Liquidity in Resolution – A Transatlantic Perspective

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ABSTRACT

This Article argues that the current frameworks for the orderly resolution of large financial institutions suffer from a liquidity problem. The main reason for this predicament is that post-crisis reforms on both shores of the Atlantic enjoined central banks from providing liquidity to financial firms during and immediately after resolution. By creating a bright line rule prohibiting lender-of-last-resort (LOLR) operations once a firm enters resolution proceedings, there is a risk that firms will no longer be able to roll over short-term debt, thereby increasing risks to financial stability. As this Article shows, however, there are important differences between the United States (U.S.) and Europe. While the U.S. Congress at least sought to minimize liquidity gaps in resolution by throwing the fiscal firepower of the United States in the ring, European lawmakers failed to agree on a genuine, common backstop for the resolution of significant credit institutions, leaving only a small window for national solutions. To meet the core objectives of resolution, which include allocating losses to equity and long-term debt holders rather than to taxpayers, the central bank should be given a limited LOLR role to shore up the resolved firm's funding. This LOLR function ought to be guaranteed by the fiscal authority, subjected to ex-ante volume limits, and limited to short-term credit. Moreover, to further mitigate latent moral hazard and to create a counterweight to the extended LOLR function, the Article advocates for higher capital requirements.

[*] Legal Counsel, International Monetary Fund (IMF). The views expressed in this paper are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management. I am indebted to Prof. Daniel Tarullo and Hans Weenink for insightful discussions and valuable comments.

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INTRODUCTION

The Global Financial Crisis (GFC) of 2008-09 shook the foundations of modern economic and financial systems. The meltdown of the U.S. financial system in 2008 had profound implications for the real economy, resulting in high unemployment, massive and prolonged output losses, and dampened global growth. The current COVID-19 pandemic could pose an even greater threat to the global economy and international financial system.[1] Only this time around, the sequence is reversed: the real economy was hit first, and the financial sector is likely to suffer collateral damage.[2]

Most post-GFC financial regulation aimed at mitigating "too-big-to-fail" (TBTF) externalities and associated moral hazard concerns. *Ex-ante,* TBTF risks are primarily addressed through more stringent capital and liquidity requirements. *Ex-post*, recovery and resolution regimes should allow for the failure of individual financial firms without jeopardizing the stability of the financial system or relying on taxpayer funds for bailouts.[3] But almost 12 years after the fall of Lehman Brothers, doubt remains as to the appropriateness of both the *ex-ante* and the *ex-post* mechanisms. A study by the Federal Reserve Board found that the appropriate level of Tier 1 capital is somewhere between 13 and 26 percent and thus, clearly beyond the current capitalization levels of large U.S. and European credit institutions, let alone

[1] Central banks and governments have rushed to protect their economies by announcing trillion-dollar fiscal and monetary stimulus programs. As the COVID-19 outbreak in early 2020 shows, risks to global financial and economic stability can have highly idiosyncratic causes, yet induce a similarly dangerous dynamic as "pure" financial crises. For a more positive take, however, *see* Felix Salmon, *How Coronavirus Turmoil Differs from a Financial Crisis*, AXIOS (Mar. 5, 2020), https://www.axios.com/coronavirus-market-financial-crisis-06f5313e-c8c3-40f2-a934-6de7460a884d.html.

[2] *See* Tobias Adrian & Fabio Natalucci, *COVID-19 Crisis Poses Threat to Financial Stability*, IMF BLOG (Apr. 14, 2020), https://blogs.imf.org/2020/04/14/covid-19-crisis-poses-threat-to-financial-stability/.

[3] *See generally* Daniel K. Tarullo, *Financial Regulation: Still Unsettled a Decade After the Crisis*, 33 J. ECON. PERSPECTIVES 61, 78 (2019) (noting that "while there is at least a chance for maintaining the progress toward more resiliency for the largest banks, it is considerably harder to conjure up a benign outcome with respect to financial activity that occurs outside the perimeter of banking organizations."); INTERNATIONAL MONETARY FUND, GLOBAL FINANCIAL STABILITY REPORT: A DECADE AFTER THE GLOBAL FINANCIAL CRISIS: ARE WE SAFER? viii (Oct. 2018) (stating that "[t]he resilience of market liquidity provision in the new institutional environment has yet to be tested under more adverse conditions, and it will affect the ability of the financial system to absorb, rather than propagate, an adverse shock.").

non-bank financial firms.[4] Moreover, capitalization ratios may fluctuate over time – the Fed found that global systemically important banks (G-SIBs) artificially reduce their G-SIB surcharges during the quarter in which the Fed determines them.[5] Similarly, and most importantly for the purpose of this Article, there remain concerns that the largest financial firms on both sides of the Atlantic are, due to their size and interconnectedness, still "unresolvable."[6]

This Article argues that, in addition to insufficient capital and liquidity buffers, a major shortcoming of the new crisis management framework concerns inadequate resolution funding.[7] The hypothesis tested in this Article is whether prohibiting central banks from providing liquidity to financial firms during resolution undermines resolution authorities' ability to successfully recapitalize the firm without jeopardizing the stability of the financial system.[8] The idea is not that firms should be subsidized through the public sector. Instead, this Article argues that to end TBTF, we must ensure that short-term debt can be rolled over during resolution procedures.

The liquidity, or funding, gap[9] that this Article identifies arises between

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[4] *See* SIMON FIRESTONE, AMY LORENC & BEN RANISH, FINANCE AND ECONOMIC DISCUSSION SERIES 2017-034: AN EMPIRICAL ECONOMIC ASSESSMENT OF THE COSTS AND BENEFITS OF BANK CAPITAL IN THE U.S. 1 (2017), www.federalreserve.gov/econres/feds/files/2017034pap.pdf. (note that J.P. Morgan's Chase Common Equity Tier 1 ratio stood at 12 percent by the beginning of 2019, *see* J.P. Morgan & Chase, *4Q18 Financial Results* (Jan. 15, 2019), https://www.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/investor-relations/documents/quarterly-earnings/2018/4th-quarter/4q18-earnings-press-release.pdf).

[5] Jared Berry, Akber Khan & Marcelo Rezende, *How Do U.S. Global Systemically Important Banks Lower Their Capital Surcharges?*, FEDS NOTES (Jan. 31, 2020), https://www.federalreserve.gov/econres/notes/feds-notes/how-do-us-global-systemically-important-banks-lower-their-capital-surcharges-20200131.htm.

[6] *See, e.g.*, Stefanos Ioannou, Dariusz Wójcik & Gary Dymski, *Too-Big-To-Fail: Why Megabanks Have Not Become Smaller Since the Global Financial Crisis?*, 31 REV. POL. ECON. 356, 356 (2019) (finding that 31 G-SIBs have not shrunk since the GFC and concluding that these banks are still TBTF given that economic models underestimate moral hazard and size). Variations of the TBTF problem have been discussed in the literature. *See* Jeremy C. Kress, *Solving Banking's "Too Big to Manage" Problem*, 104 MINN. L. REV. 171, 240 (2019) (arguing that "[s]ome financial conglomerates are so vast and complex that their executives, directors, shareholders, and regulators are unable to oversee them effectively.").

[7] I will henceforth use the terms "liquidity in resolution" and "resolution funding" interchangeably, both of which refer to the provision of short-term funding by (quasi)-governmental actors, such as central banks, finance ministries, or resolution funds, *during* and *immediately after* resolution.

[8] While much of the present article focuses on liquidity issues regarding the resolution of large financial institutions, similar problems may well materialize in the context of the failure of smaller firms.

[9] For instance, Yves Mersch, Executive Board member of the ECB, who acknowledged the possibility of "funding gaps." *See* Yves Mersch, Exec. Bd. Member, European Cent. Bank, Speech at IMFS Distinguished Lecture Series Goethe Universität Frankfurt: The Limits of

the triggering of resolution and after resolution actions have been implemented, when the firm regains access to market funding. During this critical period, resolution authorities will need to address the rollover risks of short-term debt and sustain vital operations at the failed financial firm to ensure a successful resolution. The core idea of resolution is to convert sufficient long-term debt into equity to absorb asset losses without impairing depositors and other short-term credit.[10] But there is a significant risk that short-term creditors will run as soon as there are signs of resolution, cutting the firm off from any market funding.[11]

The liquidity needs of large financial institutions can be huge. For instance, De Groen notes that liquidity support for a single bank during the GFC exceeded EUR100 billion.[12] A recent ECB study reaches the same conclusion and confirms that a systemic crisis may well require liquidity injections of up to EUR150 billion for two large banks.[13] While evidence exists that financial firms have reduced their reliance on short-term funding, the data is far from conclusive. For instance, a recent Article shows that in Germany, corporate deposits' share of total liabilities actually rose from 20 percent, before the GFC, to above 30 percent by 2017.[14]

Outside of resolution, a financial firm typically has access to the central bank's discount window if short-term funding dries up. There is also no doubt that the central bank's LOLR function remains as critical as it was before the 2007/08 financial crisis. As Professor Daniel Tarullo, former U.S. Federal Reserve (Fed) Board member, convincingly argues, "given the possibility of this type of sustained erosion of firm funding structures over an extended period, simply requiring firms to hold a liquidity buffer against

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Central Bank Financing in Resolution (Jan. 30, 2018), https://www.ecb.europa.eu/press/key/date/2018/html/ecb.sp180130.en.html.

[10] Jeffrey N. Gordon & Wolf-Georg Ringe, *Bank Resolution in the European Banking Union: A Transatlantic Perspective on What it Would Take*, 115 COLUM. L. REV. 1297, 1300 (2015).

[11] For a forceful argument as to why the current system does not sufficiently factor in the risk of running short-term creditors, see HAL S. SCOTT, CONNECTEDNESS AND CONTAGION 189 (2016).

[12] WILLEM PIETER DE GROEN, FINANCING BANK RESOLUTION: AN ALTERNATIVE SOLUTION FOR ARRANGING THE REQUIRED LIQUIDITY 10 (Nov. 2018), https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/624423/IPOL_IDA(2018)624423_EN.pdf.

[13] Raschid Amamou, Andreas Baumann, Dimitrios Chalamandaris, Laura Parisi & Pär Torstenssonn, *Liquidity in Resolution: Estimating Possible Liquidity Gaps for Specific Banks in Resolution and in a Systemic Crisis*, 250 EUR. CENT. BANK OCCASIONAL PAPER SERIES (Nov. 2020), https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op250~c7a2d3cc7e.en.pdf.

[14] Florian Balke & Mark Wahrenburg, *Credibility of Bank Resolution Regimes and Market Discipline: Evidence from Corporate Deposits*, SSRN, Nov. 27, 2019, at 6, https://ssrn.com/abstract=3494263.

30-day outflows . . . would be insufficient."[15]

However, the creation of resolution regimes raised complicated questions regarding the interplay between LOLR interventions and resolution procedures. Notably, U.S. lawmakers decided to constrain the Fed from performing LOLR functions as soon as resolution procedures have commenced. In Europe, the ECB had always performed a limited LOLR role. Thus, a bright line rule seemingly emerged after the crisis: access to (emergency) liquidity assistance *before* resolution is triggered, but no access *afterwards* (at least until the financial firm regains confidence in the private market). Thus, one of the key issues this Article seeks to discuss is: how can the resolution authority roll over short-term debt without LOLR support or threatening the success of the resolution procedure?

As this Article shows, the repudiation of the central bank's role as liquidity provider in resolution happened in both Europe and the United States, albeit to different degrees. Indeed, the comparative analysis between the two regimes across the Atlantic reveals that while the U.S. Congress was more aggressive in curbing the central bank's emergency powers, the European currency union continues to suffer from the absence of a federal fiscal capacity that could, even partially, substitute for the lack of access to central bank credit. At least as conceived, the U.S. Orderly Liquidation Authority (OLA) could close certain liquidity gaps in resolution by drawing on a credit line from the U.S. Treasury. Whether the OLA is an appropriate substitute for the central bank will be explored in this Article.

The issue of liquidity in resolution must be understood in the context of a broader effort to reorganize banks' and financial firms' crisis management framework after the GFC. On both sides of the Atlantic, these reforms consisted of three prongs: (i) the establishment of specialized resolution procedures for (large) financial firms, (ii) the creation of new, albeit arguably insufficient, sources to temporarily support resolution actions with public sector financial assistance, and (iii) the (re-)allocation of institutional responsibilities by statutorily prohibiting central bank interventions after the commencement of resolution actions.[16]

Traditionally, central banks have played a crucial function in providing

[15] Daniel K. Tarullo, Member, Bd. of Governors of the Fed. Reserve Sys., Speech at the Clearing House 2014 Annual Conference: Liquidity Regulation (Nov. 20, 2014) (transcript available at https://www.federalreserve.gov/newsevents/speech/tarullo20141120a.pdf).
[16] *See* PAUL TUCKER, UNELECTED POWER: THE QUEST FOR LEGITIMACY IN CENTRAL BANKING AND THE REGULATORY STATE (2018), *reprinted in* CURRENCIES, CAPITAL, AND CENTRAL BANK BALANCES 170, 181 (John H. Cochrane et al. eds., 2019) (arguing that "[t]he new resolution systems provide the basis for the Fed to bring about regime change in its LOLR function.").

liquidity to financial institutions as a LOLR.[17] During the GFC, however, the lines between illiquidity, which essentially allows for central bank action, and insolvency, where it is constrained, became increasingly fuzzy.[18] In the United States, the Fed's decision to lend to the insurance company American Insurance Group (AIG), but deny emergency credit to the investment bank Lehman Brothers is an often-cited example.[19] In light of the AIG bailout, legislators lamented the Fed's expansive interpretation of its authority during the crisis and went on to curtail its emergency powers.[20] Specifically, some elements of the LOLR function were migrated from the Fed to other authorities, most notably the FDIC and Treasury Department.[21]

In the euro area, the European Central Bank (ECB), too, lacks the authority to provide liquidity to banks during or immediately after resolution.[22] Euro area governments preferred to set up resolution funds to provide the necessary funding during resolutions, instead of relying on the central bank.[23] Indeed, the establishment of resolution funds was a key

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[17] According to Bagehot's traditional LOLR model, central banks provided liquidity assistance to *solvent* but liquidity-constrained institutions at a penalty rate and against good collateral. *See* Vincent Bignon, Marc Flandreau & Stefano Ugolini, *Bagehot for Beginners: The Making of Lender of Last Resort Operations in the Mid-Nineteenth Century*, 65 ECON. HIST. REV. 580, 581-97 (2012).

[18] *See* Michael J. Fleming, *Federal Reserve Liquidity Provision During the Financial Crisis of 2007–2009*, 4 ANN. REV. FIN. ECON. 161 (2012). For a historical perspective on the Fed's actions during the GFC, *see* Frederic S. Mishkin & Eugene N. White, *Unprecedented Actions: The Federal Reserve's Response to the Global Financial Crisis in Historical Perspective* (Nat'l Bureau of Economic Research, Working Paper No. 20737, 2014), https://www.nber.org/papers/w20737.pdf. Moreover, according to some scholars, the Fed not only acted as the LOLR but also as the market-maker of last resort. PERRY MEHRLING, THE NEW LOMBARD STREET: HOW THE FED BECAME THE DEALER OF LAST RESORT (2010).

[19] *See, e.g.*, LAURENCE M. BALL, THE FED AND LEHMAN BROTHERS: SETTING THE RECORD STRAIGHT ON A FINANCIAL DISASTER 194 (2018).

[20] Notably, the Fed may no longer provide emergency funding through the discount window to financial institutions without the Treasury's approval. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 1101(a)(6), 124 Stat. 1376, 1450-54.

[21] But even if the Treasury Secretary approves of the liquidity provision, the Fed's emergency lending authority is limited to "broad-based programs and facilities." *See id.* at § 1101(a)(2).

[22] To be sure, the National Central Banks (NCBs) may provide Emergency Liquidity Assistance (ELA) as part of their financial stability mandates. However, ELA is not available to banks in the context of resolution.

[23] As I discuss below, the European resolution framework has been the subject of much debate. Several experts have asserted that the SRB lacked the institutional credibility and authority to resolve large banking organizations. Hence, much of the policy discussion in Europe currently focuses on strengthening the SRB's *de-facto* and *de-jure* powers, and further harmonizing (bank) insolvency laws across the euro area. *See, e.g.*, Fernando Restoy, Chairman, Fin. Stability Inst., Speech at CIRSF Annual International Conference 2019: How to Improve Crisis Management in the Banking Union: A European FDIC? (July 4, 2019) (transcript available at https://www.bis.org/speeches/sp190715.pdf); Martin Sandbu, *How a Pan-EU Insolvency Regime Could Advance Banking Union*, FIN. TIMES (Nov. 19,

objective of the post-crisis reform.[24] Resolution funds are privately funded[25], or at least have a mechanism for recovering, *ex post*, the costs of providing temporary financing from the industry, thereby mitigating the public sector's exposure to bank failures.[26]

It was coincidence that the narrowing of central banks' powers corresponded with the decision to establish resolution funds.[27] Yet, as this Article seeks to show, there are doubts that this (re-) allocation of responsibilities in the context of resolution funding is sufficiently robust to allow for smooth resolutions of large firms and thus ensure credible deterrence of TBTF externalities.

The argument is further bolstered by volume constraints under the post-crisis resolution funding frameworks.[28] With the shift of institutional responsibilities came a reduction in the potentially available sources for the

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2019), https://www.ft.com/content/a8ed4eca-07b2-11ea-9afa-d9e2401fa7ca (reporting on the German Finance Minister's push to harmonize insolvency rules for all European banks). For a more nuanced and critical review of the necessity to revise European insolvency rules, see ANNA GELPERN & NICOLAS VERON, AN EFFECTIVE REGIME FOR NON-VIABLE BANKS: US EXPERIENCE AND CONSIDERATIONS FOR EU REFORM (July 2019), https://veron.typepad.com/files/ep_2019_fdic_agnv.pdf.

[24] *See* Fin. Stability Bd., *Key Attributes of Effective Resolution Regimes for Financial Institutions* (Oct. 15, 2014), https://www.fsb.org/wp-content/uploads/r_141015.pdf (funding of firms in resolution is set out in Key Attribute 6.3, which states that "[j]urisdictions should have in place privately-financed deposit insurance or resolution funds, or a funding mechanism with ex post recovery from the industry of the costs of providing temporary financing to facilitate the resolution of the firm.").

[25] This would apply to the Eurozone's Single Resolution Fund (SRF). *See Single Resolution Mechanism*, Council of the European Union, https://www.consilium.europa.eu/en/policies/banking-union/single-resolution-mechanism/ (last visited March 10, 2021).

[26] The latter would apply to the U.S. Orderly Liquidation Fund (OLF). *See* Dominique Laboureix, *Liquidity in Resolution*, European University Institute – Florence School of Banking and Finance, Online Seminar (Feb. 8, 2019), https://fbf.eui.eu/wp-content/uploads/2019/02/Presentation_Laboureix_8.Feb_.2019.pdf.

[27] Indeed, central banks' LOLR functions are rarely uncontroversial, especially if they involve the assumption of credit risk. *See* Mersch, *supra* note 9.

[28] *See, e.g.*, Dominique Laboureix, *Liquidity in Resolution*, European University Institute – Florence School of Banking and Finance, Online Seminar (Feb. 8, 2019), https://fbf.eui.eu/wp-content/uploads/2019/02/Presentation_Laboureix_8.Feb_.2019.pdf (noting that "There are no official caps on the scale, the duration and the rates applied to this type of liquidity support, as long as it is enough to '*allow the firm to make the transition to market-based funding*'. [*sic*]"); *see also* Emilios Avgouleas & Charles Goodhart, *Bank Resolution 10 Years From the Global Financial Crisis: A Systematic Reappraisal* (LUISS Sch. of European Political Econ., Working Paper 7/2019, 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3396888 (last visited Feb. 16, 2020). Liquidity constraints might even linger on after a resolution, requiring continued central bank support for months, if not years. *See* Mark Carlson & Jonathan Rose, *Can a Bank Run Be Stopped? Government Guarantees and the Run on Continental Illinois* (BIS, Working Paper No. 554, 2016), https://www.bis.org/publ/work554.pdf (in this context an insightful case study on the failure of Continental Illinois in 1984).

resolution authority to draw upon during resolution.[29] The revamped U.S. crisis resolution mechanism primarily relies on the Orderly Liquidation Fund (OLF).[30] To be sure, the OLF has the authority to issue obligations to the Treasury, providing it with almost unlimited firepower.[31] At the same time, during the first (critical) phase, 30 days after the appointment of the FDIC as receiver, the FDIC can provide liquidity up to a maximum of 10% of total consolidated assets for the covered financial company.[32]

In the Eurozone, the possible sources of liquidity are even scarcer. First, the Single Resolution Fund (SRF) has a maximum lending capacity of roughly EUR60 billion – funds which are to be used for both recapitalizations and liquidity across the entire euro banking sector, a EUR43 trillion industry.[33] By way of illustration, in certain cases, *individual* European banks had liquidity needs that exceeded EUR100 billion.[34] Second, as this Article will highlight, the provision of liquidity by central banks is fragmented. The ECB operates the ordinary lending facilities and the National Central Banks (NCB) oversee emergency liquidity assistance. More importantly, the euro area has no clear and dedicated policy in place to "foam the runway" with central bank money in resolution contexts.

In such contexts, as this Article shows, the U.S. resolution framework differs from the European Single Resolution Mechanism (SRM). In the United States., the resolution authority, the Federal Deposit Insurance

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[29] Moreover, and notwithstanding new rules for maintaining certain minimum liquidity standards, large financial institutions still rely heavily on short-term, "runnable," funding models. *See* SCOTT, *supra* note 11; Avgouleas & Goodhart, *supra* note 28, at 17 (noting that "a G-SIFI is funded mostly through retail and other short-term deposits, which, in the event of a bail-in, could either dry up or even be withdrawn.").

