goodhart 2019. Certainly, the decision to put Lehman into bankruptcy surprised many market participants, sparked a flight to quality and initiated a debt-deflation spiral that turned what had been a moderate downturn into what has become known as the Great Recession (see Huertas 2021).

Thanks to the changes to the ESM, it will then be possible to handle weak governments separately from weak banks. Thanks to the efforts of the authorities and the banks themselves, banks will then be resolvable and the ESM backstop to the SRF will be fully in effect.

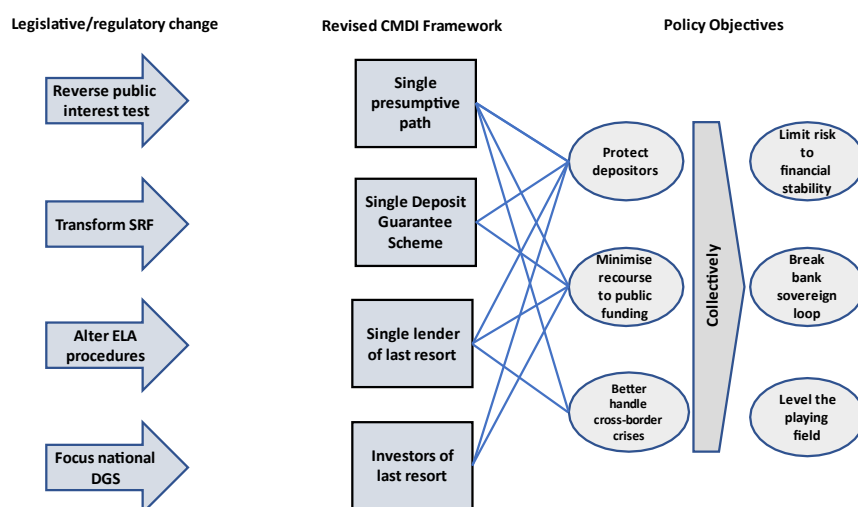
That is why the CDMI Framework review is so important. It represents the opportunity to change expectations regarding crisis management without causing a crisis. The macro-aspects of crisis management have changed. So should the micro-aspects. The next section describes a new Framework.

IV. A “E ” framework can meet policy objectives for CMDI

This new framework is “European”. This “European” approach has the following components:

- *A single presumptive path for resolution*: reverse the public interest test to make the use of bail-in to effect orderly liquidation under a solvent wind-down strategy the norm. A Member States may only use national insolvency regime if it can demonstrate that doing so would be in the public interest of the euro area as a whole. This will de facto standardise bank insolvency regimes, level the playing field, protect deposits (especially covered deposits).
- *A Single Deposit Guarantee Scheme*: transform the SRF -- together with its backstop from the ESM -- into the SDGS. This explicitly and credibly guarantees covered deposits, breaks the doom loop and enhances financial stability.
- *A Single Lender of Last Resort*: transfer responsibility for ELA from national central banks to the ECB. This limits forbearance and minimises the possible use of taxpayer money.

Figure 7: CMDI reset meets policy objectives



Source: own representation

To reinforce this framework at European level, transform national deposit guarantee schemes into investors of last resort in the “eligible liabilities” of their members. This would ensure that the use of bail-in to effect orderly liquidation could extend to banks of all sizes. That levels the playing field, protects deposits and enhances financial stability.

Here is how the single presumptive path would work.

In principle, bail-in amounts to a pre-pack bankruptcy procedure for banks. Bail-in allows the authorities to recapitalise a failed bank and restructure it without cost to the taxpayer and without significant disruption to financial markets or the economy at large.¹⁹ Reversing the public interest test in the SRMR will make bail-in the presumptive path for handling banks that are “failing or likely to fail”. This de facto harmonises bank insolvency regimes and levels the playing field across Member States in the Banking Union. In particular, it standardizes the creditor hierarchy to that established in the BRRD/SRMR.

Following the bail-in of investor obligations, the bank-in-resolution would continue in operation under the control of the SRB. It would conduct an orderly liquidation of its assets under a solvent wind-down strategy. Under this approach, the bank-in-resolution would continue to perform its critical economic functions and make payments as due on its operating liabilities, including derivatives and deposits. Holders of covered deposits would retain access to their accounts, removing the need for the DGS to conduct a physical payoff of covered deposits. To the extent that the bank-in-resolution needed to refinance maturing liabilities, the SRB would be able to pledge the assets of the bank-in-resolution as collateral and/or attach a guarantee from the SRF to such refinancing.²⁰ Obligations with such a guarantee would be eligible for use as collateral by other banks to secure their borrowings from the ECB under normal central banking facilities.

