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## Resolution Triggers for Systemically Important Financial Institutions

John Crawford

*University of California Hastings College of the Law*, [crawforj@uchastings.edu](mailto:crawforj@uchastings.edu)

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John Crawford\*

# Resolution Triggers for Systemically Important Financial Institutions

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## I. INTRODUCTION

When Lehman Brothers filed for bankruptcy in September 2008, it triggered a panic in financial markets that threatened catastrophic harm to the real economy.<sup>1</sup> Regulators, who had already worked to

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\* Professor of Law, University of California, Hastings College of the Law. I am grateful to Abe Cable and Dave Owen for helpful comments on earlier drafts.

1. See, e.g., FINANCIAL CRISIS INQUIRY COMMISSION, THE FINANCIAL CRISIS INQUIRY REPORT 340–42 (Official Government ed. 2011) [hereinafter FCIC REPORT] (describing in general terms the aftermath of Lehman's failure).

prevent the default of major financial firms,<sup>2</sup> redoubled their efforts, putting taxpayer money at risk as they recapitalized large financial firms and guaranteed their liabilities in order to prevent further failures.<sup>3</sup>

These events served to illustrate a classic dilemma regulators too often face when a large financial firm totters: allow the firm to fail and risk panic and catastrophic contagion, or bail it out, putting taxpayers at risk and exacerbating “moral hazard.”<sup>4</sup> Firms whose imminent failure would force regulators to make this type of choice are “too big to fail.”<sup>5</sup> One of the central themes of post-crisis reforms has been tackling the too-big-to-fail problem by trying to ensure that systemically important financial institutions (SIFIs) can fail while *neither* sparking a broader panic *nor* requiring taxpayers to cover losses for the SIFIs’ creditors.<sup>6</sup> Solving this problem is vital, as the essential conditions that could spark a financial crisis and SIFI failures persist.<sup>7</sup>

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2. By the time of Lehman’s bankruptcy, regulators had intervened directly to prevent the failure of Bear Stearns and of Fannie Mae and Freddie Mac. *Id.* at 280–91, 309–23. The Federal Reserve had also already established several emergency lending facilities for broker-dealers such as Goldman Sachs and Morgan Stanley. *See, e.g.*, DAVIS POLK & WARDWELL LLP, FINANCIAL CRISIS MANUAL: A GUIDE TO THE LAWS, REGULATIONS AND CONTRACTS OF THE FINANCIAL CRISIS (2009) [hereinafter FINANCIAL CRISIS MANUAL].
  3. FINANCIAL CRISIS MANUAL, *supra* note 2, at 18–104, 116–43 (describing the bailout of insurance giant AIG, and capital injections and liability guarantee programs for banks and BHCs).
  4. Moral hazard refers to the phenomenon of people taking less care to avoid bad outcomes when they are protected from bearing the full cost of those outcomes. *See, e.g.*, TIMOTHY F. GEITHNER, STRESS TEST: REFLECTIONS ON FINANCIAL CRISES 9 (2014).
  5. “Too big to fail” should be understood as describing a firm’s “systemic footprint,” not just its size. *See* Jeremy C. Stein, Member, Bd. of Governors of the Fed. Reserve Sys., Regulating Financial Institutions, Remarks at “Rethinking Macro Policy II,” a conference sponsored by the International Monetary Fund (April 17, 2013), <https://www.federalreserve.gov/newsevents/speech/stein20130417a.htm> [<https://perma.unl.edu/Q379-FYRW>] (“To be clear, I am using the word ‘size’ as shorthand for the broader concept of an institution’s systemic footprint, which in addition to size, might reflect complexity, interconnectedness, and global span of operations.”).
  6. *See, e.g.*, John Crawford, “Single Point of Entry”: *The Promise and Limits of the Latest Cure for Bailouts*, 109 NW. U. L. REV. 103 (2014).
  7. The essence of a financial crisis is the widespread withdrawal of short-term funding—that is, widespread runs or a panic. *See* Timothy F. Geithner, *Are We Safe Yet: How to Manage Financial Crises*, 96 FOREIGN AFF. 54 (2017), <https://www.foreignaffairs.com/articles/united-states/2016-12-12/are-we-safe-yet> [<https://perma.unl.edu/J46S-EQTK>] (“It’s important to understand why financial systems are so vulnerable to crises. First, and most important, they are inherently prone to panics and runs.”); John H. Cochrane, *Lessons from the Financial Crisis*, REGULATION Winter 2009–10, at 34 (“The signature event of [the] financial crisis [of 2008] was the ‘run,’ ‘panic,’ ‘flight to quality,’ or whatever you choose to call it . . . . If that panic had not occurred, it is likely that any economic contraction following the housing bust would have been no worse than the mild 2001 reces-