[30] The OLF is codified under § 210 DFA. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, §210, 124 Stat. 1376, 1460. For an analysis of the OLA, see Stephanie P. Massman, *Developing a New Resolution Regime for Failed Systemically Important Financial Institutions: An Assessment of the Orderly Liquidation Authority*, 89 AM. BANKR. L. J. 625, 664 (2015).

[31] Dodd-Frank Wall Street Reform and Consumer Protection Act § 210(n)(5). The interest rate for such purchases of OLF obligations by the Treasury is determined by the Treasury Secretary and shall be greater than the difference between (i) the current average rate on an index of corporate obligations of comparable maturity; and (ii) the current average rate on outstanding marketable obligations of the United States of comparable maturity.

[32] OLF funds are only to be used when no private funding is available and only for a short period of time. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act § 210(n)(6); Calculation of Maximum Obligation Limitation, 77 Fed. Reg. 37,554 (June 22, 2012) (codified at 12 C.F.R. § 380.10(a)(1)). Following this 30-day period, the FDIC may provide up to 90 percent of the fair value of total consolidated assets, *see* 12 C.F.R. § 380.10(a)(2). Moreover, the OLA requires the approval of the Treasury Secretary, introducing a political check that may affect the immediate availability and the potential volume of OLF funding.

[33] *See* European Banking Fed'n, *Facts and Figures – Banking in Europe 2019*, https://www.ebf.eu/facts-and-figures/statistical-annex/ (last visited Mar. 30, 2020).

[34] *See* DE GROEN, *supra* note 12.

Corporation (FDIC), may obtain funding through a credit line provided by the Treasury Department – the Orderly Liquidation Fund (OLF). The euro area lacks a comparable arrangement. Reflecting its status as an incomplete economic union, monetary competences are centralized, but fiscal powers remain divided. At the same time, while the Fed is statutorily enjoined from providing discount window liquidity as soon as a firm is put in resolution, the fragmented structure of euro emergency liquidity may allow national central banks to extend credit to firms beyond that point.

Liquidity in resolution is a controversial topic because public funds are put at risk through the central bank, resolution funds or guarantees.[35] Perhaps, law and policymakers deliberately constrained access to public sector liquidity and central bank credit? Yves Mersch, a member of the ECB's Executive Board, notes that "resolution financing is a government task," adding that "[c]entral banks provide liquidity, not solvency support.[36] Paul Tucker, former Deputy Governor of the Bank of England, explained that "if a firm deteriorates after liquidity assistance has been provided . . . central banks should no longer face a desperate choice between maintaining support or pulling the plug [since] the firm can go into resolution."[37]

Even if the post-crisis framework has in fact created a bright line rule that delineates central bank from government funding, the subject of liquidity in resolution is still worth investigating. If any doubt, voices in academia,[38] legislatures,[39] and policymakers[40] still consider it an important

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[35] Mersch, *supra* note 9.

[36] *Id.*

[37] Paul Tucker, *Regulatory Reform, Stability, and Central Banking*, HUTCHINS CENTER ON FISCAL & MONETARY POL'Y BROOKINGS, Jan. 16, 2014, at 15, https://www.brookings.edu/wp-content/uploads/2016/06/16-regulatory-reform-stability-central-banking-tucker.pdf.

[38] For the American perspective, see David A. Skeel, Jr., *Financing Systemically Important Financial Institutions in Bankruptcy*, in MAKING FAILURE FEASIBLE: HOW BANKRUPTCY REFORM CAN END TOO-BIG-TO-FAIL 59, 65 (Kenneth E. Scott, Thomas H. Jackson & John B. Taylor, eds., 2015) (concluding that "lawmakers should give SIFIs limited, explicit access to Fed funding, preferably by expanding the Fed's emergency lending authority under section 13(3) of the Federal Reserve Act"); SCOTT, *supra* note 11. For the European focus, see Avgouleas & Goodhart, *supra* note 28, at 16-18.

[39] For a study by the European Parliament's in-house think tank, see Jerome Deslandes & Marcel Magnus, *Banking Union: Towards New Arrangements for the Provision of Liquidity in Resolution?*, ECONOMIC GOVERNANCE SUPPORT UNIT OF THE EUROPEAN PARLIAMENT BRIEFING (July 2019), https://www.europarl.europa.eu/RegData/etudes/BRIE/2018/624402/IPOL_BRI(2018)624402_EN.pdf.

[40] *See, e.g.*, Elke König, Chair, Single Resolution Bd., Speech at Hearing at the ECON Committee of the European Parliament (July 22, 2019), https://srb.europa.eu/en/node/807 (noting that "liquidity in resolution is another area we'd like to see dealt with [since] [i]t is a key gap in the current framework."); CENTRAL BANKING NEWSDESK, *ECB Needs Liquidity Powers for Bank Resolution – Spanish Governor*, CENTRAL BANKING (July 5, 2019), https://www.centralbanking.com/regulation/banking/4299661/ecb-should-supply-liquidity-

issue.[41]

For instance, as the Group of Thirty, an international body of esteemed financiers and academics, notes, "[o]f greatest concern [is that] some of the tools available to fight extreme crises, when and if they recur, have been weakened, especially in the United States."[42] IMF staff concluded that a "[b]ail-in may need to be coupled with adequate official liquidity assistance [because] official guarantees for some debt may . . . be necessary to stem outflows."[43] A study by the European Parliament raised doubts that "existing public financing arrangements during bank resolution are sufficiently robust to finance banks under resolution."[44]

The Article is structured as follows. Section II discusses the key elements and features of the post-crisis resolution frameworks for financial firms, focusing on the implementation of the FSB Key Attributes in the domestic legal systems of the United States and the EU, respectively. Section III describes and analyzes the following sources of liquidity available to financial institutions in resolution: (i) central bank facilities, (ii) resolution funds, and (iii) direct government funding. Section IV tests the core hypothesis of this Article, namely whether the existing funding arrangements are sufficient to allow for a successful resolution. It concludes that while the post-crisis reforms have indeed diminished central banks' function in extending emergency credit, there are important differences between the United States and Europe. Congress sought to minimize liquidity gaps in resolution by throwing the United States' fiscal firepower in the ring. European lawmakers have failed to agree on a genuine, common backstop for the resolution of significant credit institutions, but left a small window for national solutions. Section V makes two policy recommendations to alleviate the identified problems. First, I propose a limited LOLR function for central banks to close funding gaps. Second, policymakers should

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to-failing-banks-spanish-governor (noting that "the ECB should be able to supply adequate liquidity to stressed banks while the Single Resolution Board works out their resolution."); Jesus Aguado, *Sufficient Liquidity Mechanisms Must Exist in Resolution Processes: ECB*, REUTERS (July 5, 2019) (quoting the Bank of Spain Chief de Cos, who pointed at the need to ensure that there are sufficient mechanisms for the provision of liquidity for the resolved entity to make the tool and the resolution process credible."). *See* DE GROEN, *supra* note 12 (positing that "[l]iquidity in resolution is one of the unresolved elements of the Single Resolution Mechanism.").

[41] *See, e.g.*, Christian A. Johnson, *From Fire Hose to Garden Hose: Section 13(3) of the Federal Reserve Act*, 50 LOY. U. CHI. L.J. 715, 717 (2019).

[42] GROUP OF THIRTY, MANAGING THE NEXT FINANCIAL CRISIS: AN ASSESSMENT OF EMERGENCY ARRANGEMENTS IN THE MAJOR ECONOMIES 14 (2018).

[43] *See* Jianping Zhou, Virginia Rutledge, Wouter Bossu, Marc Dobler, Nadege Jassaud, & Michael Moore, *From Bail-out to Bail-in: Mandatory Debt Restructuring of Systemic Financial Institutions*, IMF Staff Discussion Note SDN 12/03 (Apr. 24, 2012), https://www.imf.org/external/pubs/ft/sdn/2012/sdn1203.pdf.

[44] Deslandes & Magnus, *supra* note 39.

reconsider increasing capital requirements to mitigate moral hazard *ex-ante* and thereby reduce the frequency of resolution actions in crisis times.

I. An Overview of the Resolution Frameworks in the United States and the Euro Area

A. *Introduction and Definitions*

Before delving deeper into the analysis of the frameworks for *liquidity* in resolution, this section sheds light on the most important aspects of the post-crisis resolution procedures for financial firms in the United States and Europe. An issue of utmost importance for any study comparing different legal and regulatory regimes are semantics and definitions. Gelpern and Veron have, in a very compelling manner, worked out the subtle but often vital differences in the statutory, regulatory, and judicial language used in U.S. and EU resolution contexts.[45] I will follow their lead and briefly summarize the most important semantic differences they identified.

In the United States, "resolution" is an umbrella term referring to all modalities of dealing with "non-viable" financial firms including depositor payoff, liquidation, and measures taken by the FDIC.[46] By contrast, in the EU, "resolution" only refers to the procedure outlined in the Banking Recovery and Resolution Directive (BRRD)[47] and the Single Resolution Mechanism Regulation (SRMR).[48] These two EU legal acts are broadly equivalent in scope to the U.S. Orderly Liquidation Authority (OLA)[49] for systematically important institutions, albeit the BRRD also establishes rules on resolving smaller institutions whose failure is not believed to have systemic implications.[50] From an institutional standpoint, the resolution authority in the United States is the FDIC, whose powers have been expanded to resolve both small and large credit institutions under Title II of the Dodd-Frank Act.[51]

[45] Gelpern & Veron, *supra* note 23.
[46] For a discussion of the resolution triggers, see John Crawford, *Resolution Triggers for Systemically Important Financial Institutions*, 97 Neb. L. Rev. 65 (2018).
[47] Directive 2014/59, of the European Parliament and of the Council of 15 May 2014 Establishing a Framework for the Recovery and Resolution of Credit Institutions and Investment Firms and Amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No. 1093/2010 and (EU) No. 648/2012, of the European Parliament and of the Council, 2014 O.J. (L 173) 190 [hereinafter BRRD].
[48] 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, 2014 O.J. (L 225) 1 [hereinafter SRMR].
[49] *See* discussion *infra* Section II.D. for an overview of the OLA and its functioning.
[50] Gelpern & Veron, *supra* note 23, at 10.
[51] Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, §§

With regard to the resolution triggers, the EU framework talks about a "Failing-Or-Likely-To-Fail" (FOLTF) test.[52] The United States links resolution to "insolvency" or "non-viability" of an institution.[53] "Liquidation" denotes asset disposition in the United States, often coupled with deposit payoff; while in the EU, liquidation is the asset disposition procedure in the context of (national) insolvency proceedings where resolution is either not in the public interest or unsuccessful.[54] As regards precautionary actions, i.e., measures taken *before* a financial firm reaches the point of non-viability or is declared FOLTF, the EU talks about "early intervention" while the U.S. system refers to "prompt corrective action."[55]

B. *Resolution Rationales, Objectives and Procedures*

As noted above, the establishment or enhancement of administrative procedures to deal with the failure of financial institutions was a central element of the official sector's response to the 2008/09 financial crisis. Shell-shocked by the ferociousness with which the Lehman shock migrated to the rest of the financial sector, and subsequently to the real economy, the twenty largest economies, the G20, agreed to reform their crisis-fighting frameworks.

At the G20 Summit on September 24 and 25, 2011, in Pittsburgh, Pennsylvania, the G20 Heads of State charged the Financial Stability Board (FSB) with the development of "policy framework of concrete recommendations for measures to address the moral hazard risks associated with systemically important financial institutions (SIFIs)."[56] One element of the framework to end "too-big-to-fail" (TBTF) would be rules aimed at "improving the capacity to resolve firms in crisis."[57] From the get-go, resolution was framed not as *one* alternative but as *the* alternative to government-sponsored bail-outs[58], a notion that has become more tenuous since.[59]

201-217, 124 Stat. 1376.

[52] *See* BRRD, *supra* note 47, at Art. 32(6).

[53] GELPERN & VERON, *supra* note 23, at 10.

[54] *Id.*

[55] *Id.* at 9.

[56] FIN. STABILITY BD., OVERVIEW OF PROGRESS IN THE IMPLEMENTATION OF THE G20 RECOMMENDATIONS FOR STRENGTHENING FINANCIAL STABILITY, REPORT OF THE FINANCIAL STABILITY BOARD TO G20 LEADERS (June 18, 2010), https://www.fsb.org/wp-content/uploads/r_100627c.pdf.

[57] *Id.* at 4.

[58] David Zaring, *A Lack of Resolution*, 60 EMORY L.J. 97 (2010).

[59] Influential voices in the private sector, such as Randall Guynn, the Head of the Financial Institutions Group at Davis Polk & Wardwell LLP, have traditionally been skeptical whether bank resolution procedures can in fact make future bailouts obsolete. *See* Randall D. Guynn, *Are Bailouts Inevitable?*, 29 YALE J. REG. 121 (2012) (noting that "if used

Resolution procedures, as envisaged by the G20 and the FSB, seek to protect both taxpayer money *and* the stability of the financial system.[60] To that end, resolution seeks to achieve two objectives that are to some extent in tension with each other.[61] On the one hand, the resolution of a bank allows the responsible authority to administratively change the institution's contractual, and even statutory, obligations to reduce the need for taxpayer interventions ("bail-outs.")[62] On the other hand, bank resolution – as opposed to liquidation or bankruptcy – seeks to safeguard financial stability by maintaining certain critical functions of the bank, and, if necessary, operations with other financial institutions whose abrupt termination may trigger a financial panic.[63] The former Deputy Governor of the Bank of England, Paul Tucker, aptly summarizes a "resolution regime" as "designed to ensure that fundamentally unsound intermediaries do not get bailed out by the monetary authority's loans but, also, that their distress and demise do not rupture the supply of core services."[64]

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unwisely, unskillfully, or unscrupulously, however, [resolution tools] have the potential to be the most dangerous tools in the regulatory toolkit."). Recently, IMF staff has, too, pointed out that resolution comes with trade-offs, emphasizing the need "to allow for sufficient, albeit constrained, flexibility to be able to use public resources in the context of systemic banking crises." *See* Giovanni Dell'Ariccia, Maria Soledad Martinez Peria, Deniz Igan, Elsie Addo Awadzi, Marc Dobler & Damiano Sandri, *Trade-offs in Bank Resolution*, IMF Staff Discussion Note SDN/18/02 (2018), https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2018/02/09/Trade-offs-in-Bank-Resolution-45127. For a critique of the European bank resolution framework, see Tobias H. Troeger, *Too Complex to Work: A Critical Assessment of the Bail-in Tool under the European Bank Recovery and Resolution Regime*, 4 J. FIN. REG. 35 (2018).

[60] For a general overview of bank resolution regimes, see Emilios Avgouleas, Charles Goodhart & Dirk Schoenmaker, *Bank Resolution Plans as a Catalyst for Global Financial Reform*, 9 J. FIN. STAB. 210 (2013).

[61] This tension is, most notably, epitomized in the "bail-in" tool. While the bail-in regime allows resolution authorities to shift some of the costs of bank failure to bank creditors, the bail-in is not risk-free and may, too, require the injection of public funds to maintain financial stability. For a discussion, see Emilios Avgouleas & Charles Goodhart, *Critical Reflections on Bank Bail-Ins*, 1 J. FIN. REG. 3 (2015).

[62] *See* TUCKER, *supra* note 16, at 173 (further noting that such resolution regime was missing in the nineteenth century, when central banks first assumed their LOLR roles in Western economies).

[63] However, there are also other resolution objectives. The SRB, for instance, notes that the resolution framework in the EU sets the following objectives: (i) to ensure the continuity of critical functions; (ii) to avoid significant adverse effects on financial stability, in particular by preventing contagion, including to market infrastructures, and by maintaining market discipline; (iii) to protect public funds by minimizing reliance on extraordinary public financial support; (iv) to protect depositors covered by the Deposit Guarantee Scheme Directive (DGSD) and investors covered by the Investor Compensation Scheme Directive (ICSD); (v) to protect client funds and client assets. *See* Single Resolution Bd., *Resolution Objectives*, https://srb.europa.eu/en/content/resolution-objectives (last visited Feb. 17, 2020).

[64] Discussant Remarks by Paul Tucker in Randal K. Quarles, *Liquidity Regulation and the Size of the Fed's Balance Sheet*, in CURRENCIES, CAPITAL, AND CENTRAL BANK BALANCES

Legally speaking, resolutions of financial firms are overseen by specialized administrative authorities and can be considered special bankruptcy procedures for credit institutions.[65] Perhaps, the biggest difference from bankruptcy is that courts play a minor role in resolutions – receivership-like powers vest with the FDIC (in the United States) and the Single Resolution Board (SRB) (in the euro area). Resolution is a more invasive procedure than bankruptcy when it comes to the modification and destruction of stakeholders' rights and obligations.

Zaring colorfully described resolution procedure as follows:

> [r]esolution . . . is the polite term for seizing failing financial institutions and either shutting them down or selling them off for the best possible price . . . It is a particular kind of instant bankruptcy, destroying the interests of some creditors quickly and unmercifully, while giving others, especially the bank's depositors, a fresh and happy start.[66]

The resolution authorities' substantial discretion, which was further boosted by the post-crisis reforms, is also reflected in the almost total absence of pertinent jurisprudence, especially when compared to bankruptcy.[67] There is also an important difference between the resolution of small to mid-size financial firms and large, highly-interconnected banks. The post-GFC resolution framework essentially sought to create a mechanism to deal with failure of the latter without the use of taxpayer money.

As Tucker describes, the traditional resolution model to resolve modest size, vanilla banks was the "purchase & assumption" (P&A) tool.[68] By contrast, the tool of choice to address G-SIFI failures is "bail-in," which involves the transfer of losses from a failing subsidiary to the holding company where a critical mass of bonds can be "bailed-in" to cover losses

153, 173 (Hover Institution, 2019).

[65] For an overview as to how bankruptcy differs from resolution in the United States, see JAY B. SYKES, CONG. RESEARCH SERV., REGULATORY REFORM 10 YEARS AFTER THE FINANCIAL CRISIS: SYSTEMIC RISK REGULATION OF NON-BANK FINANCIAL INSTITUTIONS (2018).

[66] Zaring, *supra* note 58, at 99.

[67] As Guynn notes, "[t]he bankruptcy process is more rule-based than its alternatives and has produced an extensive body of case law, commentary, and other guidelines. In contrast, the FDIC has extremely broad discretion to structure any resolution under the OLA, with only a limited body of regulations and other legal guidance to constrain its discretion." Guynn, *supra* note 59, at 137.

[68] Paul Tucker, *The Resolution of Financial Institutions Without Taxpayer Solvency Support: Seven Retrospective Clarifications and Elaborations*, European Summer Symposium in Economic Theory, Gerzensee, Switzerland (July 3, 2014), https://cepr.org/sites/default/files/events/papers/6708_TUCKER%20Essay.pdf.

and recapitalize the entire group.[69] This is why G-SIFIs, at the parent level, must have sufficient usable Total Loss Absorbing Capacity (TLAC) in the United States[70] and Minimum Requirements for Own Funds and Eligible Liabilities (MREL) in Europe[71], which are essentially combined equity and long-term securities debt.[72] While TLAC and MREL requirements increase the amount of "bail-inable" debt, liquidity regulation seeks to address short-term funding risks, i.e., credit institutions' resolvability.

C. *The FSB Key Attributes for Effective Resolution*

The FSB Key Attributes (FSB KAs) are high-level rules considered necessary by the FSB for an effective resolution regime.[73] According to the FSB's gold standard, the new resolution procedures should provide the resolution authority with a broad range of powers and options to resolve a firm that is no longer viable and has no reasonable prospect of becoming so.[74] According to the FSB KAs, an effective resolution framework ought to:

- ensure continuity of systemically important financial services, and payment, clearing and settlement functions;
- protect, where applicable and in coordination with the relevant insurance schemes and arrangements such depositors, insurance policy holders and investors as are covered by such schemes and arrangements, and ensure the rapid return of segregated client assets;

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[69] *Id.* at 3.

[70] The firm-specific TLAC can range between 16 and 25 percent of risk-weighted assets. *See* Gordon & Ringe, *supra* note 10, at 1329. However, the way TLAC is implemented in the United States is controversial. *See* Patrick Bolton & Martin Oehmke, *Bank Resolution and the Structure of Global Banks*, 32 REV. FIN. STUD. 2384, 2412 (2019) (noting that "[o]ut of the 21 percent TLAC requirement [required by the Fed] at the global holding company level, the proposed rules require that foreign G-SIBs with large affiliates in the United States preposition as much as 18% as internal TLAC for the U.S. affiliate in an intermediate holding company based in the United States," which "significantly limits the sharing of loss-absorption capacity across jurisdictions, thereby diminishing one of the key advantages of a global SPOE resolution.").

[71] MREL comprises a fixed minimum of assets set by the ECB as prudential supervisor of significant banks; but the pertinent rules also permit the SRB to request an additional layer of high-quality bail-in capital needed in off-standard resolution scenarios, referred to as "MREL guidance." For an overview, see Martin R. Götz, Tobias H. Tröger & Mark Wahrenburg, *The Next SSM Term: Supervisory Challenges Ahead*, In-Depth Analysis for the European Parliament's Committee on Economic and Monetary Affairs (Mar. 2019), https://www.europarl.europa.eu/RegData/etudes/IDAN/2019/634389/IPOL_IDA(2019)634389_EN.pdf.