The SRB would conduct business remaining in the bank-in-resolution with a view toward winding it down. For example, in the derivatives book the resolution authority would seek to reduce risk via trades that balance its positions and/or via commutation of its exposures to major counterparties. The resolution authority may seek to accelerate the wind-down process by employing additional

¹⁹ For critical assessments of bail-in see (FSB 2021); Hellwig 2021; Avgoulos & Goodhart 2019; Franke, Krahen, & von Lüpke 2014; Binder 2016. On the calibration of MREL and its impact on market discipline, see (Tröger, 2019).

²⁰ This would require a change to current legislation/regulation which limits the guarantees that the bank in resolution may receive. See (EC 2019 , p. 7). For a fuller discussion of the importance of liquidity in resolution see (deGroen, 2018).

resolution tools. This may result in the transfer of covered or all deposits to another bank; and/or the sale of businesses, subsidiaries or even the entire bank to third parties.²¹

The Single Deposit Guarantee Scheme

The second component of the “European” CMDI framework is the Single Deposit Guarantee Scheme (SDGS). The provision of a backstop from the ESM to the SRF²² makes the SRF the ideal entity to serve as the SDGS. With this backstop and with the powers and resources already given to the SRF under the SRMR, the SRF could take direct responsibility for fulfilling the explicit, formal guarantee of covered deposits in the euro area that the DGSD mandates such deposits to have. In other words, the authorities should transform the SRF into the SDGS.

In doing so the Eurogroup should confirm that the SRF/SDGS is authorised to give guarantees, including guarantees to a bank-in-resolution to facilitate its funding (see above). The Eurogroup should also remove the restrictions on the use of the SRF as soon as it becomes the SDGS. In particular, access to the SDGS should no longer be contingent on the amount of own funds and total liabilities previously bailed in. Nor should use of the SDGS in any particular case be limited to a proportion of the funds available to the SDGS. These changes are necessary to make the guarantee that the SDGS gives to covered deposits unconditional, as the guarantee must be, if it is to be effective.

The SRB would continue to be responsible for the SRF in its new role as the SDGS. This arrangement sensibly unites responsibility for the resolution function and with accountability for the deposit guarantee function, in recognition that the latter depends on the former. This also parallels the practice in other jurisdictions, such as the United States, where the FDIC is both the resolution authority and the deposit guarantee scheme (Gelpern & Véron, 2019).

²¹ For a discussion of solvent wind down see (FSB 2019). The solvent wind-down process should also allow for the possibility that one or more classes of investor may seek support for its plan to reorganise the bank-in-resolution and return it to normal supervision. Such plans would at a minimum contain details on how the bank in resolution would meet requirements for both own funds and eligible liabilities Issuance of receivers’ certificates to the holders of senior preferred and senior non-preferred debt can facilitate investors’ ability to present such reorganisation plans. help accelerate the wind-down process, especially if such certificates were tradeable. See (Huertas 2014, pp. 106-9).

²² On the basis of very extensive risk reduction the [Eurogroup](#) decided on 30 November 2020 that the ESM should provide a backstop to the SRF. Under the terms of the proposed amendment to the ESM Treaty,

The ESM may provide the backstop facility for the SRF, without prejudice to European Union law and the competences of European Union institutions and bodies. Loans under the backstop facility shall only be granted as a last resort and to the extent that it is fiscally neutral in the medium term.

To achieve fiscal neutrality, any such loan would be repayable via assessments that SRF levies on banks in the euro area.

With respect to funding the SRB would continue to collect assessments from banks with a view toward bringing the funds available to the SDGS to a target level of 1% of covered deposits. The assessments would reflect the distance of SDGS in aggregate from its target level and the distance of bank from its MREL subordination requirement. In addition, there would be a surcharge, if needed to enable the SDGS to repay any advances made by the ESM to the SDGS under the terms of the backstop.