Scholars and regulators have made significant progress in navigating a path between the twin dangers of bailout and contagion *once* a decision is made to place a SIFI into either bankruptcy or resolution, the two special legal processes for dealing with failed financial firms.<sup>8</sup> (Unless otherwise specified, I will use “resolution” in this Article to refer to either legal process.)<sup>9</sup> There is, however, a significant lingering weakness both in the legal scholarship and in the on-the-ground reforms: the lack of appropriate guidelines informing the decision to trigger the resolution process in the first place. The weakness is significant, as failure to get the trigger right could exacerbate crisis dynamics and undo much of the work regulators have done to address the too-big-to-fail problem.<sup>10</sup> This Article addresses this weakness, identifying significant obstacles to an optimal triggering framework in the current regulatory landscape and proposing reforms to help achieve such a framework going forward.

Two overlapping challenges confront regulators in designing an optimal triggering framework: choosing the correct triggering metric and ensuring the timeliness of the decision to pull the trigger. The principal options for triggering resolution are (i) “balance sheet” insolvency, when the value of a firm’s assets falls below its liabilities; and (ii) illiquidity, when a firm runs out of cash and easily saleable assets.<sup>11</sup> I argue below that while either option is appropriate for nonfinancial firms, balance sheet insolvency is the appropriate trigger for financial institutions.<sup>12</sup> Using liquidity as a trigger risks needlessly shutting down a viable financial institution.<sup>13</sup> More importantly, it

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sion that followed the dot-com bust.”). There are still trillions of dollars of uninsured short-term debt claims in the U.S. financial system. *See, e.g.*, THE VOLCKER ALL., UNFINISHED BUSINESS: BANKING IN THE SHADOWS 14 fig.1 (2016) (measuring uninsured short-term debt in the financial system). A large portion of these are issued by SIFIs. *See, e.g.*, *infra* note 36 and accompanying text.

8. *See infra* section II.C.

9. As noted below, there are reasons to believe that bankruptcy is an inferior option for large financial institutions compared to a regulator-run resolution process. *See infra* section II.C.; *see also infra* notes 171–179 and accompanying text. Because the trigger issues are for the most part common to the two legal processes, however, I avoid wading too deeply into this debate.

10. *See infra* section III.A.

11. *See infra* section II.B. Illiquidity is sometimes referred to as “cash flow insolvency,” but in this Article, I use insolvency to refer exclusively to “balance sheet” insolvency. As explained below, it is possible for a solvent firm to run out of cash and for an insolvent firm *not* to run out of cash for a considerable period of time. *Infra* section II.B.

12. *See infra* Part III.

13. The Federal Reserve’s creation depended in large part on this insight: solvent banks sometimes run out of cash, and it is better to provide liquidity support (i.e., loans) to these banks than it is to force them to default. *See, e.g.*, Morgan Ricks, *Regulating Money Creation After the Crisis*, 1 HARV. BUS. L. REV. 75, 117 (2012) (“The Federal Reserve Act established a quasi-public central bank and authorized it to supply liquidity to the banking system in times of stress.”). For a com-

creates perverse incentives on the part of firms trying to avoid resolution—prompting them to hoard liquidity at the very moment the market most needs these institutions to use their cash to lend to and buy from others.<sup>14</sup> This problem has particular salience because the Federal Reserve and the Federal Deposit Insurance Corporation (FDIC), under current guidance for the mandatory SIFI pre-bankruptcy plans popularly known as “living wills,” have pushed SIFIs to include a liquidity tripwire for a bankruptcy filing.<sup>15</sup>

Even if one uses a solvency-based trigger, however, timeliness remains a challenge due to biases on the part of private actors and regulators to delay pulling the trigger, and to the fact that regulatory measures of capital often lag real economic developments.<sup>16</sup> There is nothing in the principal SIFI resolution mechanism established by the Dodd-Frank Act, titled the Orderly Liquidation Authority (OLA), that mitigates or counteracts these factors. This is a problem because waiting too long to pull the trigger could undermine the work done to eliminate the too-big-to-fail dilemma. A key element of the “solution” to the too-big-to-fail problem is ensuring that SIFIs have sufficient loss-bearing capacity—essentially, claims on the firm that do not pose a “run” risk,<sup>17</sup> as deposits do—to absorb all the SIFI’s losses, but delay allows losses to metastasize. If losses grow large enough, they may require regulators again to decide whether to engage in a bailout or to impose losses on deposit-like creditors, which could spark a panic.<sup>18</sup>

This Article’s analysis yields several important policy implications. First, liquidity—the cash or easily saleable assets a firm holds—should not be used as a trigger for placing a SIFI into bankruptcy or resolution.<sup>19</sup> A second implication follows from the first: as long as we tolerate vast amounts of uninsured short-term debt funding for nondepository institutions,<sup>20</sup> post-crisis restrictions on emergency lending to SIFIs by the Federal Reserve should be relaxed.<sup>21</sup> Third, it is important to establish clearer guidelines for triggering resolution proceedings at the right moment. A promising framework already exists; it was set forth in an “early remediation” rule that was proposed in 2012 but never finalized.<sup>22</sup> The trigger problem would be significantly

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prehensive account of the functions of the Federal Reserve today (as well as the legal and non-legal sources of authority for these functions), see PETER CONTI-BROWN, *THE POWER AND INDEPENDENCE OF THE FEDERAL RESERVE* (2016).