[72] *See* Fin. Stability Bd., *Total Loss-Absorbing Capacity (TLAC) Principles and Term Sheet* (Nov. 9, 2015), http://www.fsb.org/wp-content/uploads/TLAC-Principles-and-Term-Sheet-for-publication-final.pdf.

[73] Fin. Stability Bd., *supra* note 24, at 1.

[74] *Id.*

- allocate losses to firm owners (shareholders) and unsecured and uninsured creditors in a manner that respects the hierarchy of claims;
- not rely on public solvency support and not create an expectation that such support will be available;
- avoid unnecessary destruction of value, and therefore seek to minimize the overall costs of resolution in home and host jurisdictions and, where consistent with the other objectives, losses for creditors;
- provide for speed and transparency and as much predictability as possible through legal and procedural clarity and advanced planning for orderly resolution;
- provide a mandate in law for cooperation, information exchange and coordination domestically and with relevant foreign resolution authorities before and during a resolution;
- ensure that non-viable firms can exit the market in an orderly way; and
- be credible, and thereby enhance market discipline and provide incentives for market-based solutions.[75]

The FSB has also provided more specific guidance to policymakers as regards funding arrangements during resolution[76], which I will examine in detail below.[77]

D. *The United States Resolution Framework*

In the United States, the FDIC serves as the resolution authority, in addition to its role as a deposit insurance authority. As noted above, bankruptcy and financial firm resolution are two distinct procedures to address a given company's failure, though overlaps exist. To provide an overview, Table 1 sketches out the main differences between ordinary bankruptcy proceedings and FDIC-administered resolutions of financial firms.

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[75] *Id.* at 3. The FSB KAs further note that resolution frameworks should include: (i) stabilization options that achieve continuity of systemically important functions by way of a sale or transfer of the shares in the firm or of all or parts of the firm's business to a third party, either directly or through a bridge institution, and/or an officially mandated creditor-financed recapitalization of the entity that continues providing the critical functions; and (ii) liquidation options that provide for the orderly closure and wind-down of all or parts of the firm's business in a manner that protects insured depositors, insurance policy holders and other retail customers. *Id.* at 7.
[76] *See id.* at 12.
[77] *See infra* Section III.A.

Table 1: Bankruptcy versus FDIC Resolutions[78]

	Bankruptcy	FDIC Resolutions
Forum for proceedings	- Bankruptcy court	- Administrative proceedings under auspices of the FDIC
Bases for commencing involuntary resolution	- Among other factors, debtor must be "generally not paying debts" as they become due	- FDIC may launch resolution proceedings for a variety of reasons (notably revocation of charter due to undercapitalization)
Fate of old management	- In a reorganization under Chapter 11 (of the Bankruptcy Code) management is generally permitted to continue running the company, and has exclusive rights to develop a reorganization plan for a period of 120 days after the bankruptcy petition is filed - In a Chapter 7 liquidation, a trustee generally replaces old management and liquidates the debtor	- The FDIC generally removes the old management

[78] Fin. Stability Bd., *supra* note 24, at 26; FDIC, *Resolutions Handbook*, Jan. 15, 2019, https://www.fdic.gov/bank/historical/reshandbook/resolutions-handbook.pdf#page=7; United States Courts, *Process – Bankruptcy Basics*, https://www.uscourts.gov/services-forms/bankruptcy/bankruptcy-basics/process-bankruptcy-basics (last accessed Mar. 17, 2020).

Overview of procedure	- In a Chapter 11 reorganization, debtor files a plan of reorganization, which court must approve and on which creditors vote - In a Chapter 7, the bankruptcy court appoints a trustee to take over the assets of the debtors' estate, reduces them to cash, and makes distributions to creditors - The details depend on which Chapters of the Bankruptcy Code serve as the legal basis for the procedure	- Valuation of failing institution - Marketing of the failing institution to healthy institutions - Soliciting and accepting bids for the sale of some or all of the institution's assets and assumption of deposits (including some liabilities) - Determining which bid is least costly to the insurance fund - Working with the Assuming Institution through the closing process (or ensuring the payment of insured deposits in the event there is no acquirer).

Since the GFC, the U.S. resolution framework can essentially be divided in two different types of procedures, depending on the size and the systemic significance of the firm in distress. First, smaller, non-systemically important institutions, have been resolved under FDIC receivership for decades, most notably during the Savings & Loans Crisis ("S&L Crisis") of the late 1980s and early 1990s, as well as the mortgage crisis of 2008-2013.[79] Second, with the passing of the Dodd-Frank Act (DFA) in 2010, the FDIC may also be appointed as receiver for G-SIBs under the OLA enshrined in Title II of the DFA.[80] The OLA presents an alternative to bankruptcy for large financial firms by offering more robust protections against "runs" and the availability of resolution funding.[81]

It is this second type of resolution, the OLA, this Article focuses on. The

[79] *See* FDIC, *supra* note 78. During the S&L crisis, between 1986 and 1994, the FDIC resolved more than 1,600 banks alone. In the mortgage crisis, the FDIC acted as receiver for almost 500 institutions.

[80] *See* Aaron Klein, *A Primer on Dodd-Frank's Orderly Liquidation Authority*, BROOKINGS (June 5, 2017) https://www.brookings.edu/blog/up-front/2017/06/05/a-primer-on-dodd-franks-orderly-liquidation-authority/.

[81] *See* SYKES, *supra* note 65.

reason is that ordinary FDIC resolution has not raised serious liquidity problems. Indeed, the FDIC has shown, time again, that it can successfully deal with smaller bank failures at the regional level, especially when they occur outside of broader market downturns.[82] By contrast, the new resolution authority under the OLA has never been tested, and many commentaries have raised doubts as to whether the new authority is fit for purpose.[83] For instance, the OLA does not include foreign entities, such as European banks with substantial business in the US.[84] Moreover, the FDIC's single-point-of-entry strategy (SPOE) for OLA operations has been criticized for not taking sufficient account of litigation risks that undermine the resolution process and for encouraging moral hazard.[85]

Finally, the process for invoking the OLA is fraught with institutional intricacy. Notably the FDIC Board of Directors and a supermajority of the Fed Board must vote to recommend activation of the authority to the Secretary of the Treasury, who must consult with the President and appoint the FDIC as receiver.[86] The vote is based on eight statutory criteria and an assessment that the company's bankruptcy would have serious adverse effects on U.S. financial stability, as well as there being no private sector alternative to prevent default.[87]

The most contentious feature of the new OLA relates to the funding

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[82] *See generally* DETTA VOESAR & JAMES MCFAYDEN, FDIC, THE FIRST FIFTY YEARS: A HISTORY OF THE FDIC 1933-1983 (1984) (overview of the FDIC's history between 1933-1983).

[83] *See, e.g.*, Stephen J. Lubben, *A Functional Analysis of SIFI Insolvency*, 96 TEX. L. REV. 1377, 1378 (2018) (noting that "Dodd-Frank created a new, FDIC-focused "orderly liquidation authority" (OLA) to handle these cases but then made it incredibly difficult to actually use OLA."); Roberta S. Karmel, *An Orderly Liquidation Authority is not the Solution to Too-Big-To-Fail*, 6 BROOK. J. CORP. FIN. & COM. L. 1 (2011-2012); Kwon-Yong Jin, *How To Eat an Elephant: Corporate Group Structure of Systemically Important Financial Institutions, Orderly Liquidation Authority, and Single Point of Entry Resolution*, 124 YALE L. J. 1746, 1769 (noting that "the subordination of the parent creditors to the subsidiary creditors would increase moral hazard overall and allow risk levels beyond the socially optimal level."); SCOTT, *supra* note 11, at 203.

[84] Stephen J. Lubben, *OLA After Single Point of Entry: Has Anything Changed?*, Seton Hall Public Law Research Paper 2353035 (2013), http://rooseveltinstitute.org/wp-content/uploads/2015/11/Lubben_OLA_Has_Anything_Change.pdf.

[85] *Id.* For a different view, see Thomas W. Merrill & Margaret L. Merrill, *Dodd-Frank Orderly Liquidation Authority: Too Big for the Constitution?*, 163 U. PA. L. REV. 165, 179 (2014) (noting that it would be extremely difficult to persuade a court to unwind the FDIC receivership, thus effectively undermining any effective judicial review).

[86] *See* U.S. TREASURY DEP'T, REPORT TO THE PRESIDENT OF THE UNITED STATES PURSUANT TO THE PRESIDENTIAL MEMORANDUM ISSUED APRIL 21, 2017: ORDERLY LIQUIDATION AUTHORITY AND BANKRUPTCY REFORM 7-9 (2018), https://home.treasury.gov/sites/default/files/2018-02/OLA_REPORT.pdf.

[87] *See id.* at 1.

mechanism it entails.[88] While some consider that the OLA will not eliminate moral hazard as it, at least temporarily, relies on taxpayer funding[89], many academics deem it a crucial element of the DFA reforms.[90] Others believe that relying on OLA funding alone will be insufficient to close liquidity gaps in the context of resolution.[91] The liquidity provision of firms in resolution via the OLA will be discussed below and juxtaposed against the European regime.[92]

E. *The EU Resolution Framework*

Before the crisis, many countries in the EU had no dedicated bank resolution procedure; failing credit institutions had to be put into bankruptcy.[93] Based to a large extent on the FSB's Key Attributes, the EU lawmakers have filled this gap and established sophisticated administrative procedures to resolve financial institutions that are failing or likely to fail.[94]

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[88] In 2018, the U.S. Treasury Department advocated curtailing the current OLA funding mechanism, for instance by using guarantees and premium rates to encourage (earlier) return to private credit markets, secure any OLF loans, limit the duration of OLF loans, and expedite the industry backstop assessment. *See id.*; *see also* SCOTT, *supra* note 11 (rejecting the notion that the OLA will increase moral hazard in the banking sector). For an overview of different academic views on the OLA backstop, *see generally* SYKES, *supra* note 65.

[89] *See, e.g.*, Massman, *supra* note 30 (positing that, *prima facie*, allowing for government funds to be employed in a resolution is irreconcilable with the DFA's goal of ending taxpayer-funded bailouts, while also acknowledging that a dedicated bankruptcy regime for SIFIs would create financial stability risks).

[90] In 2017, a group of 120 legal scholars and academic economists openly opposed the elimination of the OLA, arguing that repealing the OLA would be a "dangerous error," as it would "leave bankruptcy courts with the entire responsibility in a crisis for handling restructurings in ways that they have never done before." *See* Letter From Jeffrey N. Gordon & Mark J. Roe to Senator Michael Crapo et al., *Financial Scholars Oppose Eliminating "Orderly Liquidation Authority" As Crisis-Avoidance Restructuring Backstop* 2 (May 23, 2017), https://thedeal.com/pdf/sdoc/20170523/052317_olaLETTER.pdf.

[91] Notably, SCOTT, *supra* note 11.

[92] *See infra* Section IV.B.2.

[93] As Moloney notes, "[r]esolution did not form part of EU banking regulatory or supervisory governance." Niamh Moloney, *European Banking Union: Assessing Its Risks and Resilience*, 51 COMM. MKT. L. REV. 1609, 1617 (2014).

[94] The "failing or likely to fail" (FOLTF) test is, in essence, an insolvency test. The European Banking Authority (EBA) has clarified that an institution is FOLTF when one of the following elements is established: (i) "an institution infringes, or is likely to infringe in the near future, the requirements for continuing authorization in a way that would justify the withdrawal of its authorization by the competent authority, including but not limited to incurring or being likely to incur losses that will deplete all or a significant amount of its own funds;" (ii) "an institution's assets are, or there are objective elements to support a determination that, its assets will be, in the near future, less than its liabilities;" (iii) "an institution is, or is likely soon to be , unable to pay its debts or other liabilities as they come due."

See European Banking Auth., *Final Report: Guidelines on the interpretation of the different circumstances when an institution shall be considered as failing or likely to fail under Article 32(6) of Directive 2014/59/EU*, EBA/GL/2015/07 (May 26, 2015),

However, while (significant) financial institutions located within the 19 euro area Member States are resolved under the newly-established Single Resolution Mechanism (SRM), no such centralized resolution regime exists for firms in the other eight EU countries that are not part of the currency union.

For resolution of non-significant financial institutions as well as firms outside the Eurozone, the BRRD defines a Union-wide minimum standard for resolution. The Single Resolution Mechanism Regulation (SRMR), by contrast, establishes the genuine and centralized mechanism for the resolution of banks in EU countries participating in the European *banking union*, which are currently the 19 Eurozone Member States.[95]

While the BRRD and the SRMR share many substantive provisions, the SRMR also sets out the framework on the governance and authority of the SRB.[96] Since 2016, the SRB acts as the central resolution authority for significant institutions and cross-border banking groups in the Eurozone.[97] Whether an institution is "significant" depends mainly on its size and its

https://eba.europa.eu/sites/default/documents/files/documents/10180/1085517/02539533-27ed-4467-b442-7d2fa6fcb3d3/EBA-GL-2015-07%20GL%20on%20failing%20or%20likely%20to%20fail.pdf

[95] The European banking union comprises all 19 Eurozone Member States. Denmark and Sweden have been considering joining the banking union for some time, while Bulgaria has formally applied to join the banking union as a first step to become a member of the currency union. For a recent speech by the Chair of the Supervisory Board of the ECB on the banking union, see Andrea Enria, Chair, Supervisory Bd. of the ECB, Speech at a Dinner of the Centre for European Reform: The Banking Union – a Personal View on its Past, Present and Future (Oct. 30, 2019), https://www.bankingsupervision.europa.eu/press/speeches/date/2019/html/ssm.sp191030~a66780e0a5.en.html. For a broader overview of the banking union and its function, see generally OXFORD UNIV. PRESS, EUROPEAN BANKING UNION (Danny Buch & Guido Ferrarini eds., 2d ed. 2020) (2015).

[96] The SRB is an EU agency based in Brussels. However, since the EU Treaties did not provide for a legal basis to establish an independent institution under EU law, the SRB is, at least formally, subordinated to the European Commission. For a discussion of the legal issues underpinning that institutional arrangement, see generally Pamela Lintner, *De/centralized Decision Making Under the European Resolution Framework: Does Meroni Hamper the Creation of a European Resolution Authority?*, 18 EUR. BUS. ORG. L. REV. 591, 602-15 (2017).

[97] *See* SRMR, *supra* note 48, at Recital (28) (sets out the distribution of tasks in the SRM: "The [SRB] should, in particular, be empowered to take decisions in relation to significant entities or groups, entities or groups directly supervised by the ECB or cross-border groups. The national resolution authorities should assist the [SRB] in resolution planning and in the preparation of resolution decisions. For entities and groups which are not significant and not cross-border, the national resolution authorities should be responsible, in particular, for resolution planning, the assessment of resolvability, the removal of impediments to resolvability, the measures that the resolution authorities are entitled to take during early intervention, and resolution actions.").

importance to the economy of the respective Member State.[98] In the EU banking union, these significant institutions are directly supervised by the ECB and, should they fail, are subject to the resolution authority of the SRB.[99] Currently, 117 entities are considered significant, and would be subject to a centralized resolution procedure by the SRB. Importantly, for those Member States not participating in the banking union, the BRRD leaves the resolution authority and the funding of resolution actions in the hands of the national authorities.[100]

However, one important limitation in the EU approach to bank resolution stems from the so-called "public interest test," which essentially determines whether a bank will be subject to a SRB resolution procedure or be liquidated at the national level by domestic courts and authorities.[101] The public interest test is codified in Article 32(5) BRRD and Article 18(5) SRMR. It states that a firm will be resolved by the SRB if "necessary for the achievement of, and . . . proportionate to one or more of the resolution objectives . . . and winding up the entity under normal insolvency proceedings would not meet those resolution objectives to the same extent…"[102] The public interest test is thus informed by (i) resolution objectives and (ii) the configuration of national insolvency proceedings.[103] To understand the EU resolution mechanism, we

[98] *See* Council Regulation 1024/2013, art. 6(4), Conferring Specific Tasks on the European Central Bank Concerning Policies Relating to the Prudential Supervision of Credit Institutions, 2013 O.J. (L 287/63) [hereinafter CRR] (conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions).

[99] *See* SRMR, *supra* note 48, at Art. 18(5); BRRD, *supra* note 47, at Art. 32(5). The SRB has recently published a guidance on its assessment of the public interest test, see Single Resolution Bd., *Public Interest Assessment: SRB Approach* (June 28, 2019), https://srb.europa.eu/sites/srbsite/files/2019-06-28_draft_pia_paper_v12.pdf. If the public interest test is negative, then the bank will be liquidated under the authority of the national resolution authority or the relevant national courts.

[100] *See* Gordon & Ringe, *supra* note 10, at 1306.

[101] For the SRB's approach to the public interest test, see Single Resolution Bd., *supra* note 99. For a discussion of the role the public interest test plays in the EU resolution framework, see Silvia Merler, *Bank Liquidation in the European Union: Clarification Needed*, Bruegel Policy Contribution, Issue No. 32 (Dec. 2017), http://bruegel.org/wp-content/uploads/2018/01/PC-32_2017.pdf (noting that "European Union frameworks for dealing with banking problems, resolution of banks is seen as an exception to be activated only if liquidation under national insolvency proceedings would not be warranted."). For a legal analysis of the public interest test, see Jens-Heinrich Binder, *Proportionality at the Resolution Stage: Calibration of Resolution Measures and the Public Interest Test*, 21 EUR. BUS. ORG. L. REV. 453, 473 (2019) (concluding that "the application of the principle can be expected to be fraught by national biases, which could result in economically inefficient results and/or in infringement of stakeholder rights that are not justified by objective systemic stability concerns.").

[102] Single Resolution Bd., *supra* note 99.

[103] "Normal insolvency proceedings" means "collective insolvency proceedings which entail the partial or total divestment of a debtor and the appointment of a liquidator or an administrator normally applicable to institutions under national law and either specific to

need to take a closer look at both concepts.

The resolution objectives epitomize policymakers' core ideas about mitigating the effects of future systemic financial crises, with a strong emphasis on protecting both taxpayer funds and financial stability. Specifically, the BRRD and the SRMR set out the following objectives of bank resolution:

- ensure the continuity of critical functions;
- avoid significant adverse effects on financial stability, in particular by preventing contagion, including to market infrastructure, and by maintaining market discipline;
- protect public funds by minimizing reliance on extraordinary public financial support;
- protect depositors covered by Directive 2014/49/EU8 and investors covered by Directive 97/9/EC; and
- protect client funds and client assets. [104]

So long as these objectives can be met through the application of normal insolvency proceedings at the Member State level, the SRB has no jurisdiction over a bank failure. Since most national insolvency frameworks only allow for bank *liquidation* rather than resolution, the public interest decision is momentous, especially since bank liquidations very often require the use of taxpayer money.[105] Indeed, the structure and logic of the European resolution framework have resulted, at least to some extent[106], in an odd outcome. While several financial institutions failed since the SRB's establishment in 2014, only one bank was actually subject to a resolution

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those institutions or generally applicable to any natural or legal person." BRRD Art. 47(2). Hence, a normal insolvency proceeding is a national insolvency proceeding.

[104] SRMR art. 14(2); BRRD Art. 31(2). For a discussion of the resolution objectives, see Nikoletta Kleftouri, *European Union Bank Resolution Framework: Can the Objective of Financial Stability Ensure Consistency in Resolution Authorities' Decisions?*, 18 ERA FORUM 263 (2017) (analyzing the trade-offs between ensuring the financial stability objective and implementing consistent resolution decisions across different EU jurisdictions).

[105] Fernando Restoy, Chairman of the Financial Stability Institute, describes another related problem: "conditions for entry into national insolvency procedures are often based on balance sheet insolvency or failure to meet obligations, which may not coincide with the trigger for resolution. Accordingly, banks that are considered failing or likely to fail by the ECB but do not meet the public interest threshold for resolution could only be subject to liquidation if they meet the conditions established by the national insolvency regimes. When this does not occur for a failing bank, there is simply no established legal procedure to manage its failure." *See* Restoy, *supra* note 23, at 4.

[106] The political dimension, and in particular the resistance to bail-in and the implications of applying resolution tools, should also not be underestimated. For a discussion of the political economy behind the European resolution framework, *see* DAVID HOWARTH & LUCIA QUAGLIA, THE POLITICAL ECONOMY OF EUROPEAN BANKING UNION (OXFORD UNIVERSITY PRESS, 2016).

procedure by the SRB.[107] Indeed, the handling of several bank failures in Italy, where large regional lenders were sustained with taxpayer funds rather than resolved under the auspices of the ECB, prompted harsh criticism by academics and policymakers.[108]

The fact that in Europe resolution is the exception rather than the rule is a crucial insight for the purposes of this Article, as it directly affects the *funding* of bank failures. As I will further explain in the subsequent sections, in the EU temporary public sector liquidity provision for failing financial firms are bound to the type of procedure applied in the specific case. For instance, if the SRB is in charge, the industry-funded SRF may be tapped to provide a first tranche of bridge financing. By contrast, if a bank is liquidated at the national level, the domestic fiscal authority will have to do the heavy lifting. A similar dichotomy applies to the availability of ECB liquidity versus such provided by national central banks, albeit with some nuances.

Table 2: Overview of resolution regimes in the U.S. and the EU

	United States	**European Union**
Resolution institutions	- FDIC - OLF	- SRB - National resolution authorities (NRAs)
Eligible institutions	- SIFIs under DFA - Insured depository institutions (IDIs) under FDI Act	- Credit institutions, investment firms (with initial capital > €730,000), financial holding companies established in the EU, and subsidiaries supervised on a consolidated basis

[107] Even this resolution was not seen as a heroic act by most observers. *See* Thomas Hale, *Revisiting Banco Popular (Again)*, FIN. TIM., (Dec. 20, 2019), https://ftalphaville.ft.com/2019/12/20/1576838320000/Revisiting-Banco-Popular--again-/ (concluding that "when it comes to how you do out of bank resolution, it looks like the politics trump finance."). For a more in-depth analysis of the (mal-)functioning of the European bank resolution framework, see GELPERN & VERON, *supra* note 23.