As a condition for allowing its backstop to the SRF to be transformed into a backstop for the SDGS the ESM should require Member States in the euro area to create a single lender of last resort and to transform each national DGS into an investor of last resort in the gone-concern capital of its member banks. This will lower risk to the SDGS and consequently to its guarantor, the ESM.²³

The Single Lender of Last Resort

As outlined above, forbearance increases the risk to the DGS and its guarantor(s). As forbearance depends on a failing bank's being able to obtain liquidity, controlling its access to ELA is a critical component of the CMDI framework. Indeed, decisions regarding ELA influence whether and when a failing bank enters resolution as well as the amount and distribution of loss if it does enter resolution. Although a bank reaching the PONV may need ELA to reach the end of the business day²⁴ and settle its position with financial market infrastructures, it is doubtful that turning emergency liquidity assistance into *extended* liquidity assistance will prove to be in the public interest of the euro area as a whole. Indeed, the public interest is far more likely to be served by putting the bank into resolution promptly. If the authorities do so, the failed bank is far more likely to have positive net worth at the point at which it enters resolution. This reduces and may completely eliminate losses to deposits as well as any recourse to public funds. As such losses would ultimately (if only temporarily) be assignable at European level to the ESM via its backstop to the SRF, the responsibility for ELA should also be at European level, namely at the ECB. The ECB should therefore change its procedures to transfer responsibility for extending emergency liquidity assistance (ELA) from national central banks to the ECB and require the ECB to confer with the SSB on the covenants that will be imposed on the ELA recipient.

²³ In addition, authorities should consider placing a limit on the amount of interest that a bank can pay on covered deposits, if it persistently fails to meet MREL subordination requirements.

²⁴ For bail-in to work, the bank needs to enter resolution at the end of the business day and be current on all of its financial obligations, including those to central banks and to financial market infrastructures, such as clearing houses and central counterparties (CCPs). If the bank is not, the stay on counterparties' right to terminate qualified financial contracts (such as derivatives) will not become effective (BRRD Rec. 30). Counterparties will begin to close out derivative contracts as well as to sell any collateral pledged by the failed bank, possibly in a fire sale that would increase losses at the failed bank and potentially have adverse repercussions for financial markets and the economy at large. See (Huertas and Huertas, 2020).

National DGS as investors of last resort

The introduction of the SDGS removes the rationale for a guarantee of covered deposits at national level as well but opens the door to employing the national DGS in “alternative uses,”²⁵ in particular to their use as an investor of last resort. As such, the national DGS would have no responsibility for deposit insurance but would serve as a “source of strength” for its members, especially the smallest banks which do not have access to capital markets. This injection of strength would plug the gap between the amount of “eligible liabilities” outstanding at the failed bank and the amount needed to enable the failed bank to have met its MREL subordination requirement at the point at which the failed bank was determined to be “failing or likely to fail.” This investor of last resort reduces risk to the SDGS (and therefore to the ESM) and makes viable the extension of the presumptive path outlined above to all banks in the euro area, including those classified as less significant institutions.²⁶

In fact, this “investor of last resort” approach already applies to over 1700 banks in the euro area. They are members of institutional protection schemes in Germany, Austria, Spain and Italy and account for nearly €1.5 trillion in covered deposits, or approximately 25% of all covered deposits in the euro area. As defined in the Capital Requirements Regulation (CRR 113(7)), institutional protection schemes are a contractual or statutory liability arrangement which protects its member institutions and in particular ensures that they have liquidity and solvency needed to avoid bankruptcy where necessary.

For existing institutional protection schemes, the proposed CMDI reset for the euro area would remove their designation as a deposit guarantee scheme and restrict their purpose to acting as an investor of last resort. For national deposit guarantee schemes that are not institutional protection schemes, the proposed CMDI reset would transform such schemes into institutional protection schemes.²⁷

Risk to the SDGS and to its guarantor, the ESM

Taken together, these components of the “European” solution minimise risk to the SDGS and to its guarantor, the ESM. Any losses incurred by a bank-in-resolution under this solution would be borne by investor instruments subject to bail-in according to strict seniority in reverse order (see Figure 5).

²⁵ Current legislation (DGSD (11)(3)) allows a DGS to be employed in alternative uses subject to a least cost test, but only for banks that are not subject to a resolution action under BRRD (32). See (EBA 2020, pp. 6-7). Legislative change would therefore be required to allow the use of a national DGS in conjunction with resolution. For further discussion see Bodellini (2021).

²⁶ For details on how an investor of last resort might function see (Huertas 2020).

²⁷ (Institutional Protection Schemes in Europe, 2021). Under DGSD (4)(2) an IPS may currently qualify as a DGS based on the ability of an IPS to protect covered deposits via its investor of last resort function.