14. *See infra* section III.A.

15. *See infra* section III.A.

16. *See infra* subsection III.B.2.

17. *See infra* notes 29, 58–60 and accompanying text.

18. *See infra* section II.C.

19. *See infra* section IV.A.

20. The optimal approach would likely be not to tolerate this but there is, at present, little political traction for such a change. *See infra* note 66.

21. *See infra* section IV.A.

22. *See infra* section IV.B.

mitigated if this rule were finalized and implemented. Fourth, the use of *market* measures of solvency should be explored.<sup>23</sup> These measures, which could be employed instead of or in addition to regulatory capital measures, could potentially improve the timeliness of triggering decisions. (The yet-to-be-finalized early remediation rule provides a mechanism for exploring the use of market measures in a cautious way.) Finally, to the degree concerns about timeliness persist after other steps have been implemented, regulators should consider increasing the amount of “loss-absorbing” long-term debt SIFIs are required to issue.<sup>24</sup>

Part II of this Article provides a brief account of background concepts essential to the arguments of the piece. Part III lays out the gaps and obstacles in the current regulatory landscape that impede the realization of an optimal framework for triggering resolution. Part IV proposes steps for achieving such a framework, and Part V concludes.

## II. BACKGROUND CONCEPTS

Understanding the arguments about resolution triggers requires a baseline understanding of certain key institutions and concepts. This Part briefly provides the necessary background, describing the key entities at issue, the most prominent candidates for triggering metrics, and different mechanisms for dealing with failed firms. Readers familiar with this background material may wish to jump ahead to Part III.

### A. Banks, Shadow Banks, and Bank Holding Companies

*Banks.* As used in this Article, a “bank” with no other qualifier, and unless otherwise noted, is a generic term for depository institutions. These include commercial banks, thrifts, and other legal entities that may receive deposits and enjoy federal deposit insurance.<sup>25</sup>

*Shadow Banks.* “Shadow banking,” as used in this Article, refers to *non-banks*—such as broker-dealers—that adopt a bank’s financing model: namely, using money raised by issuing large quantities of short-term debt to fund portfolios of long(er)-term financial assets.<sup>26</sup>

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23. See *infra* section IV.B.

24. See *infra* section IV.C.

25. For a comprehensive account of legal entities that have been defined as “banks” under the Bank Holding Company Act (BHCA) of 1956, see Saule T. Omarova & Margaret E. Tahyar, *That Which We Call a Bank: Revisiting the History of Bank Holding Company Regulation in the United States*, 31 REV. BANKING & FIN. L. 113 (2011).

26. See MORGAN RICKS, THE MONEY PROBLEM: RETHINKING FINANCIAL REGULATION ix (2017) (“[Shadow banking] has come to mean different things to different people. . . . To [the Crisis Response Team at the U.S. Treasury] . . . the term meant something . . . quite specific. When we talked about shadow banking, we were referring to the financial sector’s use of vast amounts of *short-term debt* to fund portfolios of financial assets.”).

While non-banks are legally prohibited from issuing deposits,<sup>27</sup> it turns out that they can comply with the letter of this rule while violating its spirit by issuing the functional equivalent of deposits. These deposit equivalents include instruments such as commercial paper or “repo loans.”<sup>28</sup> For the short-term debt claimant of a shadow bank, the transaction serves as a close substitute for a bank deposit—that is, it serves as a safe mechanism for storing cash until it is needed to meet some transactional purpose.<sup>29</sup> Just as a bank funds (long-term) mortgages or commercial loans with demand deposits that mature continuously, a shadow bank may invest in long-term bonds with money raised by the issuance of deposit equivalents such as repo. Both types of funding models rely on the depositor’s or the short-term debt claimant’s willingness to roll her loan over from day to day or (short-term) period to period, and on other lenders readily stepping in to replace withdrawn funding. As we will see, both funding models are also vulnerable to runs and panics in the absence of a safety net.<sup>30</sup>