[108] *See* Shawn Donelly & Ioannis G. Asimakopoulos, *Bending and Breaking the Single Resolution Mechanism: The Case of Italy*, 58 J. COMM. MKT. STUD. 856, 869 (2020) (analyzing the cases of Monte dei Paschi di Siena, Veneto Banca and Banca Popolare di Vicenza and concluding that "a series of choices made by Italian banks and government that bent EU law for the purpose of keeping banks afloat by any means necessary.").

Resolution triggers	- Under FDI Act: a wide range of triggers - Under DFA: Treasury Secretary must determine a systemic financial company is in default or in danger of default	Three conditions must be met: (a) the institution must be failing or likely to fail, (b) there is no reasonable expectation that any alternative private sector measure or supervisory action could prevent failure in a reasonable time, and (c) resolution is necessary in the public interest

III. LIQUIDITY IN RESOLUTION – SOURCES AND CONSTRAINTS

After explaining the key aspects of resolution in the United States and Europe, this section zooms in on the core issue this Article analyzes: liquidity in resolution. The section first explains why sufficient liquidity, i.e., short-term funding, is critical for the success of resolution actions before analyzing the four potential sources of liquidity in the United States and the euro area: (i) market funding, (ii) central bank facilities, (iii) resolution funds, and (iv) other sources of public sector funding. This comparison reveals that market funding is likely to be unavailable or insufficient. Central banks have a limited LOLR function in resolution, and resolution funds may not fill the funding gap that the absence of access to central bank facilities leaves. Indeed, from the central bank's perspective, resolution equals insolvency, with all the implications this has for discount window operations. Hence, as soon as a bank is deemed non-viable (in the United States) or FOLTF (in Europe), the central bank is out of the game.

Moreover, resolution funds both in the United States and Europe might not be sufficient in size, access may be too limited and procedural obstacles may be too onerous, rendering them an imperfect source for fast and effective liquidity relief in resolution. Coupled with the lack of central bank funding, the liability side of the firm's balance sheet and especially the short-term obligations come under enormous strain, thereby increasing pressure on supervisory and resolution authorities to delay putting a bank into resolution. Consequently, the noble and important aim of protecting taxpayer funds while safeguarding financial stability by means of dedicated resolution regimes may, ultimately, not be feasible.

While ideally resolution procedures can ensure that "liquidity assistance loses the taint of 'bailout,'" as Tucker[109] contends, the risk of running short-term creditors has not been eliminated. The March 2020 turmoil in the U.S. money market, which was triggered by the COVID-19 pandemic, serves as yet another cautionary tale.[110] By dissecting the sources of liquidity that are, or are not, available, this section seeks to substantiate the hypothesis that, absent a backstop to shore up short-term funding, the post-GFC resolution framework may not be sufficiently robust to ensure orderly resolution actions.[111] This said, there are important differences between the United States and the European framework for liquidity in resolution, which are described in this section and analyzed in detail in the next section.

A. *The Need for Adequate Resolution Funding*

Both in Europe and the United States, the post-crisis resolution frameworks seek to square the circle: avoid taxpayer-funded bailouts while maintaining financial stability. Most policymakers[112], but also academics[113], acknowledge that resolution of large financial institutions *without* any form of public sector backstop is likely to undermine the stability of the financial sector. Liquidity provided by the official sector during and immediately after resolution could prove vital for the individual firm's survival, as well as the efficacy of the post-crisis resolution frameworks. Liquidity is like the oil in a car engine. Even if whila resolution procedure significantly downsizes the institution's balance sheet, certain crucial operations will require constant lubrication. This lubrication comes from short-term lenders. But what if they

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[109] Paul Tucker, *The Design and Governance of Financial Stability Regimes: A Common-Resource Problem That Challenges Technical Know-How, Democratic Accountability and International Coordination*, 3 CIGI ESSAYS ON INT'L FIN., Sept. 2016, at 4.

[110] *See* Governor Lael Brainard, *Some Preliminary Financial Stability Lessons from the Covid-19 Shock*, Speech at the 2021 Annual Washington Conference, Institute of International Bankers (webcast), https://www,federalreserve.gov/newsevents/speech/branard20210301a.html (noting that "[t]he COVID shock also highlighted the structural vulnerabilities associated with the funding risk of other investment vehicles that offer daily liquidity while investing in less-liquid assets, such as corporate bonds, bank loans, and municipal debt.")

[111] For a recent analysis of frameworks to address liquidity challenges during resolution in five major jurisdictions, see Sebastian Grund, Nele Nomm & Florian Walch, *Liquidity in Resolution: Comparing Frameworks for Liquidity Provision Across Jurisdictions*, ECB OCCASIONAL PAPER SERIES NO. 251, Dec. 2020, at 13.

[112] While the focus of the FSB KAs lies on forestalling moral hazard in the financial industry, and the associated TBTF problems, they also emphasize the need for temporary public funding mechanisms. *See* Fin. Stability Bd, *supra* note 24.

[113] *See* Gordon & Roe, *supra* note 90 (noting that "[e]ven if some failed institutions could move through a robust bankruptcy process, the American economy will need a coordinated response, particularly if the entire financial system suffers a panic or lack of liquidity.").

no longer want to inject oil into the engine?[114] Then, the very problem that policymakers sought to avoid when they established resolution regimes may occur: a financial piston seizure.

The literature broadly supports and underscores the significance of liquidity in resolution. Massman, for instance, contends "liquidity is arguably one of the most essential aspects to the successful resolution of a SIFI."[115] The European Systemic Risk Board posits that "[b]ank resolution requires funding, [because] even if investors are held liable, funding is needed for operations that are to be maintained for purposes of protecting the system."[116] Gordon and Ringe note that "funding is crucial for the early operations of the new bridge bank or the reorganized firm", while adding that such funding "ought to be in the form of liquidity provisions at a time when private sources are closed to the resolving bank, not a bailout."[117]

Returning to the more normative aspects, as briefly mentioned above[118], the FSB has made comprehensive recommendations with respect to the funding of firms in resolution.[119] Specifically, FSB KA 6 outlines in broad brushstrokes what national authorities should consider when designing such funding arrangements. The thrust of FSB KA 6 is that funding arrangements ought not to interfere with resolution actions, but rather support them. To that end, funding should temporarily allow for the maintenance of essential functions that are needed to accomplish orderly resolution.[120] Perhaps, the most important element of the FSB's strategy is that authorities should be able to recoup any losses incurred by the resolution authority from shareholders and unsecured creditors or, if necessary, from the financial system more widely.[121]

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[114] For an explanation rooted in economic theory as to why short-term creditors may opt to run, see Christoph Pérignon, David Thesmar & Guillaume Vuillemey, *Wholesale Funding Dry-Ups*, 73(2) J. FIN. 575 (2018) (showing that "during periods of market stress, banks with high future performance tend to increase reliance on wholesale funding.").
[115] Massman, *supra* note 30, at 650 (further noting that "the OLF provides a necessary backstop to prevent such credit runs from destroying an otherwise viable reorganization by guaranteeing a SIFI access to liquidity.").
[116] EUROPEAN SYSTEMIC RISK BOARD, FORBEARANCE, RESOLUTION AND DEPOSIT INSURANCE 1 (2012), https://www.esrb.europa.eu/pub/pdf/asc/Reports_ASC_1_1207.pdf.
[117] Gordon & Ringe, *supra* note 10, at 1353.
[118] *See supra* Section II.C.
[119] *See* Fin. Stability Bd., *supra* note 24.
[120] *Id.* at 12.
[121] *Id*. (FSB KA 6.4 stating that, in order to alleviate moral hazard concerns, any provision of temporary liquidity to firms in or after resolution should include (i) a determination that the liquidity injection is "necessary to foster financial stability and will permit the implementation of a resolution option that is best able to achieve the objectives of an orderly resolution," and "(ii) the allocation of losses to equity holders and residual costs to unsecured and uninsured creditors and the industry through ex-post assessments, insurance premium or other mechanisms.").

In 2018, the FSB further specified FSB KA 6 with a guidance entitled "Funding Strategy Elements of an Implementable Resolution Plan."[122] Neither U.S. nor European lawmakers or regulators have followed all of the FSB's recommendations, especially when it comes to the disclosure of information as to how the temporary public sector funding frameworks are supposed to work.[123] In the subsequent sections, I will zoom in on the different sources of funding during and after resolution, focusing on the differences between the United States and Europe.

B. *Market Funding in Resolution*

Notwithstanding the focus on public sector backstops, the first, and perhaps most obvious, source for resolution funding should be private markets. After all, liquidity gaps in resolution will only arise if there is no (short-term) funding available in the market. If a firm is able to access liquidity there, why even think about putting public money at risk? Clearly, financial institutions themselves favor funding from private sources. Especially in good times, private money is not only cheaper, there is also a stigma associated with discount window lending.[124] Even at the onset of the GFC in 2007, banks were reluctant to borrow from the central bank when their liquidity situation deteriorated – nothing was considered more fatal than being considered "weak" by other market participants or regulators.[125]

But market funding is *not* always available, especially when it is most needed.[126] In any market-based system, asset prices *can* collapse and,

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[122] FIN. STABILITY BD., FUNDING STRATEGY ELEMENTS OF AN IMPLEMENTABLE RESOLUTION PLAN 15 (2018) (recommending, in essence, that authorities should: (i) identify the temporary public sector mechanisms that could be used by firms in resolution where necessary and appropriate, (ii) identify the operational requirements, eligibility criteria and actions required to access the relevant temporary public sector backstops, (iii) develop exit strategies, (iv) identify measures to promote the continuity of access by material operating entities of a firm in resolution to ordinary central bank facilities, and (v) publicly disclose information on the framework for temporary funding mechanisms).

[123] For an analysis of the implementation of the FSB KAs in Europe, see Coleman et al., *Measuring the Implementation of the FSB Key Attributes of Effective Resolution Regimes for Financial Institutions in the European Union*, 1238 BOARD OF GOVERNORS OF THE FED. RES. SYS. INT'L FIN. DISCUSSION PAPERS, 27 (2018) (concluding that "the BRRD either varies from the FSB Key Attributes or allows variation at the Member State level" in multiple areas).

[124] *See* Olivier Armantier et al., *History of Discount Window Stigma*, LIBERTY STREET ECON. (Aug. 10, 2015), https://libertystreeteconomics.newyorkfed.org/2015/08/history-of-discount-window-stigma.html.

[125] For empirical evidence on discount window lending, see Olivier Armantier et al., *Discount Window Stigma During the 2007-2008 Financial Crisis*, 118 J. FIN. ECON. 317, 332 (2015) (concluding that "because DW [discount window] stigma is a latent variable that can vary with market conditions and across banks, it is difficult to predict the extent to which the DW rate needs to be adjusted to promote or deter DW borrowing").

[126] *See* Pérignon et al., *supra* note 112.

consequently, funding *can* dry up. For financial firms whose business model is typical maturity transformation, a liquidity crunch can be lethal. We have witnessed these dynamics twice in the last twelve years: the post-Lehman shock in September 2008[127] and the market freezing related to the COVID-19 pandemic in March 2020.[128] Both examples illustrate that a liquidity crunch can originate inside and outside the financial system; both crises required the Fed in the United States[129] and the ECB in the euro area[130] to take unprecedented steps to substitute market with central bank funding. In this context, Min points out that "[e]very significant market indicator that might have been relied upon by banking regulators utilizing the theory of market discipline—uninsured deposit rates, bank subordinated debt rates, interbank lending rates, credit default swap prices, and many others— failed to provide any indication of elevated levels of risk until after the 2007–2008 crisis had already started, at which point it was too late for regulators to react effectively."[131]

But can we quantify the *actual* funding that a firm might require during and immediately after resolution?[132] Unfortunately, the data is scarce, estimates are notoriously prone to wrong assumptions, and there are basically no precedents of resolving a large financial institution with the tools devised in the wake of the GFC.[133]

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[127] *See* Markus K. Brunnermeier, *Deciphering the Liquidity and Credit Crunch 2007-2008*, 23 J. ECON. PERSP. 77, 89-90 (2009).

[128] *See Why America's Financial Plumbing Has Seized Up*, THE ECONOMIST (Mar. 21, 2020), https://www.economist.com/finance-and-economics/2020/03/21/why-americas-financial-plumbing-has-seized-up (noting that "[f]unding strains have emerged across markets globally.").

[129] For an overview of Federal Reserve measures in the wake of the COVID-19 pandemic, see *The Federal Reserve's Actions to Address the Coronavirus Crisis*, DAVIS POLK & WARDWELL LLP (Apr. 13, 2020), https://www.davispolk.com/publications/summary-table-federal-reserves-actions-address-coronavirus-crisis.

[130] *See* Isabel Schnabel, ECB Exec. Bd. Member, The ECB's Response to the COVID-19 Pandemic (Apr. 16, 2020) (transcript available at https://www.ecb.europa.eu/press/key/date/2020/html/ecb.sp200416~4d6bd9b9c0.en.html).

[131] David Min, *Understanding the Failures of Market Discipline*, 92 WASH. U. L. REV. 1421, 1426 (2015) (further noting that "[i]nvestor and market reactions did not, as many advocates of market discipline predicted, prevent the buildup of risk that caused the crisis, a fact that is fairly indisputable.").

[132] Between 2018 and 2019, the author was part of a task-force at the Council of the EU that sought to estimate the liquidity needs of European banks going through resolution and derive policy conclusions from it.

[133] In addition, the size of liquidity demands is directly influenced by the resolution strategy the FDIC or the SRB opt for. If, for instance, the resolution authority finds a buyer for the distressed firm, and that buyer has access to market funding or the discount window, there may be no liquidity gaps. In the first and only SRB resolution case so far, this is precisely what happened. A larger bank, Santander, decided to purchase the firm in resolution, Banco Popular, for one euro. Since Santander had access to liquidity sources, resolution funding problems never arose. *See* Economic Governance Support Unit, *The Resolution of Banco*

What is clear is that banks' short-term liabilities, be it through consumer and corporate deposits or short-term wholesale funding, are still significant. For instance, a recent paper by Balke and Wahrenburg shows that "the share of short-term corporate deposits, i.e. deposits with maturities of up to one year . . . constituted almost 30 percent of the total liabilities of German banks, which has doubled since shortly before the global financial crisis."[134] A study for the European Parliament shows that, during the GFC, a large financial institution's liquidity needs in the first days of a resolution could exceed EUR100 billion.[135] According to an ECB study, "[d]uring the 2008-2009 crisis period, European banks in our sample on average used a total of EUR460 billion of public liquidity."[136] The SRB doubts that, under the current legal and operational framework, it will be able to provide sufficient liquidity support to a failing bank.[137] The concerns are that with SRF's total steady-state volume at EUR60 billion, a single bank failure may overwhelm the resolution fund.[138] A more recent ECB study reached similar conclusions, showing that in a systemic crisis, which involves the simultaneous resolution of two G-SIBs, liquidity gaps would range from EUR2.7 billion to almost EUR150 billion.[139]

There is, however, an important regulatory enhancement that could alleviate funding constraints during resolution. As part of the Basel III updates, U.S. and European authorities introduced a mandatory Liquidity Coverage Ratio (LCR) for certain significant credit institutions.[140] Randall Guynn, counsel to several major U.S. banks, for instance notes that U.S. G-SIBs have three times more liquid assets now compared to 2008 and that calculations of Resolution Liquidity Execution Need (RLEN)[141] in living

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Popular, EUR. PARL. (Aug. 19, 2017), https://www.europarl.europa.eu/RegData/etudes/BRIE/2017/602093/IPOL_BRI%282017%29602093_EN.pdf.

[134] Balke & Wahrenburg, *supra* note 14, at 6.

[135] Willem Pieter de Groen, *Financing Bank Resolution: An Alternative Solution for Arranging the Liquidity Required*, ECON. GOVERNANCE SUPPORT UNIT https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/624423/IPOL_IDA(2018)624423_EN.pdf (last accessed Mar. 11, 2021).

[136] Marie Hoerova et al., *Benefits and Costs of Liquidity Regulation* 4 (ECB, Working Paper Series, Paper No. 2169, 2018), https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2169.en.pdf.

[137] *See* König, *supra* note 40.

[138] Amamou et al., *supra* note 13, at 30.

[139] *Id.*

[140] *See* Basel Comm. on Banking Supervision, *Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools*, BANK FOR INT'L SETTLEMENTS (2013), https://www.bis.org/publ/bcbs238.pdf.

[141] Resolution Liquidity Execution Need equals the projected liquidity needs of each Material Entity following a bank holding company's chapter 11 filing to cover net liquidity outflows until liquidity levels stabilize.

wills underscore the sufficiency of resolution funds.[142] The American Bankers Association similarly contends that "a large banking organization with a sufficiently high proportion of liquid assets will be able to more effectively deal with counterparties in a manner that could forestall run-type dynamics from undermining a successful resolution."[143]

However, there may be reasons to believe that the LCR will not in fact improve the availability of resolution funding in the system. At least three different problems have been identified with respect to the LCR's ability to mitigate banks' liquidity needs.

First, the requirement to hold High Quality Liquid Assets (HQLA) for 30 days may still be insufficient in a severe downturn, when funding markets dry up for several months and highly-liquid assets become worthless. The financial mayhem caused by the COVID-19 pandemic, the extent of which we are only beginning to grasp, once again shows that unexpected "black swan" events[144] *can* occur. Of course, regulators cannot design a system that prepares for all contingencies, just like insurance will not be able to cover all types of "black swan" events. Still, even without a pandemic, the LCR's requirements could prove inadequate to insure against certain idiosyncratic shocks. Notably, as an ECB staff paper concludes, "the evidence suggests that liquidity regulations (at least as currently specified) would not have prevented the need for large public liquidity assistance for European banks", reducing the overall amount of public sector liquidity by less than ten percent.[145]

The second potential problem with the LCR is that drawing down liquidity *before* a bank reaches non-viability could amplify liquidity needs in a subsequent resolution. Stein, argues that – for macroprudential purposes – it would be important to allow banks to let the LCR fall below 100 percent.[146] But, if the buffers are gone, the size of LOLR interventions might

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[142] Randall D. Guynn, "*Single Point of Entry" Resolution Strategy for U.S. Global Systemically Important Banking Groups (G-SIBs)*, Panel on Crisis Management: Are we ready to handle failures? 18th Annual International Conference on Policy Challenges for the Financial Sector World Bank – IMF – Federal Reserve (Jun 6, 2018), http://pubdocs.worldbank.org/en/857691528991163692/Guynn-DavisPolk-Session-Two.pdf.

[143] *See* Comment Letter from Cecelia Calaby, Senior Vice President & Head Regulatory Counsel, Am. Bankers Ass'n, on Fin. Stability Bd. Summary Terms of Reference, evaluation of "Too-Big-to-Fail" Reforms to Fin. Stability Bd. 11 (Jun. 28, 2019), https://www.fsb.org/wp-content/uploads/American-Bankers-Association.pdf.

[144] *See* NASSIM NICHOLAS TALEB, THE BLACK SWAN, at xvii-xviii (2010) (defining a "black swan" event as being rare, extreme in its impact, and retrospectively predictable).

[145] Hoerova et al., *supra* note 134, at 4.

[146] *See* Jeremy C. Stein, member, Bd. of Governors of the Federal Reserve System, Liquidity Regulation and Central Banking at the Federal Reserve Bank of Richmond 2013 Credit Markets Symposium: "Finding the Right Balance" 15 (Apr. 19, 2013) (transcript available at https://www.federalreserve.gov/newsevents/speech/stein20130419a.htm). Others contradict

have to be larger, as would public sector assistance during resolution.[147] While the decision to draw down the LCR may provide immediate relief to a firm, a premature sale of HQLA may end up making things worse down the road. This is precisely the problem that policymakers seem to be concerned about. As a Fed staff paper notes, regarding the interplay of the LCR and resolution, "the liquidity buffer should be used to gain sufficient time to arrange an orderly resolution (by the institution itself or the authorities) to the underlying problem."[148] This view somewhat contradicts the argument Stein advances for drawing down the LCR at times of stress. Unsurprisingly, the debate flared up in a matter of days when the COVID-19 pandemic hit the U.S. financial system.[149]

The third reason why the new liquidity standards may be sub-optimal as a tool is that certain large financial institutions might hoard HQLA when they are most needed by other banks or financial institutions. Supervisory regulatory and supervisory guidance on LCR drawdowns is ambiguous and getting anywhere close to the 100 percent limit could make banks seem weak among their peers. From a microprudential viewpoint, this might make sense, as it would tame individual risk-taking and avoid running depositors whose confidence tends to disappear together with the availability of good assets.[150] However, especially in the case of G-SIBs, liquidity hoarding can have serious and destabilizing implications at the macro level. The argument here is not so much that the individual liquidity-hoarding bank would face funding constraints in a potential resolution; rather, short-term market funding for other players could be limited, thereby possibly increasing the pressure on the official sector – be it the central bank or the resolution authority – to do more on the liquidity front. The concerns associated with this narrative are also fueled by the sudden disruptions in the repo market

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Stein's view, arguing that liquidity buffers could tame banks' risk-taking incentives and stem depositors' incentives to run. *See* Charles W. Calomiris et al., A Theory of Bank Liquidity Requirements 1, 3 (Columbia Business Sch. Research Paper No 14-39, 2014), https://www0.gsb.columbia.edu/faculty/ccalomiris/papers/Theory%20of%20Bank%20Liquidity%20Requirements.pdf. For a comprehensive literature review, see Hoerova et al., *supra* note 134, at 31-34.