CET1 capital would bear first losses, up to the point where losses exhausted CET1 capital. Thereafter, losses would be borne by successively higher classes until the point where senior preferred debt (including any debt subscribed by national deposit guarantee schemes as investors of last resort) was exhausted. Thereafter, any losses would be for the account of the SDGS.²⁸

However, the likelihood that the SDGS will incur a loss is remote, particularly if authorities avoid forbearance. If the bank enters resolution with positive net worth, and resolution proceeds in an orderly manner without a fire sale of the failed bank's assets, it is likely that "eligible liabilities" would be sufficient to absorb any losses that occur after the bank enters resolution. Indeed, if the failing bank met its MREL subordination requirement (either directly or via the national DGS as investor of last resort), it would have loss-absorbing capacity at the point of resolution greater than or equal to the minimum amount of CET1 capital that the bank would be required to hold.

The CMDI reset would also represent the culmination of the risk reduction programme first put in place in 2009 in the wake of the financial crisis (see Figure 8). This has reduced both the probability of bank failure and the loss given failure. Basel III raised capital and liquidity requirements and introduced gone-concern loss absorbing capacity. In the euro area, the initial stages of Banking Union made supervision stricter (via the SSM) and covered deposits safer (BRRD/SRMR accorded them super seniority). The 2018 Eurogroup risk reduction programme reduced NPLs and increased MREL subordination requirements.

The CMDI reset would add a final touch. By avoiding forbearance (via the introduction of a single lender of last resort) and replenishing MREL (if required, via an investor of last resort), the proposed CMDI reset would reduce the loss given failure. The reset might also reduce the risk of failure. The requirement that banks issue "eligible liabilities" to investors, along with the certainty that they would be exposed to loss under the single presumptive path, should increase market discipline.²⁹ That in

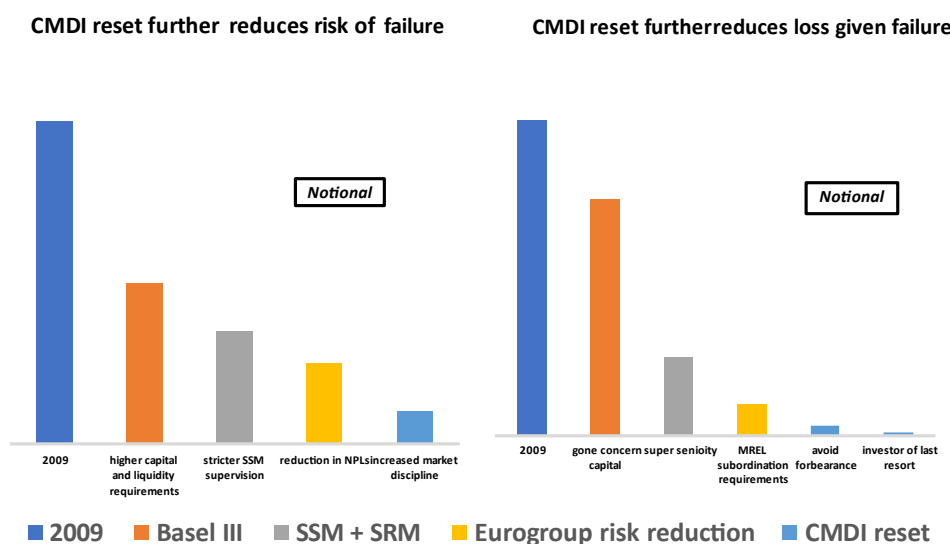
²⁸ In economic effect, this loss waterfall is similar to that which a mutual reinsurance of national schemes would achieve. However, the direct guarantee from the SDGS comes with an ESM backstop is likely to be both more understandable and more credible.

²⁹ The market will discipline banks, if the bank funds itself with unsecured, uninsured liabilities that are exposed to loss, if the bank fails. This discipline takes two forms: an increase in cost as the risk of the instrument rises, and a reduction in the availability of such funding as the probability of failure increases.

Thus, market discipline, if it exists, comes primarily from investor obligations included in "eligible liabilities" for the purpose of calculating MREL. Evidence to date suggests that investors regard such liabilities as subject to loss if a bank enters resolution. Banks with lower CET1 capital ratios must pay more for subordinated debt than banks with higher capital ratios, and the risk premium that the bank must pay reflects the position of the obligation in the creditor hierarchy. In other words, the risk premium increases with the degree of subordination: senior preferred debt has a lower premium than senior preferred, and this has a lower premium than T2 subordinated debt. For further discussion see (Financial Stability Board, 2021).

turn may further reduce the risk that the bank will fail. However, if market discipline is to work, it must have as its basis prudent valuation and frequent disclosure, not only to the supervisor but to the market at large.³⁰

Figure 8: CMDI reset minimises risk to the SDGS and to its guarantor, the ESM



Source: own representation

Finally, a word on supervision. It would be helpful to make clear that it is not the job of supervision to prevent banks from failing. That is the responsibility of the bank’s management and its board of directors. It is the job of supervision to enforce the regulations that govern the risk the bank takes, such as capital and liquidity requirements, and therefore limit the risk to which the government as the guarantor of deposits and the guardian of financial stability could be exposed. Consequently, it is the job of supervision to call time on any bank that does not meet the minimum threshold conditions for it to remain in operation. The supervisor should declare that such a bank is “failing or likely to fail” and

Sceptics contend that these premia are not high enough to reflect the true risk and infer that investors have some expectation that the authorities will resort to bail out if the bank reaches the PONV and is deemed to be “failing or likely to fail”. However, a low risk premium is also consistent with a low loss given entry into resolution. This is particularly likely to be the case if supervisors avoid forbearance. Thus, low risk premiums on “eligible liabilities” are consistent with both bail-out and prompt intervention. High risk premiums are consistent with delayed intervention (forbearance) followed by bail-in/imposition of loss. One should also expect to see high risk premia on write-down bonds.

The second form of market discipline, reduced availability of funding, is likely to be more abrupt and harsher than the first. As concerns that the bank will fail increase, investors constrict the amount of funding they are willing to provide, particularly if the assets of the bank are encumbered/pledged to other creditors via instruments such as covered bonds or repos.

³⁰ On the role of valuation in resolution see (SRB 2019) (EBA 2017) (de Groen, 2018) (Hellwig 2018). On the difficulty of implementing a valuation and supervisory regime that precludes forbearance see (Kane, 2020).

place the bank into resolution. This will limit forbearance and increase the likelihood that the bank's remaining CET1 capital will be sufficient to absorb losses so that the write-down or conversion of eligible liabilities serves to recapitalise the failed bank.

V. Concluding observations

In conclusion, the CMDI framework in the euro area requires a reset. The current framework fails to meet policy objectives. By making liquidation under national insolvency regimes the norm, the current CMDI framework fails to provide a credible promise to protect deposits, fails to minimise recourse to public financing, fails to break the bank-sovereign loop and consequently fails to limit potential risks to financial stability.

In contrast, a CMDI framework that makes banks European in death as well as in life will meet policy objectives. The single presumptive path (use of resolution vis bail-in to achieve orderly liquidation under solvent wind down strategy) minimises reliance on public funding and facilitates handling cross border crises. Together with the super seniority accorded covered deposits and the loss-absorbing capacity provided by MREL subordination requirements, the single presumptive path reduces the risk to the deposit guarantee scheme. This forms the basis for transforming the Single Resolution Fund – together with the guarantee of the SRF by the European Stability Mechanism -- into the Single Deposit Guarantee Scheme. This protects deposits, especially if measures, such as the transfer of responsibility for ELA to the ECB, limit forbearance. Further protection for deposits, the SGDS and the taxpayer comes from the transformation of national DGS into investors of last resort in MREL- eligible Liabilities. Collectively, therefore, the proposed CMDI reset levels the playing field, breaks the bank-sovereign doom loop and promotes financial stability. The sooner one resets the CMDI framework, the better.

References

Terms of the review

European Commission Directorate General for Financial Stability, Financial Services and Capital Markets Union. (2021). *Targeted consultation review of the crisis management and deposit insurance framework*. Retrieved from https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/2021-crisis-management-deposit-insurance-review-targeted-consultation-document_en.pdf.

Components of the CMDI framework

European Union. **BRRD**. *Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit*. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02014L0059-20200107&qid=1613453013719&from=en>.

European Union. **SRMR** Regulation (EU) No 806/2014 of the European Parliament and of the Council of 15 July 2014 establishing uniform rules and a uniform procedure for the resolution of credit institutions and certain investment firms in the framework of a Single Resolution Mechanism and a Single Resolution Fund and amending Regulation (EU) No 1093/2010. Available at: <http://data.europa.eu/eli/reg/2014/806/oj>.

European Union. **DGSD**. Directive 2014/49/EU of the European Parliament and of the Council of 16 April 2014 on deposit guarantee schemes (recast).