[147] For a discussion of the trade-off between liquidity regulation and LOLR interventions, see Stein, *supra* note 144.

[148] Mark Carlson, Burcu Duygan-Bump & William Nelson, *Why Do We Need Both Liquidity Regulations and a Lender of Last Resort? A Perspective from Federal Reserve Lending During the 2007-09 U.S. Financial Crisis*, BD OF GOVERNORS OF THE FED. RESERVE SYSTEM (2015) https://pdfs.semanticscholar.org/8126/2c7d07c2fcefdc8775e83421c0a7d7d59f19.pdf.

[149] *See* Nellie Liang, *The Fed should clarify how banks can deploy capital and liquidity*, Brookings (Mar. 20, 2020), https://www.brookings.edu/blog/up-front/2020/03/20/the-fed-should-clarify-how-banks-can-deploy-capital-and-liquidity/ (noting that "it's unclear to banks how much they can safely draw on their liquidity buffers.").

[150] *See* Calomiris et al., *supra* note 144, at 1, 3.

during 2019.[151] Here, a narrative emerged that large banks may not be willing to meet increased cash demands in the repo markets so as to avoid any reduction in available HQLA.[152]

To be sure, absent any case of this sort, the precise interaction between the LCR and orderly resolution remains speculative. What is clear is that higher liquidity requirements, for different reasons, may not be a perfect substitute to an appropriate funding mechanism during resolution actions. This brings me to the core of this section: the public sources that may be tapped for the purpose of liquidity during resolution.

C. *Central Bank Lending*

Since the heydays of modern finance, central banks have played an essential role in mitigating the adverse effects of financial crises. In a system of fractional reserve banking system, the central bank's LOLR function is critical to prevent a panic-induced collapse.[153]

As early as 1797, Sir Francis Baring, the father of the LOLR concept, advocated that commercial banks should be able to obtain liquidity from central banks in times of crisis.[154] The English economist Henry Thornton expanded Baring's concepts, and first mentioned the moral hazard problem associated with central banks liquidity provision.[155] But, as Humphrey and Keheler note, it was Walter Bagehot who "put the capstone on the 19th-century debate concerning the domestic LOLR."[156] In his seminal piece "Lombard Street", Bagehot emphasized the Bank of England's unique position as the "holder of the ultimate reserve" and hence, the ultimate creator of (fiat) money.[157] Bagehot's LOLR concept rests on four principles: (i) lending at a penalty; (ii) *ex-ante* clarity about central bank's readiness to lend freely; (iii) lending against good collateral; and (iv) eligibility limited

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[151] *See* Liz Capo McCormick & Alexandra Harris, *The Repo Market's a Mess. (What's the Repo Market?)*, BLOOMBERG (Sep. 19, 2019), https://www.bloomberg.com/news/articles/2019-09-19/the-repo-market-s-a-mess-what-s-the-repo-market-quicktake?sref=OiUWCOM0.

[152] *See, e.g.,* Jack McCabe and Alison Touhey, *Bank Liquidity and the Repo Market*, ABA BANKING JOURNAL (Sep. 24, 2019), https://bankingjournal.aba.com/2019/09/bank-liquidity-and-the-repo-market/.

[153] *See* Thomas M. Humphrey & Robert E. Keleher, *The Lender of Last Resort: A Historical Perspective*, 4 CATO J. 275, 277 (1984).

[154] For an early conception of the Bank of England's LOLR function, see SIR FRANCIS BARING, OBSERVATIONS ON THE ESTABLISHMENT OF THE BANK OF ENGLAND AND ON THE PAPER CIRCULATION OF THE COUNTRY (LONDON: MINERVA PRESS, 1797).

[155] *See generally* HENRY THORNTON, AN ENQUIRY INTO THE NATURE AND EFFECTS OF THE PAPER CREDIT OF GREAT BRITAIN (F.A. Hayek ed., 1st ed. 1939).

[156] Humphrey & Keleher, *supra* note 151 , at 297. For the original work, see WALTER BAGEHOT, LOMBARD STREET: A DESCRIPTION OF THE MONEY MARKET (London, Henry S. King & Co., 3rd ed. 1873).

[157] Humphrey and Keheler, *supra* note 151, at 298.

to illiquid but solvent banks.[158]

While alternative views on central banks' LOLR function have developed in the course of the 20th and 21st century,[159] there is little doubt regarding the critical role of central banks during banking crises. The specific evolution this Article focuses on is also the most recent one. With the advent of new resolution regimes in the aftermath of the GFC, and the corresponding commitment to restrict the use of public money in banking crises, the scope of LOLR activities has been subject to important changes.[160] While many experts would not consider central banks' LOLR as "public assistance" in the narrow sense of the word[161], the thrust of the political reforms in the wake of the GFC was to curtail the provision of *any* official sector money. And, as the former President of the New York Federal Reserve Bank acknowledged, "the scale and scope of [the Fed's] interventions went considerably further than envisioned by the public and Congress prior to the crisis."[162]

Rather than delving deeper into the current state of the Fed and ECB's LOLR functions, which have been discussed in detail elsewhere[163], this section will concentrate on the specific relationship between LOLR activities

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[158] BAGEHOT, *supra* note 154, at 31-32, 55, 88.

[159] For an insightful overview of the different LOLR theories see Michael Bordo, *The Lender of Last Resort: Alternative Views and Historical Experience*, ECON. REV. 18, 19-22 (1990) (describing four alternative views on the LOLR function: (i) the classical view; (ii) the Goodfriend and Kind view; (iii) the Goodhart view; and (iv) the free banking approach).

[160] *See* Ed Balls et al., C*entral Bank Independence Revisited: After the Financial Crisis, What*
Should a Model Central Bank Look Like? 48-49 (Harvard Kennedy Sch. M-RCBG Associate Working Paper Series, Paper No. 87, 2018),
https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/working.papers/x87_final.pdf.

[161] This view aligns with the European Commission's official position, according to which central bank support is *not* public assistance, if "(a) the credit institution is temporarily illiquid but solvent at the moment of the liquidity provision […]; (b) the facility is fully secured by collateral to which appropriate haircuts are applied, in function of its quality and market value; (c) the central bank charges a penal interest rate to the beneficiary; (d) the measure is taken at the central bank's own initiative, and in particular is not backed by any counter-guarantee of the State." *See* 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 ('Banking Communication'), 2013 O.J. (C 216) 1.

[162] *See* William C. Dudley, President and C.E.O., Fed. Reserve Bank of N.Y., The Role of the Federal Reserve – Lessons from Financial Crises at the Annual Meeting of the Virginia Association of Economists (Mar. 31, 2016) (transcript available at https://www.newyorkfed.org/newsevents/speeches/2016/dud160331#footnote14) (but also noting that "any critique of the Fed or other agencies should be focused more on the regulatory and supervisory shortcomings—some of which, I admit, were ours—that created the economic and financial market circumstances in which the Fed's extraordinary interventions proved necessary.").

[163] *See generally* Marc Dobler et al., *The Lender of Last Resort Function after the Global Financial Crisis* (IMF Working Paper, Paper No. WP /16/10, 2016), https://www.imf.org/external/pubs/ft/wp/2016/wp1610.pdf.

and the new resolution frameworks. As a recent IMF study correctly highlights, "the application of the Bagehot principles to a new financial world, at an operational level, have proven to be particularly complex."[164] The next two section will comparatively examine the Fed and ECB's respective authority to provide liquidity in resolution, concluding that both central banks are, in principle, barred from taking any role as lender once a bank has become non-viable.

1. United States

In essence, U.S. depository institutions have access to four types of discount window credit: primary credit; secondary credit; seasonal credit; and emergency credit.[165] While primary credit is available to sound depository institutions, weaker firms may obtain secondary credit. Emergency credit is only available in unusual exigent circumstances in a program or facility with broad-based eligibility.[166] The Fed's discount window is codified in Regulation A.[167] Perhaps the most important limitation on discount window lending by the Fed is that the depository institution must be viable, i.e., not insolvent.[168] The institution is deemed viable if:

> the Board of Governors or the appropriate federal banking agency has determined, giving due regard to the economic conditions and circumstances in the market in which the institution operates, that the institution is not critically undercapitalized, is not expected to become critically undercapitalized, and is not expected to be placed in conservatorship or receivership.[169]

The viability requirement also applies to any emergency credit program of the Fed under § 13(3) of the Federal Reserve Act (FRA).[170] To recall, § 13(3) of the FRA has always been contentious, notably because it was used by the Fed in the 2007-08 financial crisis to extend credit to non-depository financial institutions.[171] When § 13(3) of the FRA was invoked to extend credit to AIG and other financial firms, views diverged on whether some of

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[164] *Id.*, at 36.
[165] *Getting Started*, FED. RESERVE, https://www.frbdiscountwindow.org/RightNavPages/Getting-Started.aspx (last visited Mar. 28, 2020).
[166] *Id*.
[167] Extensions of Credit by Federal Reserve Banks (Regulation A), 12 C.F.R. § 201.
[168] *Id.* at § 201.5(2).
[169] *Id.* at § 201.2(f).
[170] *Id.* at § 201.4(d).
[171] For a historical and political analysis of Section 13(3) of the FRA, see Parinitha Sastry, *The Political Origins of Section 13(3) of the Federal Reserve Act*, 24 FRBNY ECON. POL'Y. REV. 1, 3 (2018).

these institutions were insolvent. As Levitin notes, "the difficulty that the Fed encountered when dealing with AIG was that liquidity and solvency support bled into each other, and the Fed ultimately found itself acting in a solvency support role." [172] Fed staff makes no secret of the fact that "at times lending to troubled banks by the Federal Reserve was only authorized given the high relative cost of a disorderly failure."[173]

With the goal of avoiding such overburdening of the Fed's LOLR function, Congress sought to clarify that LOLR assistance is "for the purpose of providing liquidity to the financial system, and not to aid a failing financial company."[174] Moreover, the Final Rule promulgated by the Fed provides that "the program or facility must not be designed for the purpose of assisting one or more specific companies to avoid bankruptcy or other resolution."[175] The rationale behind those reforms was that the existence of an orderly resolution procedure would avoid an AIG/Lehman type dilemma, where the Fed could be forced to take significant credit risks to avoid massive disruptions in financial markets.[176] From this, it follows that §13(3) of the FRA is an unlikely legal basis for a Fed liquidity program that could "foam the runway" *during* a resolution procedure.[177] Indeed, such a reading would run counter

[172] For an analysis of the AIG case see Adam J. Levitin, *In Defense of Bailouts*, 99 GEO L.J. 435, 498-499 (2011) (further positing that "[t]his sort of disregard for the law in times of crisis can be fairly criticized, but binding ourselves to eschew LOLR behavior would amount to an economic suicide pact.").
[173] Carlson & Rose, *supra* note 28.
[174] MARC LABONTE, CONG. RESEARCH SERV., R44185, FEDERAL RESERVE: EMERGENCY LENDING 18 (2020). During the hearings on the restructuring of the U.S. framework for financial regulation in the wake of the GFC, members of the House Committee on Financial Services expressed deep discomfort with the Federal Reserve's role during the crisis. For instance, Congressman Spencer Bachus (R-Ala.) noted that "we particularly object to what we see is allowing the Fed to become a permanent bailout agency", as this "will sacrifice their independence." *See Regulatory Restructuring: Balancing the Independence of the Federal Reserve in Monetary Policy With Systemic Risk Regulation: Hearing on H.R. 111-53 Before the Subcomm. On Domestic Monetary Policy and Technology of the H. Comm. On Financial Services*, 111th Cong. 3 (2009) (statement of Congressman Spencer Bachus, Alabama, Member H. Comm. on Fin. Serv.).
[175] 12 C.F.R. § 201.4(d)(4).
[176] *See* Carlson et al., *supra* note 146, at 19 (describing how "to prevent the failure of AIG, the Federal Reserve, with the full support of the Treasury, first extended a line of credit for up to $85 billion to assist AIG in meeting its obligations as they came due and to facilitate a process under which AIG would sell certain parts of its businesses in an orderly manner, with the least possible disruption to the overall economy.").
[177] For a similar conclusion see Johnson, *supra* note 41. This being said, in response to the COVID-19 pandemic, the Fed has established three new § 13(3) FRA facilities: (i) the Primary Market Corporate Credit Facility ("PMCCF"), intended to provide liquidity for new bond and loan issuances; (ii) the Secondary Market Corporate Credit Facility ("SMCCF"), intended to provide liquidity for outstanding corporate bonds; and (iii) the Term Asset-Backed Securities Loan Facility ("TALF"), intended to support the flow of credit to consumers and businesses. *See* SULLIVAN & CROMWELL LLP, *Federal Reserve Announces Creation of New, and Expansion of Existing, Lending Facilities and Other Actions to*

to the legislators' clear intent.

In addition, any discount window lending to a depository institution is to be made against acceptable collateral.[178] According to Regulation A, "satisfactory collateral generally includes United States government and federal-agency securities, and, if of acceptable quality, mortgage notes covering one-to four-family residences, state and local government securities, and business, consumer, and other customer notes."[179] Leaving aside the viability requirement, the need to provide adequate collateral raises the question if a financial firm subject to resolution has sufficient (unencumbered) assets to pledge to the Fed, then why borrow from the Fed? To prevent a shortage of good collateral, the monetary policy and the resolution authority would need to closely coordinate their respective strategies and decision. This said, ultimately what constitutes "satisfactory" collateral is subject to the Fed's discretion and may thus be subject to a flexible assessment during a systemic crisis.[180]

This leaves the question of how the structure and scope of the Fed's discount window impacts the availability of liquidity in a Title II resolution procedure under the OLA? Put succinctly, the strict viability requirement prohibits the Fed from engaging in any lending operations as soon as supervisors "pull the plug." As a group of 120 law professors and economists emphasized, the implication is that "the only source of public liquidity support for a failing financial firm would be through an FDIC receivership."[181] Similarly, Hofmann notes that "[i]nsolvent institutions are not eligible for any Fed funding but fall under the authority of the FDIC that decides about adequate resolution measures."[182]

Arguably, the Fed interventions in the context of the COVID-19 pandemic, which were largely based on § 13(3) of the FRA, have challenged this narrow understanding of the central bank's legal power to provide

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Support Economy in Response to COVID-19, Federal Reserve COVID-19 Response (Mar. 24, 2020), https://www.sullcrom.com/files/upload/SC-Publication-Federal-Reserve-New-and-Expanded-Lending-Facilities.pdf. Given the current pace of new developments, the paper will not further analyze actions related to the COVID-19 pandemic.

[178] 12 C.F.R. § 201.3(a)(1).

[179] *Id.* at § 201.3(a)(2).

[180] It is worth noting in this context that the new § 13(3) FRA facilities launched by the Fed in the context of the COVID-19 shock expand the list of eligible collateral considerably. The Fed, for instance, accepts asset-backed securities (ABS) where the underlying credit exposures are auto loans, student loans, or credit card receivables as well as U.S. municipal short-term debt and variable rate demand notes with a certain rating held by money market funds. *See* SULLIVAN & CROMWELL LLP, *supra* note 174, at 5, 7.

[181] *See* Gordon & Roe, *supra* note 90, at 5 (further positing that "while other liquidity channels may be possible, this is the channel that is now assured and authorized.").

[182] Christian Hofmann, *Reconsidering Central Bank Lending of Last Resort,* 19 EUR. BUS. ORG. L. REV. 883, 917 (2018).

liquidity in emergency situations.[183] However, the important caveat is that the Fed has not provided firm-level assistance during the pandemic but rather created industry-wide liquidity programs. The argument can be made that despite the massive increase of the Fed's balance sheet through §13(3) programs, the Fed has not fundamentally changed its approach to liquidity in resolution. The Fed would likely still take the backseat in a G-SIB resolution and the OLA would need to be tapped to close any liquidity gaps.

2. Euro Area

In the euro area, monetary policy functions are still split between the ECB and the EU's NCBs, collectively the European System of Central Banks (ESCB). To be sure, the ECB, as was envisaged by the currency union's founding fathers when they convened in Maastricht in 1992, plays a special and central role in the ESCB. In essence, the ECB Governing Council, where all 19 NCBs are represented and enjoy voting rights on a rotating basis, takes all monetary policy decisions for all members of the currency union. The NCBs are in charge of implementing the decisions taken at the ECB Governing Council level.[184] Similar to the Fed's discount window lending, the ECB and the euro area NCBs, i.e., the "Eurosystem", offer certain credit facilities to depository institutions, notably the main refinancing operations (MROs), but also two standing facilities, the marginal lending facility (MLF) and the deposit facility (DF).[185] As is the case in the United States, banks may not access the ECB facilities when they are *not* "financially sound."[186]

The assessment as to whether an institution is "financially sound" is conducted by the Eurosystem in its monetary policy function (rather than as a supervisor) and considers capital, leverage and liquidity ratios as well as comparable prudential information.[187] Most importantly for the purpose of

[183] In this respect, Levitin et al., note that "Section 13(3) has effectively become a discretionary fiscal program allowing the issuance of unappropriated dollars and subject to only weak congressional control." *See* Adam J. Levitin et al., *No More Bailouts: A Blueprint for a Standing Emergency Economic Resilience and Stabilization Program* 14 (The Great Democracy Initiative Preprint Research Paper, June 2020), https://ssrn.com/abstract=3639607.

[184] "The ECB shall ensure that the tasks conferred upon the ESCB under . . . the Treaty on the Functioning of the European Union are implemented . . . ." Art. 9.2 of Protocol (No. 4) on the Statute of the European System of Central Banks and the European Central Bank 2016 O.J. (C 202) 230 [hereinafter ESCB/ECB Statute].

[185] *See The Eurosystem's Instruments*, ECB, https://www.ecb.europa.eu/mopo/implement/html/index.en.html (last accessed Mar. 28, 2020).

[186] *See* arts. 55(a), (c), Guideline 2015/510 of the European Central Bank of 19 December 2015 on the Implementation of the Eurosystem Monetary Policy Framework (ECB/2014/60) (recast), 2015 O.J. (L 91) 3 [hereinafter ECB Monetary Policy Guideline].

[187] *Id.* Art. 55.

this Article, the Eurosystem limits access to its monetary policy operations if a counterparty has been deemed FOLTF and is headed into resolution.[188] Nevertheless, the Eurosystem is not automatically barred from lending in such cases, but must rather, using its discretion, limit the access that the FOLTF entities have to the pertinent facilities.[189] Yet, even if the Eurosystem continues to allow banks in resolution limited access to its facilities, the bank might not be able to post sufficient adequate collateral[190] and therefore may have to turn to emergency credit facilities.[191]

Unlike the United States, emergency liquidity assistance (ELA) in Europe is provided exclusively by the NCBs in accordance with their national legal frameworks.[192] In other words, while the ECB provides credit in normal times, the respective NCB has discretion to grant ELA. So could the NCB be the go-to option for a firm that enters into a resolution?[193] The correct answer would most likely be "it depends."

As a general rule, and in line with the traditional LOLR concept, NCBs can only lend to *solvent* firms.[194] However, the solvency criterion is not defined in the legal act governing the ECB's monetary policy operations, but in a separate agreement between the NCBs and the ECB, the "ELA agreement."[195] As Yves Mersch, ECB Executive Board member acknowledged, "[a]s regards their access to emergency liquidity assistance, the relevant central bank assesses the situation of each entity according to that central bank's national framework."[196] While the NCB must inform the

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[188] *Id*. Art. 158(3).
[189] *See* Article 158 of the ECB Monetary Policy Implementation Guideline.
[190] ESCB/ECB Statute, art. 18.2.
[191] *See* Philipp Hartman & Frank Smets, *The European Central Banks' Monetary Policy during Its First 20 Years,* BROOKINGS PAPERS ON ECON. ACTIVITY (Fall 2018), at 29 (noting that "Emergency Liquidity Assistance (ELA) policy has been designed for banks that, though solvent, do not have adequate collateral to apply for the ECB's regular monetary policy operations.").
[192] *See* Hofman, *supra* note 179, at 918 (reaching the conclusion that the decision to leave the LOLR function with NCBs potentially undermines the ECB's ability to achieve financial stability for the entire euro area); Rosa M. Lastra, *Emergency Liquidity Assistance and Systemic Risk*, *in* ANITA ANAND, SYSTEMIC RISK, INSTITUTIONAL DESIGN, AND THE REGULATION OF FINANCIAL MARKETS (2016).
[193] Note that ELA was relied on heavily during the euro area sovereign debt crisis, providing a sizeable portion of the liquidity that banks in affected countries needed to survive. *See* Tracy Alloway, Opinion, *Buiter on Europe's Secret Liquidity Operations*, FT ALPHAVILLE (Jan. 24, 2011), https://ftalphaville.ft.com/2011/01/24/466731/buiter-on-europes-secret-liquidity-operations/.
[194] *See* MARIA DEMERTZIS ET AL., HOW TO PROVIDE LIQUIDITY TO BANKS AFTER RESOLUTION IN EUROPE'S BANKING UNION 10 (2018), https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/624422/IPOL_IDA(2018)624422_EN.pdf.
[195] *See Agreement on Emergency Liquidity Assistance*, ECB, May 17, 2017 [hereinafter ELA agreement].
[196] *See* Mersch, *supra* note 9, at 11.

ECB of its solvency assessment, the solvency criterion is fuzzy and leaves considerable discretion to the national authorities.[197] Moreover, and this is especially relevant for liquidity provision right before and after a resolution action, when a firm is generally deemed solvent, ELA operations are typically guaranteed by the national fiscal authorities.[198] This means that countries with more fiscal space may be more inclined to rely on ELA than others, creating another possible source for fragmentation.