European Central Bank. (2014). **ELA Procedures**. Retrieved from https://www.ecb.europa.eu/pub/pdf/other/201402_elaprocedures.en.pdf.

European Commission. **Banking Communication**. Communication from the Commission on the application, from 1 August 2013, of State aid rules to support measures in favour of banks in the context of the financial crisis (2013/C 216/01). Retrieved from [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013XC0730\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013XC0730(01)&from=EN).

Other references

Advisory Scientific Committee European Systemic Risk Board. (2012). *Forbearance, resolution and deposit insurance*. Retrieved from https://www.esrb.europa.eu/pub/pdf/asc/Reports_ASC_1_1207.pdf.

Alcidi, C., & Gros, D. (2019, June). *Public debt and the risk premium: A dangerous doom loop*, *EconPol Opinion* 21. Retrieved from https://www.econpol.eu/opinion_21.

Angeloni, I. (2020). *Beyond the Pandemic: Reviving Europe's Banking Union*. CEPR Press.

Avgoulos, E., & Goodhart, C. (2019). Bank resolution 10 years from the global financial crisis: a systematic reappraisal. *school of Political Economy LUISS*, 7.

Binder, J.-H. (2016). ,Resolution: concepts, requirements and tools. In J.-H. Binder, & D. Singh, *Bank Resolution: The European Regime*. Oxford: Oxford University Press.

Bodellini, Marco, The Optional Measures of Deposit Guarantee Schemes: Towards a New Bank Crisis Management Paradigm? (March 4, 2021). *European Journal of Legal Studies*, Online First, 4 March 2021, Available at SSRN: <https://ssrn.com/abstract=3799117>

Bonfim, D., & Santos, A.C., (2020). *The importance of deposit insurance credibility*. *Banco de Portugal Working Paper 2020/11*. Retrieved from https://www.bing.com/newtabredir?url=https%3A%2F%2Fwww.bportugal.pt%2Fsites%2Fdefault%2Ffiles%2Fanexos%2Fpapers%2Fwp202011_0.pdf.

Constâncio, V. (2017). *The future of finance and the outlook for regulation*. Retrieved from <https://www.bis.org/review/r171110e.pdf>

de Groen, W. (2018a). *Valuation reports in the context of banking resolution; What are the challenges?* Retrieved from European Parliament Economic Governance Support Unit: [https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/624418/IPOL_IDA\(2018\)624418_EN.pdf#:~:text=This%20valuation%20is%20conducted%20by%20an%20independent%20valuator,can%20take%20the%20form%20of%20a%20provisional%20valuation](https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/624418/IPOL_IDA(2018)624418_EN.pdf#:~:text=This%20valuation%20is%20conducted%20by%20an%20independent%20valuator,can%20take%20the%20form%20of%20a%20provisional%20valuation).

- de Groen, W. P. (2018b). *Financing bank resolution: an alternative solution for arranging the liquidity required*. Retrieved from [https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/624423/IPOL_IDA\(2018\)624423_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/624423/IPOL_IDA(2018)624423_EN.pdf).
- Enria, A. (2020). *Bank asset quality: this time we need to do better*. Retrieved from <https://www.bankingsupervision.europa.eu/press/interviews/date/2020/html/ssm.in201027~31fda4bb8e.en.html>
- European Banking Authority. (2017). *Regulatory Technical Standards on valuation for the purposes of resolution and on valuation to determine difference in treatment following resolution under Directive 2014/59/EU on recovery and resolution of credit institutions and investment firms*. Retrieved from <https://www.eba.europa.eu/sites/default/documents/files/documents/10180/1853532/88566587-ff6f-4116-a08e-282eb4ea2f78/Final%20draft%20RTSs%20on%20valuation%20in%20resolution%20%28EBA-RTS-2017-05%20%26%20EBA-RTS-2017-06%29.pdf>.
- European Banking Authority. (2020). *Opinion of the European Banking Authority on deposit guarantee schemes funding and uses of deposit guarantee schemes funds EBA/OP/2020/02*. Retrieved from https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Opinions/2020/EBA%20Opinion%20on%20DGS%20funding%20and%20uses%20of%20DGS%20funds.pdf.
- European Banking Authority. (n.d.). *Deposit Guarantee Schemes data*. Retrieved from <https://www.eba.europa.eu/regulation-and-policy/recovery-and-resolution/deposit-guarantee-schemes-data>.
- European Central Bank. (2020a). *Financial Stability Review*. Retrieved from <https://www.ecb.europa.eu/pub/financial-stability/fsr/html/ecb.fsr202005~1b75555f66.en.html>.
- European Central Bank. (2020b). *Supervisory Banking Statistics Second Quarter 2020*. Retrieved from https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.supervisorybankingstatistics_second_quarter_2020_202010~64f3734def.en.pdf.
- European Central Bank. (2020c). *A report on the digital euro*. Retrieved from https://www.ecb.europa.eu/pub/pdf/other/Report_on_a_digital_euro~4d7268b458.en.pdf#page=4
- European Central Bank. (2021). *Eurosystem report on the public consultation on the digital euro*. Retrieved from https://www.ecb.europa.eu/pub/pdf/other/Eurosystem_report_on_the_public_consultation_on_a_digital_euro~539fa8cd8d.en.pdf
- European Commission. (2012). *Impact Assessment BRRD*.
- European Commission. (2019a). *Report from the Commission to the European Parliament and the Council on the application and review of Directive 2014/59/EU (Bank Recovery and Resolution Directive and Regulation 806/2014 (Single Resolution Mechanism Regulation) COM (2019) 302 final*. Retrieved from <https://ec.europa.eu/transparency/regdoc/rep/1/2019/EN/COM-2019-213-F1-EN-MAIN-PART-1.PDF>.
- European Stability Mechanism. (2020). *ESM Treaty*. Retrieved from https://www.esm.europa.eu/sites/default/files/20150203_-_esm_treaty_-_en.pdf.
- Farhi, E., & Tirole, J. (2018). *Deadly embrace: Sovereign and financial balance sheets doom loops: 1781-1823*. *Review of Economic Studies*, 85(3), 1781-1823.
- Financial Stability Board. (2019, June 3). *Solvent Wind-down of Derivatives and Trading Portfolios*. Retrieved from <https://www.fsb.org/wp-content/uploads/P030619-1.pdf>.

- Financial Stability Board. (2020, June 28). *Evaluation of the effects of too-big-to-fail reforms*. Retrieved from <https://www.fsb.org/wp-content/uploads/P280620-1.pdf>.
- Franke, G., Krahen, J., & von Lüpke, T. (2014). *Effective resolution of banks: Problems and solutions*.
- Gelpern, A., & Véron, N. (2019). *An Effective Regime for Non-viable Banks: US Experience and Considerations for EU Reform*. Retrieved from European Parliament Economic Governance Support Unit: [https://www.europarl.europa.eu/thinktank/en/document.html?reference=IPOL_STU\(2019\)624432](https://www.europarl.europa.eu/thinktank/en/document.html?reference=IPOL_STU(2019)624432).
- Gortsos, C. V. (2015). Last Resort Lending to Solvent Credit Institutions in the euro area before and after the Establishment of the Single Supervisory Mechanism (SSM). *ECB Legal Conference 2015: From Monetary Union to Banking Union, on the Way to Capital Markets Union* (pp. 53-76). Frankfurt: European Central Bank.
- Hellwig, M. (2018). *Valuation reports in the context of banking resolution: What are the Challenges*. Retrieved from https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/624417/IPOL_IDA%282018%29624417_EN.pdf.
- Hellwig, M. (2021). Twelve Years after the Financial Crisis – Too-big-to-fail is still with us. *Journal of Financial Regulation*, 1-13.
- Huertas, M. D. (2020). EDIS—The Third Pillar of the EU’s Banking Union: Big, bold but can it be built - where are we in 2020? *Journal of International Banking Law and Regulation*.
- Huertas, T. F. (2011). *Crisis: Cause, Containment and Cure* (2nd ed.). London: Palgrave Macmillan.
- Huertas, T. F. (2014). *Safe to Fail: How resolution will revolutionise banking*. London: Palgrave Macmillan.
- Huertas, T.F. *Too Big to Fail: A Policy's Beginning, Middle and End* (?) Matthias Haentjens & Bob Wessels (eds.), **Research Handbook on Crisis Management in the Banking Sector**, Edward Elgar Publishing Ltd, Cheltenham, UK, 2015. Available at SSRN: <https://ssrn.com/abstract=2570493>
- Huertas, T.F. 2016. *How to Deal with the Resolution of Financial Market Infrastructures*. CEPS Task Force Report, October 2016, Available at SSRN: <https://ssrn.com/abstract=2859988>
- Huertas, T. F. (2019). *Completing Banking Union*. SAFE White Paper 63. Retrieved from: https://safe-frankfurt.de/fileadmin/user_upload/editor_common/Policy_Center/SAFE_White_Paper_63.pdf.
- Huertas, T. F. (2020). *Plug the gap: make resolution ready for corona*. SAFE White Paper 73. Retrieved from: https://safe-frankfurt.de/fileadmin/user_upload/editor_common/Policy_Center/SAFE_White_Paper_73_final.pdf.
- Huertas, T. F., & Huertas, M. D. (2020). Necessary but not Sufficient: Stay Upon Resolution via Bail-In. *Butterworths Journal of International Banking and Financial Law*, 235-238. Joint Committee of the European Supervisory Authorities. (2020). *Report of the Risks and Vulnerabilities in the European Financial System*. Retrieved from https://eba.europa.eu/sites/default/documents/files/document_library/Risk%20Analysis%20and%20Data/Risk%20Assessment%20Reports/2020/932012/JC%202020%2067%20Autumn%202020%20Report%20on%20Risks%20and%20Vulnerabilities.pdf.
- Kane, E. J. 2020. *Masters of Illusion: Bank and Regulatory Accounting for Losses in Distressed Banks*. *Institute for New Economic Thinking Working Paper 136*. Retrieved from https://www.ineteconomics.org/uploads/papers/WP_136-Kane-Masters-of-Illusion-1.pdf.