D. *Dedicated Resolution Funds*

Resolution funds are dedicated funding mechanisms to complement any other private or public support of resolution measures, such as debtor-in-possession (DIP) financing as well as payouts from deposit insurance schemes. Notably, according to the FSB, national authorities should develop resolution funds large enough "to ensure that adequate temporary funding is available to a G-SIB in resolution."[199] With respect to the scope of their operation, resolution funds could "make capital contributions to bridge or bailed-in institution[s]; make loans to systemic financial institution[s] in resolution; or as a last resort . . . guarantee the assets or liabilities of . . . systemic institution[s] *outside* of resolutions."[200]

To honor the post-GFC commitment to protect taxpayer monies, resolution funds should consist of contributions by the private sector.[201] Resolution funds can, in essence, be divided into *ex-ante* and *ex-post* funds, depending on whether levies from the industry are collected before or after a resolution is funded. Both methods come with advantages and disadvantages, and both carry potential moral hazard risks.[202]

Interestingly, the United States and Europe have opted for different approaches. While the U.S. resolution fund established under Title II of the DFA raises contributions from the industry ex-post, the EU's SRF levies them ex-ante. Moreover, while the United States has opted for a direct line to the Treasury, nothing comparable exists in Europe. The following section will provide an overview of the respective resolution funding arrangements and subsequently discuss whether they are fit for purpose.

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[197] A credit institution is for instance considered solvent if there is a "credible prospect of recapitalization." *See id.*, at 9.
[198] Demertzis et al., *supra* note 191, at 110.
[199] FIN. STABILITY BD., *supra* note 120, at 9.
[200] *See* Croitoru et al., *Resolution Funding: Who Pays When Financial Institutions Fail?* 12 (IMF, Tech. Guidance Note, No. 18/01, June 2018) (emphasis added).
[201] *See* Fin. Stability Bd, *supra* note 24, at 12.
[202] For a succinct analysis of the OLF, see Croitoru et al., *supra* note 197, at 13.

1. United States

As part of the DFA reforms, Congress established the OLF, which is part of the OLA.[203] The OLF is a critical element of the U.S. resolution regime, since there is no option for Chapter 11 DIP provisions under OLA, but especially because of the aforementioned limits on Fed lending.[204] The Single Point of Entry (SPOE) approach the FDIC pursues notably requires that operating subsidiaries will be provided with sufficient capital and liquidity resources to sustain them during resolution.[205] This can prove especially tricky if the resolution process is initiated too late, since necessary liquidity and "bail-inable" capital may already be exhausted.[206] In such a scenario, OLA liquidity will have to do the heavy lifting, closing liquidity gaps that the subsidiaries and the bank-holding company are unable to fill via market funding.

The most important feature of the OLF is that it can issue obligations which the Treasury Secretary will purchase, thereby establishing a direct credit line from the FDIC to Treasury.[207] The OLF is thus an ex-post resolution fund with a fiscal backstop. With respect to the use of the OLF, the FDIC seems to consider it a tool to address liquidity shortages rather than capital deficiencies, assuming that the institution will be solvent in OLA receivership.[208] To some extent, this reflects the rationale of resolution as allowing the core of the firm to survive, but it, too, raises the question of whether the FDIC silently mutates into a LOLR.[209]

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[203] *Id*. For an overview of how the OLA works, see *infra* Section II.D. Also note that, according to section 210(n)(9) of the DFA, the FDIC must develop an Orderly Liquidation Plan (''OLP'') that is acceptable to the Secretary for each covered financial company for which the FDIC is appointed receiver, prior to funds in the OLF being made available to the FDIC regarding such covered financial company. For an insightful analysis of the OLA, see Joshua Mitts, *Systemic Risk and Managerial Incentives in the Dodd-Frank Orderly Liquidation Authority*, 1 J. FIN. REG. 51 (2015).

[204] *See* Jamieson L. Hardee, *The Orderly Liquidation Authority: The Creditor's Perspective*, 15 N.C. BANKING INST. 259 (2011).

[205] *See* Richard J. Herring, Director, Wharton Fin. Insts. Center, Meeting the Liquidity Challenge in Resolution: the U.S. Approach at the Chapman Univ. 4th Annual Conference on Money and Finance (September 6-7, 2019) (presentation available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3517596).

[206] *Id.*

[207] *See* Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 1106 124 Stat. 1376, 1506 (2010) (codified as 12 U.S.C. § 5613).

[208] *See* Mitts, *supra* note 200, at 62 (citing FDIC Acting Chairman Martin J. Gruenberg, who emphasized the OLF's function as source of liquidity).

[209] For this more critical perspective, see Morrison & Foerster, *Orderly Liquidation Authority: FDIC Announces Its Strategy*, News Bulletin (May 16, 2012), at 5, http://media.mofo.com/files/uploads/Images/120516-Orderly-Liquidation-Authority-FDIC-Announces-Its-Strategy.pdf (stating that "[i]f the assumptions that an institution's failure is the result of liquidity losses rather than capital-insolvency concerns and that the institution

Related to this point is the volume that may be available under the OLF. According to the DFA, the amount provided to a covered financial company, the "maximum obligation limitation" ("MOL"), is capped at 10% of the firm's total consolidated assets during the first 30 days after the appointment of the FDIC as receiver.[210] However, after the 30-day period, the FDIC may provide an amount equal to 90% of total consolidated assets.[211] When it comes to the repayment of OLF obligations, the FDIC must provide a plan demonstrating entitlement to the income from the liquidated assets of the covered financial company *and* assessments that are charged on eligible financial companies,[212] as well as other financial companies with total consolidated assets in excess of $50 million.[213]

Therefore, in line with the FSB KA 6[214], the FDIC may recover its losses due to OLA operations from both the resolved firm and the banking industry as a whole.[215] Of course, relying on *ex-post* assessments to compensate the FDIC exposes the Corporation, and ultimately the Treasury Department, to cyclical risks. Especially during a prolonged systemic crisis, even firms that have not become non-viable may not be particularly robust. Imposing a tax on them when they can least afford it may prove extremely challenging.[216]

To further safeguard the funds employed under the OLF, the FDIC will require that OLF financing be collateralized.[217] The question that

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is solvent hold, then shareholders will not necessarily be wiped out. Indeed, they could realize some value, a result unheard of in the bank receivership process.").

[210] 12 U.S.C. § 5390(n)(6)(A).

[211] Also, see Calculation of Maximum Obligation Limitation, 12 C.F.R. § 380.10.

[212] Eligible financial company is defined as "any bank holding companies with total consolidated assets equal to or greater than $50,000,000,000 and any nonbank financial company supervised by the Board of Governors." 12 U.S.C. § 5390(o)(1)(A).

[213] 12 U.S.C. § 5390(o).

[214] Fin. Stability Bd, *supra* note 24, at 16.

[215] There have been some doubts as to whether this mechanism effectively punishes healthy firms by making them pay for some black sheep that end up in resolution. *See*, *e.g.,* Paul H. Kupiec & Peter J. Wallison, *Can the "Single Point of Entry" Strategy be used to Recapitalize a Failing Bank?* 6, (AEI Econ. Working Paper 2014-08 2014), (claiming that "[u]nless parent BHCs have substantial loss absorbing capacity, the SPOE strategy will mutualize bank losses through OLF assessments on other large BHCs and designated nonbank financial institutions that are subject to Federal Reserve oversight.").

[216] This seems to have been an important reason why international standard-setting bodies at least initially preferred *ex-ante* over *ex-post* contributions. *See* IMF, A FAIR AND SUBSTANTIAL CONTRIBUTION BY THE FINANCIAL SECTOR, FINAL REPORT FOR THE G-20 (Jun. 2010). IMF, FSB, and BCBS emphasized that any levy should be accompanied by the creation of an effective resolution regime; that it should ideally be designed as a risk-based charge; and that an *ex-ante* levy would avoid survivor bias and be less pro-cyclical than *ex-post* measures.

[217] Daniel K. Tarullo, Governor, Fed. Reserve Board, Toward Building a More Effective Resolution Regime: Progress and Challenges, Speech at the Federal Reserve Board and Federal Reserve Bank of Richmond Conference, "Planning for the Orderly Resolution of a Global Systemically Important Bank", Washington, D.C. (Oct. 18, 2013).

immediately arises is which type of collateral will have to be posted and whether this collateral is of lower (or higher) quality than that accepted in discount window lending operations. The FDIC itself clarified that "[i]f private-sector funding cannot be immediately obtained, the Dodd-Frank Act provides for [the OLF] to serve as a back-up source of liquidity support that would only be available *on a fully secured basis* [emphasis added]."[218]

The Trump administration initially sought to abolish the OLA, which it considered a risk to taxpayer money.[219] However, the 2018 Treasury Report on the OLA made a number of significant recommendations. Notably, it criticized the FDIC for not making any further indications as to the type and quality of the collateral it may accept.[220] Against this backdrop, the Treasury Department recommended that "the FDIC should seek high quality assets as collateral and publish a list of collateral it deems eligible to secure OLF loans."[221] If the FDIC would need to deviate from this list, it ought to seek approval by the Secretary of the Treasury on a case-by-case basis.[222]

Given that the OLA creates a direct line of credit from the FDIC to the Treasury Department, it is no surprise that the latter has strong views as to the security the FDIC might accept in providing OLF loans. At the same time, the FDIC might, in certain cases, not be able to obtain the high-quality collateral from a firm in resolution. In this context, resolution planning becomes critical. In their Final Guidance on the 2019 resolution plans for the eight largest, most complex U.S. banking organizations, the Fed and the FDIC required that "[a] firm should have capabilities related to managing, identifying, and valuing the collateral that it receives from and posts to external parties and its affiliates."[223] To this end, J.P. Morgan's resolution plan explains that the bank has "conducted a comprehensive analysis of how we would manage collateral processes in resolution" and "designed and implemented an operating model and infrastructure for firm-wide collateral management . . . that will enable [it] to more promptly and accurately address changing market conditions and demands from counterparties."[224]

However, J.P. Morgan's living will does not elaborate further on the type

[218] Resolution of Systemically Important Financial Institutions: The Single Point of Entry Strategy, 78 Fed. Reg. 76,616 (Dec. 18, 2013).
[219] Herring, *supra* note 202, at 12.
[220] U.S. TREASURY DEP'T, *supra* note 86, at 39.
[221] *Id.* (further remarking that "[t]he collateral acceptable to Federal Reserve Banks for discount window lending provides a helpful starting point for identifying acceptable collateral. If the FDIC proposes to accept as security for an OLF loan any collateral of a type not previously identified by the FDIC as being eligible, such proposed collateral should be approved by the Secretary of the Treasury on a case-by-case basis.").
[222] *Id.*
[223] Final Guidance for the 2019, 84 Fed. Reg. 1,453 (Feb. 4, 2019).
[224] J.P. MORGAN CHASE & CO., 2019 RESOLUTION PLAN PUBLIC FILING 41 (2019).

of collateral that may be available in a resolution scenario, let alone the steps it would take to preserve collateral for official-sector liquidity provision during resolution. Moreover, as a Cleary Gottlieb client memorandum rightly points out, "if a financial company has enough high-quality collateral to secure their loans from the OLF, it likely would not be in enough trouble to trigger OLA in the first place."[225]

Overall, given the credit line from the Treasury to the FDIC, it appears that the U.S. framework for liquidity provision is relatively robust. One potential bottleneck could arise from the lack of adequate collateral. In a resolution scenario, after the firm has reached a point of non-viability, there may be no high-quality collateral left to secure OLF loans. To anticipate collateral shortfalls, all banking supervisory authorities, but especially the FDIC, should closely monitor both the availability of collateral as well as its management by the firms on an ongoing basis. Resolution planning goes a long way by requiring financial firms to take actions themselves. However, blindly trusting the commitments a firm makes as part of its annual living will submission might not be enough when push comes to shove.

2. Euro Area

The GFC has brought about fundamental changes in the European regulatory, supervisory, and resolution framework for banks. As mentioned above[226], the banking union currently consists of two pillars: The Single Supervisory Mechanism (SSM) and the Single Resolution Mechanism (SRM), which became fully operational in 2014 and 2016, respectively. For a third pillar, the European Commission has presented a legislative proposal for a European Deposit Insurance Scheme (EDIS) in November 2015.[227] Negotiations of EU co-legislators on this proposal are politically contentious and fundamental disagreements remain as regarding several elements of the proposal. This section will zoom in on the functioning of the Single Resolution Fund (SRF), with a particular focus on its liquidity-providing function during and immediately after resolution.

The SRF became operational in 2016 to help "ensure a uniform administrative practice in the financing of resolution in the banking union,

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[225] Alert Memorandum from CLEARY GOTTLIEB STEEN & HAMILTON LLP (CLEARY GOTTLIEB), to clients, Treasury Recommends Retaining Orderly Liquidation Authority, (Feb. 28, 2018), https://www.clearygottlieb.com/-/media/files/alert-memos-2018/treasury-recommends-retaining-orderly-liquidation-authority.pdf.
[226] *See supra* Section II.E.
[227] European Commission, Proposal for a Regulation of the European Parliament and of the Council Amending Regulation (EU) 806/2014 to Establish a European Deposit Insurance Scheme, (Nov. 24, 2015), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015PC0586&from=EN.

and to avoid the creation of obstacles for the exercise of fundamental freedoms or the distortion of competition in the internal market due to divergent national practices."[228] In contrast to the OLF, the SRF is ex-ante financed through bank contributions.[229] In addition, it includes an ex-post recovery mechanism from the industry for the costs of providing financing to facilitate the resolution of a firm, as recommended by the FSB KAs.[230] In 2024, when the SRF will be fully built-up, it shall equal at least 1% of covered deposits of all credit institutions in the participating Member States.[231] This results in a target level of about EUR60 billion according to SRB figures from 2019.[232] Indeed, liquidity support, at least implicitly, falls under the SRF's power to make loans to the institution under resolution.[233]

From the relevant provisions of the SRMR, it follows that the SRF can provide both solvency and liquidity support to an institution that is subject to a resolution procedure.[234] However, SRF funds may not be distributed to banks liquidated under national insolvency procedures or certain less significant institutions (LSIs) that fall outside the SRB's remit.[235] With respect to the use of fund resources for liquidity purposes, the SRMR does not explicitly stipulate any safeguards.[236] The amount, duration, and other relevant elements of liquidity support (e.g., renewals) have to be defined in the resolution scheme, and any provision of SRF liquidity not set out in the resolution scheme would require amendment to the resolution scheme.[237]

Thus, SRF funds may be deployed in cases where a bank in resolution no longer has access to central bank liquidity, either because it does not fulfil the counterparty status or because it lacks sufficient adequate collateral.[238]

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[228] SRMR, Recital (19).
[229] *See* SRMR, Recital (20) (stating that "[t]his Regulation, together with Directive 2014/59/EU, establishes the modalities for the use of the Fund and the general criteria to determine the fixing and calculation of ex-ante and ex-post contributions.").
[230] *See* FSB 6, *supra* note 24.
[231] SRMR, Art. 69(1).
[232] *See* SRB, *What is the Single Resolution Fund?*, (Jul. 17, 2019), https://srb.europa.eu/en/node/804.
[233] *See* SRMR, Art. 76(1)(b). Another provision that implies that the SRF may be used for liquidity support is Article 50 SRMR, which in paragraph 1(c) and (d) distinguishes between capital and liquidity support for the purpose of voting thresholds in the SRB's Board.
[234] As a general principle, the SRF may only be tapped to the extent necessary to ensure the effective application of the resolution tools. *See* SRMR, Art. 76(1).
[235] For a discussion of the difference between national insolvency procedures and SRB resolutions, see *supra* Section II.E.
[236] By contrast, if the resolution authority decides to exclude certain liabilities from bail-in, the SRF can only be used for solvency (i.e., capital) purposes if at least 8% of the bank's total liabilities are bailed-in, which means that these liabilities contribute to loss absorption and recapitalization. *See* Grund et al., *supra* note 109, at 38.
[237] *See* SRMR, Art. 27(5).
[238] *See supra* Section III.B. (discussing how European banks may access central bank liquidity in the context of resolution).

However, with its size of roughly EUR60 billion as of 2024, the SRF's firepower might be insufficient to address liquidity problems experienced by medium to large banks in the wake of a resolution action.[239] This is especially true if a large bank fails or if several banks have to be resolved at the same time.[240] As Lehman, for instance, concludes, "the potential liquidity outflows from a mid-sized bank, let alone a European G-SIB, would easily outstrip the SRF's ultimate size, in particular if shortfalls in bail-in capital and national backstops are taken into account."[241] Crucially, in contrast to the U.S. OLA, the European resolution framework for significant financial firms lacks any credit line to a fiscal authority.[242]

To increase the SRF's firepower and strengthen the euro area crisis resolution framework, Member States agreed in principle to a common backstop to the SRF in 2013. This backstop is to be provided by the European Stability Mechanism (ESM), the euro area rescue fund that was set up during the last crisis and has a lending capacity of roughly EUR500 billion. The ESM would act as last-resort insurance in the event of a bank resolution in case the resources available at the SRF were insufficient.

Five years after the first political commitments were made, euro area finance ministers agreed to operationalize the common backstop and laid down the conditions for this in a dedicated Term Sheet.[243] Another year later, the Eurogroup of December 4, 2019, reached an agreement in principle on the necessary revisions of the ESM Treaty and ESM legal framework,

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239 *See* Willem Pieter de Groen & Daniel Gros, *Estimating the Bridge Financing Needs of the Single Resolution Fund: How Expensive is it to Resolve A Bank?*, CEPS Special Report No. 122 (Nov. 2015).

240 *See id*. (providing estimates as to the potential liquidity needs of large banking organizations in Europe).

241 ALEXANDER LEHMANN, CASH OUTFLOWS IN CRISIS SCENARIOS: DO LIQUIDITY REQUIREMENTS AND REPORTING OBLIGATIONS GIVE THE SRB SUFFICIENT TIME TO REACT? 15 (Econ. Governance Support Unit eds.), https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/614508/IPOL_IDA(2018)614508_EN.pdf

242 It is of course acknowledged that neither the EU nor the euro area has anything equivalent to the U.S. Treasury. *See* Florian Eder, David M. Herszenhorn & Maïa de la Baume, *Juncker's uni-vision for Europe*, POLITICO (Sep. 13, 2017 12:54 PM), https://www.politico.eu/article/junckers-uni-vision-for-europe/; Henrik Enderlein & Jörg Haas, *What Would a European Finance Minister Do? A Proposal*, Jacques Delors Institut Berlin, Policy Paper 145 5-6 (Oct. 2015), (proposing the establishment of a genuine European finance ministry, with the following competences: the main competences: (i) oversee the coordination of fiscal and economic policies, (ii) enforce rules in case of non-compliance, (iii) lead negotiations in a crisis context, (iv) contribute to buffering regional shocks, and (v) represent the euro area in international institutions and fora.).

243 *See* EU Council, *Term Sheet on the European Stability Mechanism Reform*, Dec. 4, 2018, https://www.consilium.europa.eu/media/37267/esm-term-sheet-041218_final_clean.pdf.

subject to the conclusion of national procedures.[244] The common backstop would be in place at the latest in 2024, and its size will be aligned with the target level of the SRF, which means that it will expand the SRF's maximum lending capacity by approximately another EUR60 billion.[245] The combined capacity of SRF and the backstop would amount to roughly EUR120 billion.

However, even if this credit line from the ESM to the SRF was to finally see the light of day, doubts remain whether EUR120 billion would ultimately provide enough capital and liquidity support in resolutions.[246] Among other factors, this will depend on the success of a given resolution procedure as well as the number of banks that are failing within a given time-frame.[247] Moreover, due to last minute political disagreements between Italy and other Member States, the common backstop via the ESM has still not been ratified – and the COVID-19 outbreak in Europe in early 2020 rendered it increasingly unlikely that the necessary legislative implementation would occur any time soon.[248] For the time being, bank resolutions need to be financed with SRF resources, which are still in the process of being built up.[249]

Moreover, given that the SRF's dual role as capital *and* liquidity provider in resolutions might overstretch its ability to perform either function satisfactorily, euro area governments have agreed to further undertake technical work on liquidity provision.[250] As a group of experts stressed in a

[244] *See* Letter from Mario Centeno, President of the Eurogroup, to Charles Michel, President of the Euro Summit, (Dec. 5, 2019), https://www.consilium.europa.eu/media/41643/20191205-letter-president-of-the-eurogroup-to-cm.pdf.

[245] To make the common backstop operational, the ESM will make a loan to the SRF, which will be paid back with ex-post contributions by the banking sector that the SRF will have to raise within three to five years. Thus, while the funds come from the ESM, whose capital is paid in by national governments, the repayment obligation ensures fiscal neutrality over the medium term. Moreover, Euro area governments agreed that money from the common backstop can be tapped for all possible uses of the SRF in a given resolution case. Like the SRF itself, the common backstop will be fiscally neutral in the medium-term, because losses will be recouped via the banking sector as a whole. *See* Florian Brandt & Matthias Wohlfahrt, *A common backstop to the Single Resolution Fund*, 22 J. ECON. POL. REF. 291, 301 (2018).

[246] *See* Avgouleas & Goodhart, *supra* note 28, at 17 (noting that "[the common backstop] will be limited by the size of the SRF reserve.").

[247] According to Schoenmaker, the optimal size for a fiscal backstop in the euro area would be closer to €230 billion. *See* Dirk Schoenmaker, *A macro approach to international bank resolution*, Bruegel Policy Contribution, Issue No. 20 4,9 (Jul. 2017), https://www.bruegel.org/wp-content/uploads/2017/07/PC-20-2017-100717.pdf.