- Kasinger, J., Krahnert, J., Ongena, S., Pelizzon, L., Schmeling, M., & Wahrenburg, M. (2021). *Non-performing loans: - new risks and policies?* Retrieved from White Paper 84 Leibniz Institute SAFE: https://safe-frankfurt.de/fileadmin/user_upload/editor_common/Policy_Center/SAFE_White_Paper_84.pdf
- König, E. (2018). *Banking resolution*. Retrieved from https://srb.europa.eu/sites/srbsite/files/15_06_sverige_riksbank_conference_speech_web_version_and_summary_final_002.pdf.
- Lastra, R. M. (2015). Reflections on Banking Union, the Lender of Last Resort and Supervisory Discretion. *ECB Legal Conference 2015*, (pp. 154-73).
- OECD. (2020). *OECD Economic Outlook, Interim Report September 2020*. Retrieved from <https://doi.org/10.1787/34ffc900-en>.
- Restoy, F., Urbaski, R., & Waters, R. (2020). *Bank failure management in the European banking union: What's wrong and how to fix it*. Retrieved from Financial Stability Institute Occasional Paper 15: <https://www.bis.org/fsi/fsipapers15.pdf>.
- Schillig, M. (2021). EU bank Insolvency law harmonisation: What next? *International Insolvency Review*, 1-28.
- Schnabel, I. 2021. *The sovereign-bank-corporate nexus – virtuous or vicious?* Retrieved from <https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210128~8f5dc86601.en.html>
- Single Resolution Board. (2019a). *Framework for Valuation*. Retrieved from https://srb.europa.eu/sites/srbsite/files/framework_for_valuation_feb_2019_web_0.pdf.
- Single Resolution Board. (2019b). *Public Interest Assessment: SRB Approach*. Retrieved from https://srb.europa.eu/sites/srbsite/files/2019-06-28_draft_pia_paper_v12.pdf.
- Single Resolution Board. (2020a). *Minimum Requirement for Own Funds and Eligible Liabilities (MREL): SRB Policy under the Banking Package*. Retrieved from https://srb.europa.eu/sites/srbsite/files/srb_mrel_policy_2020.pdf.
- Single Resolution Board. (2020b). *Operational Guidance on Bail-in Playbooks*. Retrieved from https://srb.europa.eu/sites/srbsite/files/srb_operational_guidance_on_bail-in_playbooks.pdf.
- Single Resolution Board. (2020c). *The Single Resolution Fund*. Retrieved from https://srb.europa.eu/sites/srbsite/files_def_srb_fund-web.pdf.
- Single Resolution Board. (2021, February). *SRB MREL Dashboard – Q3.2020*. Retrieved from https://srb.europa.eu/sites/default/files/20210208_srb_mrel_dashboard_q3-2020.pdf
- Tröger, T H (2019) ,Why MREL won't help much: minimum requirements for bail-in capital as an insufficient remedy for defunct private sector involvement under the European bank resolution framework. *Journal of Banking Regulation*, 1.