[248] Giuseppe Fonte, *Italy econmin says ESM reform likely to be delayed*, REUTERS (Mar. 11, 2020 8:33 AM), https://www.reuters.com/article/health-coronavirus-italy-esm/italys-econmin-says-esm-reform-likely-to-be-delayed-idUSR1N2A9018.

[249] The SRF has collected contributions of EUR33 billion, with the goal of raising another EUR27 billion by the end of 2023. *See* SRB, *supra* note 229.

[250] *See* Centeno, *supra* note 241.

recent report to the European Parliament, "if a systemic crisis occurs or a major global systemically important bank (G- SIB) is resolved, liquidity needs could far exceed what the SRF or even the ESM backstop can cater for", which means in turn that "the current framework is . . . not credible for dealing with liquidity provisioning after resolution."[251]

This is why the Eurogroup Working Group, which prepares the meeting of the euro area finance ministers, has initiated further work on how to bridge remaining gaps in the provision of liquidity to financial institutions in resolution. One idea that has gained traction was to create a new ECB facility that would provide liquidity during resolution operations, subject to stringent safeguards and a full guarantee by the resolution authorities or Member States.[252] However, both within the ECB's decision-making bodies as well as outside, opposition against such an active role for the euro area's central bank has been building.[253]

At this stage the only available source to fill liquidity gaps during and immediately after resolution, where the Eurosystem is barred from extending credit, is the SRF. In a larger, idiosyncratic crisis, the question is not if, but *when* the SRF will reach its limits. In contrast to the other European rescue fund, the ESM, the SRF is neither backed by Member States' guarantees nor supported by any paid-in capital – if overstretched, the SRF would simply be exhausted. In such an event, a return to national solutions seems more probable than a sound European response. To this end, Europe's missing collective reaction to the COVID-19 pandemic[254] serves as a negative example and gives a flavor of what might come in the financial sector.

E. *Other Possible Sources of Public Resolution Funding*

This section discusses any other potential sources to provide official sector liquidity during resolutions. While the post-GFC regulatory framework essentially discourages public funds that go beyond the

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[251] DEMERTZIS et al., *supra* note 191, at 7.
[252] Francesco Canepa, *ECB could provide cash to failing banks if conditions met – Coeure*, REUTERS (Apr. 23, 2018 11:52 AM), https://www.reuters.com/article/ecb-banks-cash/update-1-ecb-could-provide-cash-to-failing-banks-if-conditions-met-coeure-idUSL8N1S05CQ; Jesus Aguado, *Sufficient liquidity mechanisms must exist in resolution processes: ECB*, REUTERS (July 5, 2019 5:12 AM), https://www.reuters.com/article/us-spain-banks/sufficient-liquidity-mechanisms-must-exist-in-resolution-processes-ecb-idUSKCN1U00VG.
[253] *See* Yves Mersch, *The limits of central bank financing in resolution*, Speech by Yves Mersch, Member of the Executive Board of the ECB, IMFS Distinguished Lecture Series Goethe Universität Frankfurt (Jan. 30, 2018), https://www.ecb.europa.eu/press/key/date/2018/html/ecb.sp180130.en.html.
[254] *See* Jennifer Rankin, *EU leaders clash over economic response to coronavirus crisis*, THE GUARDIAN (Mar. 26, 2020 4:28 PM), https://www.theguardian.com/world/2020/mar/26/eu-leaders-clash-over-economic-response-to-coronavirus-crisis.

temporary backstops described in the FSB KA, there may be limited scope to draw on other resources in both the United States and EU.

1. United States

The FDIC may also provide liquidity to depository institutions *outside* an OLA proceeding through a dedicated FDIC guarantee program. While guarantees were heavily used during the GFC, the post-crisis reforms have curtailed the FDIC's authority to make use of such guarantees to support individual firms. But first we shall recap what happened during the crisis.

In 2008, the FDIC started to provide liquidity to insured depository institutions and their holding companies by virtue of its Temporary Liquidity Guarantee Program (TLGP). The TLGP had two components: providing a limited-term guarantee for newly issued debt as well as guarantees for non-interest-bearing transaction deposit accounts.[255] As the FDIC's former general counsel notes, "the FDIC's TLGP played a critical role in returning liquidity to banks and their facilities . . . providing target support to address the challenges banks were facing in the debt markets and for deposit funding."[256] At the height of the crisis, the TGLP covered $350 billion in outstanding debt and over $800 billion in deposits.[257]

From a political perspective, the TGLP's most essential feature arguably was that guarantees would be funded through fees charged to participating financial institutions in the FDIC's Deposit Insurance Fund (DIF) rather than taxpayers.[258] Still, the program was controversial. The TGLP was essentially justified by the systemic risk exception (SRE) introduced by the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICA). This allowed the FDIC, with approval from the Treasury, to limit the protection of insured depositors.[259] Whether the FDIC had statutory authority to rely on the SRE was the subject of a report by the U.S. Government Accountability Office (GAO). While the GAO refrained from rendering a clear judgement on whether the FDIC transgressed its powers, it noted that "the financial crisis revealed limits in the current regulatory framework to restrict excessive risk taking by financial institutions whose market discipline is likely to have

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[255] *See* Lee Davison, *The Temporary Liquidity Guarantee Program: A Systemwide Systemic Risk Exception*, 1(2) J. FIN. CRISIS 1 (2019).
[256] Michael H. Krimminger, *The Temporary Liquidity Program in* FIRST RESPONDERS: INSIDE THE U.S. STRATEGY FOR FIGHTING THE 2007-2009 GLOBAL FINANCIAL CRISIS 228-229 (Ben S. Bernanke et al., eds., 2020).
[257] FDIC, CRISIS AND RESPONSE: AN FDIC HISTORY, 2008-2013 33 (2017).
[258] *Id.* at 37.
[259] *Id.* at 36 (noting that "[t]he roots of the SRE can be found in concerns that FDIC resolutions during the banking crisis of the 1980s and early 1990s had frequently protected uninsured depositors and creditors in addition to insured depositors.").

been weakened by the recent use of the systemic risk exception."[260]

While the FDIC, as resolution authority, was the liquidity-providing entity, the TLGP aimed at avoiding a resolution wildfire that could have amplified the systemic financial crisis that was underway.[261] However, the Congressional response to the FDIC's actions followed promptly and the message was clear. Most importantly, the DFA narrowed the scope of the SRE provision by requiring an institution to first be placed into receivership, thus eliminating the type of open-bank assistance the FDIC provided during the GFC.[262]

With regard to TLGP-style actions, the DFA clarified that the FDIC may only provide a "widely-available program to guarantee obligations of solvent insured depository institutions or solvent depository institution holding companies...during times of severe economic distress."[263] Such an emergency financial stabilization (EFS) program is subject to an intricate approval process. First, the Secretary of the Treasury must request the determination of a "liquidity event" according to § 1104 of the DFA, which includes evidence that a liquidity event exists, that failure to take action would have serious adverse effects on financial stability or economic conditions in the United States and that a guarantee program is needed to avoid or mitigate potential adverse effects on the U.S. financial system or economic conditions.[264] The determination of the guaranteed amount is made by the Secretary of the Treasury who must consult with the President. Perhaps, most importantly, the President then transmits a written report on the FDIC's plan to Congress, which has to decide on the EFS program by virtue of a joint resolution.[265]

Even though the DFA required the establishment, by regulation, of "policies and procedures governing the issuance of guarantees", the FDIC has so far not acted in this area.[266] Thus, there is considerable uncertainty on the parameters of an FDIC guarantee program in the future. For instance, the DFA notes that the FDIC's policies and procedures "may include a

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[260] U.S. GOV'T ACCOUNTABILITY OFFICE, FEDERAL DEPOSIT INSURANCE ACT: REGULATORS' USE OF SYSTEMIC RISK EXCEPTION RAISES MORAL HAZARD CONCERNS AND OPPORTUNITIES EXIST TO CLARIFY THE PROVISION 2 (2010).

[261] FDIC, *supra* note 254, at 92 (concluding that "[a]fter the announcements of the SREs, funding and liquidity stabilized (not only at the individual institutions supported by SREs, but also at other major financial institutions), and interbank lending continued (bolstered by the Temporary Liquidity Guarantee Program, which required its own SRE.").

[262] *See* Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 1106 124 Stat. 1376, 2125 (2010) (codified as 12 U.S.C. § 5613); FDIC, *supra* note 254, at 93.

[263] 12 U.S.C. § 1105(a).

[264] 12 U.S.C. § 1104(a)(2)(B).

[265] 12 U.S.C. § 1105(b).

[266] 12 U.S.C. § 1105(b)(1).

requirement of collateral as a condition of any such guarantee."[267]

Overall, while the FDIC retains some authority to use guarantees as a liquidity-enhancing instrument for troubled institutions, the requirement for Congressional approval is likely to make the EMS function toothless. Moreover, in the absence of FDIC rules outlining the policies and procedures underlying such a guarantee program, it remains particularly hard to ascertain how an FDIC guarantee program would interact with OLF liquidity and whether the two sources could be mutually reinforcing in a systemic crisis.

2. Euro Area

Leaving aside the SRF, which I discuss in more detail above[268], no specific centralized, and hence European, instrument to fund bank resolutions exists in the currency union. In the wake of the euro area sovereign debt crisis, Member States provided the ESM with an instrument to directly recapitalize banks, the "Direct Recapitalization Instrument" (DRI)[269], which, under certain circumstances, would have also allowed for limited liquidity provision. However, this instrument was recently scrapped due to the excessively strict accessibility criteria.[270]

As a result, a return to national responses to European problems seems probable. The aforementioned complications with resolving a number of Italian banks through the European resolution mechanism serve as a case-in-point.[271] As a Bloomberg report highlights, since 2016, national governments have rescued seven credit institutions that would have likely been subject to an SRB resolution if the letter of the law was applied strictly and evenly.[272] According to Luis Garicano, a Member of the European Parliament, "[s]ince the implementation of BRRD and SRMR, numerous cases have laid bare the weaknesses and ambiguities of our current regime, during which Member States (sometimes through their DGSs) have provided EUR20 billion in capital injections and EUR20 billion in guarantees."[273]

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[267] *Id.*
[268] *See supra* Section III.B.
[269] *See* Stefano Micossi, *Tough love for sinners in the eurozone banking union*, CEPS COMMENTARY (Jul 1, 2013), https://www.ceps.eu/wp-content/uploads/2013/07/SM%20Micossi%20The%20new%20ESM%20instrument.pdf.
[270] *See* DEMERTZIS et al., *supra* note 191.
[271] *See supra* II.E. *Compare* Donelly & Asimakopoulos, *supra* note 106.
[272] *See* Alexander Weber, *European Taxpayers Once Again Are Bailing Out Bankers*, BLOOMBERG (Dec. 19, 2019), https://www.bloombergquint.com/markets/a-decade-after-crisis-europe-s-taxpayers-keep-bailing-out-banks.
[273] Luis Garicano, *Two proposals to resurrect the Banking Union: the Safe Portfolio Approach and SRB*, (paper prepared for ECB Conference on "Fiscal Policy and EMU Governance") 14 (Dec. 19, 2019), http://cseuropa.ciudadanos-cs.org/wp-content/uploads/sites/124/2020/01/Garicano-Two-proposals-to-resurrect-the-Banking-Union-DEF.pdf.

Thus, the European problem might not be so much that liquidity may not be provided to financial firms in resolution. If anything, actions by individual governments have undermined and, in some cases, directly contradicted the word and spirit of the rules against taxpayer-funded bailouts. The issue policymakers have become increasingly concerned with is the *source* of resolution funding. If governments prefer to fund failing banks at home with their own monetary resources, they nurture the very cross-country divergence in dealing with banking crises that they sought to deter with the establishment of the banking union and the associated "no-bailout" policies.

IV. A Transatlantic Peer-Review – Resolution Liquidity from the Other Side of the Pond

The previous three sections highlighted not only the intricacy of the United States and the European frameworks for liquidity in resolution, but also revealed the different paths that the two jurisdictions have taken since the last financial crisis. Thus, the potential policy implications one may draw from this comparison must inevitably differ. Against this backdrop, this section presents a Transatlantic peer-review of the respective frameworks to address the issue of liquidity in resolution. The idea is that regulators and lawmakers in both jurisdictions may learn valuable lessons from each other.

A. *The EU's approach resolution funding seen from the United States*

The devil, as is so often the case, lies in the details. While in certain areas the EU has reached a level of economic convergence and harmonization of laws similar to that of the United States[274], the existence of strong federal institutions, as well as Congress' authority to pass federal laws in banking and finance matters, has given the United States an edge on funding resolution procedures.

As this section explains in more detail, the European approach differs from the United States in three fundamental aspects: (i) lack of full harmonization of resolution and insolvency laws; (ii) a weak resolution authority; and (iii) the absence of a credible fiscal backstop. As I conclude in the subsequent final section of this paper, these three flaws warrant a more prominent role for the ECB in the context of liquidity in resolution, most notably a centralization of ELA.

1. Lack of Regulatory Harmonization

First, much of the uncertainty when it comes to the European approach to liquidity in resolution stems from the fact that the pertinent laws are not

[274] For example, certain segments of the EU's Single Market in goods and services.

fully harmonized, which means that national solutions prevail over federal ones. As described in detail above[275], the "public interest test" that determines whether a firm will be resolved at the Union level or subjected to national liquidation procedures can be manipulated all too easily. And, so far, the direction has been clear: in case of doubt, let the national authority take over and avoid testing the resilience of the newly-founded European resolution framework. But who can fault the SRB? The current laws give ample leeway to justify why the resolution objectives can also be achieved through national solutions, rendering European resolutions obsolete – and this is, in fact, what happened in all but one case since 2016.

Perhaps, most importantly for this Article, putting a bank through a national insolvency or resolution procedure has implications for resolution funding. As long as the SRB is in charge, access to the SRF fund generally requires a bail-in of 8 percent of creditors.[276] By contrast, if a firm is dealt with at the national level, no such funding restrictions apply. Instead, national authorities must ensure that their actions are compliant with state aid law when injecting liquidity into failing financial institutions, which raises questions that would go far beyond the scope of this Article.[277] Another source of legal uncertainty is the risk of protracted creditor litigation against the SRB as resolution authority – something the founding mothers and fathers seem to have greatly underappreciated. Indeed, the only bank resolution so far – the case of the Spanish lender Banco Popular – culminated in more than 50 different lawsuits in national and European courts.[278] More than three years after the resolution, the lawsuits are still not settled and continue to be the source of considerable legal uncertainty.[279] It would be

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[275] *See supra* Section II.E.
[276] *See* SRMR, Recital (78) ("Where the losses cannot be passed to other creditors, the Fund may make a contribution to the institution under resolution subject to a number of strict conditions including the requirement that losses totaling not less than 8% of total liabilities including own funds have already been absorbed, and the funding provided by the Fund is limited to the lower of 5 % of total liabilities including own funds or the means available to the Fund and the amount that can be raised through *ex-post* contributions within three years.").
[277] For the (important) underlying political dimension, see Lucia Quaglia, *The politics of an 'incomplete' Banking Union and its 'asymmetric' effect*s, 41(8) J. EUR. INTEGR. 955 (2019).
[278] According to Reuters, 51 lawsuits were filed in the wake of the Banco Popular resolution against the SRB. *See* Francesco Guarascio, *Investors file 51 lawsuits against EU for shutting Banco Popular*, REUTERS (last accessed Aug. 30, 2017 7:22 AM), https://www.reuters.com/article/bancopopular-ma-investors/investors-file-51-lawsuits-against-eu-for-shutting-banco-popular-idUSL8N1LF3BA. For an overview of the cases, *see* European Banking Institute, *The Banking Union and Union Courts: overview of cases as of 11 February 2020,* https://ebi-europa.eu/publications/eu-cases-or-jurisprudence/ (last accessed Mar. 24, 2020).
[279] Francesco Guarascio, *No compensation for Banco Popular's creditors, EU regulator says*, REUTERS (Mar. 18, 2020 7:19 AM), https://www.reuters.com/article/eu-banks-srb-

hard to fathom how the SRB would remain operational if it had to resolve several financial institutions at the same time.[280]

What is thus abundantly clear is that the current EU law framework, for both resolution actions and their funding, nurtures fragmentation rather than convergence. As Donnelly remarks, "Banking Union still relies significantly on national rather than European administrative and financial resources to ensure local financial stability, so that resilience remains asymmetric."[281]

2. The SRB's Institutional Weakness

The second structural issue that distinguishes Europe from the United States in the realm of bank resolution and resolution funding is the SRB's weakness. For one, the SRB is an EU agency rather than an institution (like the ECB, for instance, which acts as the single banking supervisor). This means it cannot adopt rules, its resolution plans are subject to Commission endorsement, and its discretion in resolution actions is considerably more constrained than that of the (independent) ECB.[282] In 2014, a leading scholar of European law remarked that "[w]hether or not the SRB can take difficult and neutral resolution decisions in the eye of a major banking collapse remains to be seen."[283] Six years later the fact that the SRB only resolved a single bank while national resolution authorities liquidated well over a dozen shows that the initial concerns were not misplaced.

In response to the SRM's dismal performance, many experts advocate giving the SRB more legal authority and better financial instruments to support resolutions, thereby allowing it to emulate the FDIC's role in Europe.[284] By now, it seems clear that absent a wholesale reform of European bank insolvency law as well as a better-funded SRF, the SRB will likely

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bancopopular/update-1-no-compensation-for-banco-populars-creditors-eu-regulator-says-idUSL8N2BB45Q.

[280] By contrast, Title II of the DFA "provides only a limited, expedited judicial review of the government's decision to place a failing financial company into receivership." *See* U.S. TREASURY DEP'T, *supra* note 86, at 6 (proposing, however, to strengthen judicial review and recommending "that Congress consider either (1) replacing the truncated pre-appointment review procedure with a more robust post-appointment petition to remove the FDIC as receiver, or (2) strengthening appellate review by permitting de novo review of the district court's decision, in light of the speed with which the district court must act.").

[281] Shawn Donnelly, *Liberal economic nationalism, financial stability, and Commission leniency in Banking Union*, 21(2) J. ECON. POL. REFORM 159, 170 (2018) (further noting that "[t]hanks to Portuguese, Italian lobbying and Commission willingness to compromise, modifications to state aid rules and resolution in Banking Union prevent massive bank closure or sales to foreign investors, and retain states as significant bank owners within their jurisdictions.").

[282] *See* Niamh Moloney, *European Banking Union: Assessing its Risks and Resilience*, 51(6) COMMON MKT. L. REV. 1609, 1643-44 (2014).

[283] *Id.* at 1670.

[284] S*ee,e.g*, Restoy, *supra* note 23, at 5; GELPERN & VERON, *supra* note 23, at 6.

continue to take the back seat in bank failures: an outcome that stands in direct contradiction to the EU Member States' policy goals when creating the banking union.[285] Another element of the current reform discussion is the funding arrangement for resolution, which is the next difference between the United States and the EU.

3. The Absence of a Common Fiscal Capacity

The EU still has not had its "Hamiltonian moment."[286], though the recent agreement to issue common European debt to finance the recovery from the COVID-19 pandemic has been a major step in that direction.[287] Notwithstanding that the euro area became a currency union in 1998, almost all fiscal powers continue to remain in the hands of the 19 national executive and legislative branches. This asymmetry between fiscal and monetary responsibilities has been at the heart of any academic discussion about the euro area.[288] But, it also had real-world implications: the ECB had to do much of the heavy lifting during the European sovereign debt crisis and had to stray far to keep the Union together.[289] To be sure, euro area countries have implemented reforms since the GFC. The newly-established ESM allows for some fiscal risk-sharing in a crisis, but its funds are disbursed to states in dire straits and subject to strict conditionality.[290] Ultimately, the euro area lacks a powerful central fiscal capacity that is comparable to the U.S. Treasury.[291]

The lack of a central fiscal capacity has important implications for the

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[285] *See* Moloney, *supra* note 279, at 1627-28.

[286] *See* Charlemagne, *Don't count on a Hamiltonian moment*, THE ECONOMIST, (May 28, 2012), https://www.economist.com/charlemagne/2012/05/28/dont-count-on-a-hamiltonian-moment.

[287] *See* Huang Tran, *The EU recovery plan: A "Merkel" but not a "Hamilton" moment*, Atlantic Council (May 28, 2020), https://www.atlanticcouncil.org/blogs/new-atlanticist/the-eu-recovery-plan-a-merkel-but-not-a-hamilton-moment/.

[288] *See* ASHOKA MODY, EURO TRAGEDY – A DRAMA IN NINE ACTS 1-2 (2018); JOSEPH E. STIGLITZ, THE EURO 152 (2016); MARKUS BRUNNERMEIER ET AL., THE EURO AND THE BATTLE OF IDEAS 95 (2016).

[289] MATTHIAS MATTHIJS & MARK BLYTH, THE FUTURE OF THE EURO 5, 265 (2014).

[290] *See* Vassilis Paliouras, *Why Europe should say no to the proposed framework of economic governance: A legal and policy analysis in light of the establishment of the European Stability Mechanism and the Euro Plus Pact*, 15 TOURO INT'L L. REV. 40, 53 (2012). For the ESM's task and its legal basis, see *id.* at 60.

[291] The IMF and many others have pushed for more fiscal risk-sharing in the monetary union, so far to no avail. *See* Nathaniel Arnold et al., *A Central Fiscal Stabilization Capacity for the Euro Area*, IMF Staff Discussion Note SDN/18/03 (Mar. 2018), at 6. For a more modest approach, see Roel Beetsma et al., *A Minimal Moral Hazard Central Stabilisation Capacity for the EMU Based on World Trade*, ECB Working Paper Series No 2137, at 30 (Mar. 2018).

euro area's "holy grail": the banking union.[292] As this Article sought to show, and as the FSB has acknowledged, a resolution without adequate temporary funding remains illusory. To be sure, euro area countries have accepted this fact by setting up the SRF and starting discussion of an ESM-financed backstop. Yet, a glance at the envisaged volumes and limitations makes clear that euro area countries stopped short of creating anything that remotely resembles the credit line that the FDIC could draw under the OLA. To put it in the words of the SRB's Chairwoman, "in terms of liquidity in resolution, the liquidity needs of very large banks, especially G-SIBs, may outweigh the resources of the SRF and the backstop of the European Stability Mechanism."[293]

Whether the COVID-19 pandemic and its economic fallout will ultimately lead to the "Hamiltonian moment" that Brussel's technocrats have been longing for remains to be seen. What seems already obvious is that the economic shock will sooner or later translate into stress in the financial system – the failure of some financial institutions, small and large, will not be a question of *if*, but *when*.[294] Experts already fear that "the euro crisis could return, because there are too many bad debts in banks . . . and there is still no proper bank resolution regime and no eurozone deposit insurance."[295]

B. *The United States Approach to Resolution Funding Seen From the EU*

The U.S. approach to providing liquidity via both OLF and FDIC guarantees goes further than in the EU, especially with regard to volume and access. But can U.S. policymakers and legislators also turn to Europe for some lessons as to how the approach can be refined?

1. The Fed's Diminished Role in Resolution Funding

Both in Europe and the United States, the advent of new resolution regimes has affected central bank's LOLR function. Most notably, by equaling non-viability with a hard cut-off point, after which central banks

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[292] David Howarth & Lucia Quaglia, *Banking Union as Holy Grail: Rebuilding the Single Market in Financial Services, Stabilizing Europe's Banks and Completing Economic and Monetary Union*, 51 J. COMMON MKT. STUD. 103, 110 (2013).

[293] Regulatory News, *Elke König of SRB on Remaining Work for the European Resolution Regime,* MOODY'S ANALYTICS (Oct. 3, 2019), https://www.moodysanalytics.com/regulatory-news/oct-03-19-elke-konig-of-srb-on-remaining-work-for-the-european-resolution-regime.

[294] *See* Jack Ewing, *European Banks Prepared for a Crisis. But Not This One*., N.Y. TIMES (Apr. 6, 2020) (noting that "[w]hen [the COVID-19 pandemic] is over, European banks could be even more diminished on the global stage than they already are.").

[295] Steven Erlanger, *Coronavirus Tests Europe's Cohesion, Alliances and Even Democracy*, N.Y. TIMES (Mar. 12, 2020) (quoting Charles Grant, director of the European Center for Reform).

may no longer provide liquidity to a financial firm, the feasibility and resilience of resolution actions may be endangered. The reason, however, is not so much that LOLR frameworks should deviate from Bagehot's traditional view, which prohibits lending to insolvent entities. This notion would directly contradict legislators' intentions.

Rather, by taking central banks out of the equation, the pressure on fiscal authorities to keep a firm in resolution afloat will mount. Moreover, the *available* sources of liquidity, most notably from funds that are primarily used for purposes such as recapitalizations, may be insufficient to support a smooth and orderly resolution. However, as the next section shows, the U.S. and the European framework differ significantly when it comes to the availability of additional (fiscal) means.

As mentioned above, central banks essentially play no role as liquidity providers *during* resolution procedure. The formalization of the resolution triggers through post-GFC legislation, non-viability in the United States and FOLTF in the EU, has reinforced the *ex-ante* and *ex-post* dichotomy that has always complicated the distinction between illiquidity and insolvency.[296] As discussed above[297], the U.S. Congress reacted to the fuzzy delineation by altering the Fed's powers under § 13(3) of the FRA – however, rather than trying to pin down when a firm is solvent and when it is not, the DFA prohibits lending to individual institutions and requires approval by the Treasury Secretary. Section 13(3) of the FRA can thus only be invoked to "foam the runway," and hence, to stabilize the financial system in a situation in which the Fed has the Treasury Secretary on its side.

Of course, one could also argue that the limits imposed on the Fed's emergency powers would actually make resolution more likely.[298] A single institution that is still solvent but illiquid would no longer be able to tap Fed credit; at this stage, it has usually also lost its ability to roll over short-term debt in the markets. The FDIC would nervously watch from the sidelines but probably soon feel forced to jump in. But would such a dynamic be desirable for the social planner? Perhaps yes, provided that the FDIC has the means to close liquidity gaps. But, as discussed earlier, not everyone is convinced that the OLA would in fact be capable of assuming the function of a fiscal LOLR mechanism.[299]

By contrast, as explained above,[300] the European approach to LOLR operations continues to be fuzzy. Though this is less the result of a deliberate

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[296] *See* Charles Goodhart, *Liquidity Risk Management*, 11 FIN. STABILITY REV. 39, 40 (2008).
[297] *See supra* Section III.C.
[298] I would like to thank Prof. Tarullo for pointing me to this argument.
[299] *See supra* Section III.D.
[300] *See supra* Section III.C.

policy choice than of political infights between different constituencies within the euro area's membership. The ECB provides central bank money in ordinary times and the NCBs jump when the bank's collateral no longer meets the ECB's standards. Other than the Fed, subject to some safeguards[301], the NCB may still extend ELA to an individual firm in distress, so long as it deems the target of its credit operations solvent.[302] The call whether or not the credit institution is in fact (still) solvent is made at the national level, and, unsurprisingly, the pressure on the respective central bank governor can be huge. Further, the experience with bank failures in Europe shows that most institutions build up significant ELA exposures before they are ultimately wound up.

At least from a normative standpoint, the constructive ambiguity inherent to the decentralized European LOLR framework may blur the solvency/insolvency distinction and allow for late-stage interventions that might be much harder to justify under the amended § 13(3) of the FRA. Some U.S. commentators believe that this puts the United States at a disadvantage compared to the EU and others.[303] As Scott notes, "[t]he 'constitutional' independence of the ECB itself virtually assures that neither its control of the NCBs nor its own lending policies can be effectively policed."[304] Indeed, evidence from the euro area crisis shows that ELA can become a convenient tool to subsidize ailing banks behind a *de-facto* veil of secrecy.[305]

I will stop at this point and refrain from jumping into the rabbit hole that LOLR design has become since the early days of Bagehot and Thornton. What seems clear, *prima facie*, is that a laxer LOLR regime can contribute

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[301] According to the Eurosystem ELA Agreement, the ECB Governing Council may limit ELA provision by the NCB if "the provision of ELA interferes with the objectives and tasks of the ESCB" (i.e. monetary policy tasks).

[302] To be sure, there are some limitation on the NCB's ability to provide ELA. *See* Charles Goodhart & Rosa Lastra, *Populism and Central Bank Independence*, 29 OPEN ECON. REV. 49, 63 (2018) (noting that "discretion in the provision of ELA in the Eurosystem means that National Central Banks (NCBs) acting as LOLR in bilateral lending operations (market liquidity assistance via open market operations is the responsibility of the ECB) can choose to provide assistance, or not, to a credit institution (at their own risk and liability), but they must act in accordance with the Treaty provisions (notably Article 123 on the prohibition of monetary financing, Article 127 with regard to the objectives and tasks of the Eurosystem and Articles 130–131 with regard to the principle of central bank independence), the ECB Emergency liquidity assistance (ELA) procedures (European Central Bank ELA procedures 2017) and EU state aid rules.").

[303] *See* Hal S. Scott, *The Federal Reserve: The Weakest Lender of Last Resort Among Its Peers*, 18(3) INT. FIN. 321, 321 (2015) (concluding that "the Fed is currently the weakest of the four, largely due to a hostile political environment for LLR powers, which are equated with bailouts, and restrictions placed by the 2010 Dodd–Frank Act on the Fed's ability to loan to non-banks, whose role in the financial system is ever-increasing.").

[304] *Id*. at 334.

[305] *See supra* Section III.C. (discussing the role ELA played in the previous crisis). *See also* Scott, *supra* note 298, at 336 (noting disclosure policy on ELA loans is left to the NCB).

to delays in resolution decisions, and thereby indirectly mitigate the potential externalities from having insufficient funding *during* a resolution. In other words, by keeping a firm alive that would be declared "non-viable" in one jurisdiction but not in the other, a resolution might eventually not be necessary if the firm recovers. While the lawyer's instinct might be to shun an opaque and overly discretionary rule for the provision of emergency liquidity, the supervisor and the resolution authority might not be particularly concerned. So long as the firm has a lifeline from the central bank, the supervisors look as if they are still in control and the resolution authority must not fear the reputational risks associated with a botched winding-down of the institution. Evil to him who thinks evil.

2. The OLA Bazooka as potential "Overkill"?

Perhaps the most important message this Article seeks to convey is that the United States and the EU have a different approach when it comes to backstopping the cost of resolution measures. Many technocrats across the Atlantic seem to jealously glance at the OLA as a blueprint for a robust European bank resolution framework. Yet, there are good reasons why the OLA is contentious in the United States – reasons that might also give the most fervent European policymakers pause for a moment.

OLF funding certainly has the ability to "foam the runway" and thereby alleviate the funding gap that is particularly obvious in the European context. However, the OLA bazooka could also be "overkill." As Skeel notes, "[OLF funding] would be available under all circumstances, even if the SIFI were not recapitalized, did not have sufficient unencumbered assets to support a secured loan, or could not demonstrate that it was solvent."[306]

Moreover, as the U.S. Treasury's OLA Report evinces, the OLA creates a tension between the FDIC and the fiscal authority. While the former strives to have as much gunpowder in its war chest as might be needed, the latter generally has an interest in reducing its own credit risk.[307] The Treasury, *inter alia*, recommended limiting the duration of advances under the OLF to only as long as necessary, expressed its preference for loan guarantees instead of direct loans, and required these loans be secured by high-quality collateral, similar to those accepted in discount window operations.[308]

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[306] *See* David A. Skeel, Jr., *Financing Systemically Important Financial Institutions in Bankruptcy*, in MAKING FAILURE FEASIBLE: HOW BANKRUPTCY REFORM CAN END TOO-BIG-TO-FAIL 59, 65 (Kenneth E. Scott, Thomas H. Jackson & John B. Taylor, eds., 2015).
[307] *See* U.S. TREASURY DEP'T, REPORT TO THE PRESIDENT OF THE UNITED STATES PURSUANT TO THE PRESIDENTIAL MEMORANDUM ISSUED APRIL 21, 2017: ORDERLY LIQUIDATION AUTHORITY AND BANKRUPTCY REFORM 1 (2018), https://home.treasury.gov/sites/default/files/2018-02/OLA_REPORT.pdf.
[308] *See* CLEARY GOTTLIEB, *supra* note 222, at 6.

Instinctively, the Treasury's cautionary approach makes sense and would likely also resonate with many European governments – after all, the electorate's money is at stake.

But, as mentioned above[309], policymakers may be overly optimistic about the quality and availability of collateral. While the new liquidity requirements may certainly enhance the available "high-quality" collateral prior to resolution, given the trade-offs associated with drawing down the LCR, the problem is unlikely to disappear.[310] Systemic shocks, such as the Lehman insolvency or the COVID-19 pandemic, have shown that what was considered "high-quality" a month ago may now be junk. A related problem with requiring the FDIC to make OLF loans conditional on the provision of high-quality collateral is this could constrain the OLA. In contrast to the FDIC, the Fed has more independence on measures, such as grounds for removal of the agency head, executive and congressional oversight, and funding.[311] Moreover, the Fed, in contrast to the FDIC, is experienced in managing, selling, and enforcing collateral arrangements – the FDIC may find it hard to emulate the Fed's century-long operational expertise as LOLR.

Another design element of the OLA that might make some European policymakers wary is the fact that the OLF can only recoup losses from resolution funding *ex-post*. Thus, cyclicality may quickly become a threat to taxpayers: if the FDIC has to "tax" the financial sector at the very moment when it is troubled the most, it might do more harm than good. For one, the FDIC, and ultimately the Treasury, might incur significant losses. For another, the FDIC might be reluctant to tap the OLF in the first place, which may result in suboptimal resolution measures. Conversely, the European SRF also collects contributions in good times. While the banking industry typically loathes a system of *ex-ante* assessments, it would certainly reduce taxpayers' potential exposure to a systemic financial crisis.

V. Policy Conclusions: Balancing Adequate Liquidity Provision in Resolution with Moral Hazard

Bank resolutions are complicated and challenging operations for both the entity in resolution and the authority taking care of the resolution. Even without liquidity problems, there will be serious concerns about signaling effects and operational challenges, especially if the target is a large, interconnected institution. Liquidity requirements, such as the LCR, have

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[309] *See supra* Section III.C.
[310] *See supra* Section III.C.
[311] *See* Henry B. Hogue et al., Independence of Federal Financial Regulators: Structure, Funding, and Other Issues, Cong. Rsch. Serv. Report R43391 2 (Feb. 28, 2017).

certainly increased banks' resilience and increased the chances for successful resolutions. Some would even argue that there is too much liquidity "sitting around", possibly constraining healthy credit allocation. However, LCR calculations are subject to uncertainties and liquid assets may abruptly turn illiquid, as the disruption of the U.S. Treasury market in the early days of the COVID-19 pandemic has demonstrated. Moreover, as ECB staff has recently shown, even if banks stick to the required LCR levels, dangerous liquidity gaps may still arise.[312]

This Article does not intend to advocate a return to a subsidization of large financial firms with central bank or taxpayer funds. Rather, it tries to show that the post-crisis regulatory framework for SIFIs in Europe and the United States neglects the continued risk from liquidity gaps in resolution. To ensure that the *ex-post* mechanism to allow for large financial firms resolution works, I advocate a stronger role for the central bank. Not because the central bank should subsidize short-term creditors and thereby breed the type of moral hazard that policymakers have tried to rot out. Rather, without limited LOLR interventions the *raison d'être* behind resolution – saving taxpayer money without hampering financial stability – might even become further out of reach.

The purpose of this Article is to show the gaps rather than exhaustively explain how they can be plugged. Nonetheless, this final section presents some thoughts on how the conclusions reached may be addressed by policymakers. The strategy I propose is centered on two key themes: (i) a limited LOLR function for the central bank and (ii) increased capital buffers to further mitigate the risk of losses from resolution funding.

A. *A Limited LOLR Function for Resolution*

This Article sought to illustrate why the current mechanisms for resolution funding both in the United States and the euro area may not be up to the job, albeit for different reasons. While, so far, the discussion has been centered on the flaws of the current approaches, this sub-section seeks to sketch out an alternative approach to resolving liquidity gaps in resolution. The proposition goes as follows: rather than rely on inadequate resolution funds, such as the SRF, or complex and politically vulnerable fiscal backstops, notably the OLA, create a limited LOLR mandate for the Fed and the ECB that would allow them to provide short-term funding to banks in resolution.

Both in Europe and in the United States, this limited LOLR function for resolution liquidity provision should be modelled under the following

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[312] *See* Amamou et al., *supra* note 13, at 35.

guiding principles:

1. *Short-term lending*. Like most discount window operations, central bank resolution liquidity should be short-term, and certainly below the maximum of 90-days under the Fed's discount window. The idea is to throw a lifebuoy to the firm (and its receiver) rather than heaving it into a 600-feet rescue ship. Short-term lending allows the central bank to maintain control over its credit exposure during the resolution, where things can go pretty wrong, pretty fast.

2. *Fiscal backstop*. Backstopping central bank liquidity provision in resolution is critical. First, lending to firms in resolution, after they have been declared "non-viable", means that the credit risks for the new creditor are elevated. Moreover, as described before, there is a high chance that very little high-quality collateral is left, so central banks may not be able to sufficiently collateralize their LOLR intervention. While one may argue that requiring a government backstop destroys the very rationale for conveying this function to the central bank in the first place, one should also not forget that such government guarantees can be levered. The CARES Act, which was passed to fight the economic fallout from the COVID-19 pandemic, allows Treasury to guarantee or backstop Fed loans. According to former Treasury Secretary Mnuchin, the $454 billion can be levered by the Fed up to $4 trillion.[313] Moreover, given that the Fed's new LOLR function would render the OLA obsolete, a Treasury guarantee to the Fed would not constitute a significant policy shift. In principle, whether Treasury grants an OLF loan to the FDIC or guarantees Fed operations should not raise too many legal or operational questions. In the euro area, the ECB has already suggested that it could provide liquidity during resolution against a guarantee by national governments, the SRB, or the ESM.[314] Indeed, in light of the decentralized LOLR function, tasking the ECB with the provision of resolution funding would likely lead to further harmonization in the banking union, and actually align with the policymakers' visions.[315]

3. *Volume and time limits defined in the resolution plan*. The volume of central bank resolution liquidity provided to a given firm should be spelled

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[313] *See* Rosalind Z. Wiggins, *CARES Act $454 billion Emergency Fund Could Add Up to Much More for Businesses, States and Municipalities*, YALE PROGRAM ON FIN. STABILITY BLOG (Apr. 1, 2020), https://som.yale.edu/blog/cares-act-454-billion-emergency-fund-could-add-up-to-much-more-for-businesses-states-and-municipalities.

[314] *ECB considers new tool to help ailing banks*, IRISH TIM. (Apr. 9, 2018 1:38 PM), https://www.irishtimes.com/business/financial-services/ecb-considers-new-tool-to-help-ailing-banks-1.3455618.

[315] *See, e.g.*, Alessandro Speciale & Nikos Chrysoloras, *Draghi Calls for Overahaul of Bank Emergency Liquidity Rules*, BLOOMBERG (Feb. 26, 2018 12:13 PM), https://www.bloomberg.com/news/articles/2018-02-26/draghi-calls-for-overhaul-of-bank-emergency-liquidity-rules.

out in the concrete resolution plan developed by the FDIC or the SRB. The resolution authorities would make a proposal for a specified amount which the Fed or the ECB would need to accept. Given that both the Fed and the ECB are supervising the largest credit institutions, they will already have a solid understanding of the relevant firm's funding structure and resolution plans. Moreover, central bank credit ought to be limited in time. If, after a certain number of days, or perhaps weeks, the resolution authority has not successfully re-established solvency, the central bank should cease its LOLR activities once and for all.

4. *Close coordination between the central bank and the resolution authority throughout the resolution.* Coordination and communication between the resolution authority and the central bank will be key to ensure a smooth operation of the LOLR function in resolution. The Memorandum of Understanding (MoU) that was recently signed between the ECB and the SRB provides a good basis to this end.[316]

In addition to these general principles to bolster the *ex-post* mechanisms to address TBTF, the next sub-section also advocates for tougher *ex-ante* rules, namely higher capital requirements for SIFIs.

B. *Capital Requirements: New Problems, Old Solutions*

Because central bank money is still public money, other ways must be found to mitigate moral hazard. Any public sector assistance harbors moral hazard risks – regardless of whether resolution funding is provided by the central bank as part of an extended LOLR function, or through dedicated resolution funds, with or without fiscal backstop. But there should be no illusion that orderly resolution can become the panacea for TBTF problems as it is sometimes advertised. In fact, as this Article sought to demonstrate, absent robust tools to provide liquidity and the serious externalities associated with a botched resolution, authorities will, at all costs, avoid touching the largest and most interconnected firms. This, by itself, could exacerbate the TBTF problem by destroying the notion that *all* firms, regardless of their size, can fail.

How can the call for *more* public sector assistance through central banks square with the goal of reducing moral hazard in the financial sector? To this end, one conventional, yet highly effective, path leads straight to higher capital requirements. Indeed, as mentioned above, researchers at the Fed found that the optimal level of Tier 1 capital for large banks may be as high

[316] *See* Memorandum of Understanding between the Single Resolution Board and the European Central Bank in Respect of Cooperation and Information Exchange, https://srb.europa.eu/sites/srbsite/files/mou_with_the_single_resolution_board_on_cooperation_and_information_exchange_2018_.pdf (last accessed Apr. 24, 2020).

as 26 percent[317] – more than double of what most G-SIBs in the United States and the euro area currently hold.

Similarly, in their famous book *The Banker's New Clothes,* Admati and Hellwig suggest that credit institutions should hold between 20 and 30 percent risk-weighted capital.[318] Moreover, researchers at the Bank for International Settlements (BIS) found that there is significant scope for increasing capital requirements, since "the steady-state costs of higher capital requirements are low, while the benefits can be substantial."[319] Finally, given the above-mentioned strategic challenges to make effective use of liquidity buffers[320], capital requirements may also be a more robust tool that supervisors and regulators have decades of experience with.[321]

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[317] *See* FIRESTONE et al., *supra* note 4, at 1.
[318] *See* ANAT R. ADMATI & MARTIN HELLWIG, THE BANKER'S NEW CLOTHES: WHAT'S WRONG WITH BANKING AND WHAT TO DO ABOUT IT 179 (2013).
[319] Jochen Schanz et al., *The long-term economic impact of higher capital level*, BIS Papers No. 60 73, 73 (2011).
[320] *See supra* III.B.
[321] To be sure, leaving aside the industry itself, there are voices in the literature that reject higher capital requirements due to the adverse effects on economic growth. *See* Charles Calomiris, *A 25% bank equity requirement really a no-brainer?*, VoxEU (Nov. 28, 2013), https://voxeu.org/article/25-bank-equity-requirement. However, the evidence about the negative effects of capital requirements in the range of 20 to 30 percent is mixed, at best.