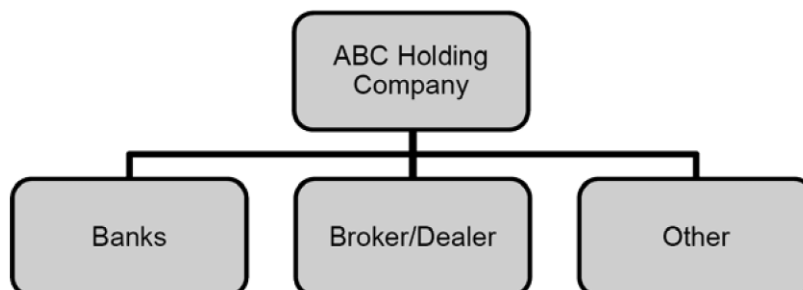
*Bank Holding Companies.* Bank holding companies (BHCs) comprise a (non-bank) parent company with various subsidiaries, includ-

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27. See Ricks, *supra* note 13, at 78–79 (describing the legal prohibition on non-banks receiving deposits as the “first law of banking”).
28. “Repo” is short for “repurchase agreement,” in which a cash lender—the functional equivalent of a depositor—makes a short-term collateralized loan to a financial institution. TOBIAS ADRIAN & HYUN SONG SHIN, THE SHADOW BANKING SYSTEM: IMPLICATIONS FOR FINANCIAL REGULATION 8 (Fed. Res. Bank of N.Y., Staff Report No. 382, 2009), [http://www.newyorkfed.org/research/staff\\_reports/sr382.pdf](http://www.newyorkfed.org/research/staff_reports/sr382.pdf) [<https://perma.unl.edu/M8SU-K7ET>] (“In a repo, the borrower sells a security today for a price below the current market price on the understanding that it will buy it back in the future at a pre-agreed price.”). A “commercial paper” is “an unsecured, short-term debt instrument issued by a corporation.” *Commercial Paper*, INVESTOPEDIA, <http://www.investopedia.com/terms/c/commercialpaper.asp> [<https://perma.unl.edu/AAB7-JCDR>]. It is worth noting that commercial paper issuers—that is, the borrower, in the position of the bank—are overwhelmingly (nonbank) financial institutions, or shadow banks. RICKS, *supra* note 26, at 36.
29. See Ricks, *supra* note 13, at 91 (describing an “economic agent’s *transaction reserve* [as] the set of assets that the agent holds primarily to facilitate desired exchanges”).
30. For example, the banking system in the United States was prone to periodic panics prior to the establishment of the Federal Deposit Insurance Corporation in 1933. See, e.g., GARY B. GORTON, MISUNDERSTANDING FINANCIAL CRISES 29 (2012) (second alteration in original) (citing an 1899 claim that “[s]ince 1793 panics have occurred [in the United States] in the following years: 1797, 1811, 1813, 1816, 1819, 1825, 1837, 1847, 1857, 1866, 1873, 1884, 1890, and 1893”); Ben Bernanke, *Origins and Mission of the Federal Reserve*, in *The Federal Reserve and the Financial Crisis* 9–10 (2013) (identifying six banking panics between 1873 and 1914). The financial crisis of 2008 is best understood as a panic in the shadow banking system, which lacked automatic access to the federal safety net. See generally GARY B. GORTON, SLAPPED BY THE INVISIBLE HAND: THE PANIC OF 2007 (2010).

ing *both* banks and non-banks.<sup>31</sup> Figure 1, on the following page, provides a stylized illustration of this structure. The largest financial institutions in the United States, including firms such as JP Morgan, Goldman Sachs, Citigroup, and Morgan Stanley, are BHCs.<sup>32</sup> These large BHCs are sometimes referred to as “global systemically important BHCs,” or GSIBs.<sup>33</sup> GSIBs are the most salient institutions today posing the too-big-to-fail dilemma, and they have been the focal point of most thinking about resolution design. This Article’s analysis assumes a GSIB structure for giant financial firms placed into resolution.<sup>34</sup>

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31. Under the original Bank Holding Company Act, the activities of bank affiliates—in other words, of BHCs and their nonbank subsidiaries—were tightly constricted. *See, e.g.*, RICHARD SCOTT CARNELL ET AL., *THE LAW OF FINANCIAL INSTITUTIONS* 416 (5th ed. 2013). With the passage of the Gramm-Leach-Bliley Act of 1999, BHCs that were adequately capitalized could elect to become *financial* holding companies, and thus “engage in any activity . . . that the [Federal Reserve] Board . . . determines . . . to be financial in nature or incidental to such financial activity; or is complementary to a financial activity and does not pose a substantial risk to the safety or soundness of depository institutions or the financial system generally.” 12 U.S.C. § 1843(k). Financial holding companies are a subspecies of the BHC.
  32. *See, e.g.*, *America’s Top 20 Bank Holding Companies*, TKGI FIN., [www.tkgi.net](http://www.tkgi.net) [<https://perma.unl.edu/88EF-QLUY>]; Nat’l Info. Ctr.,  *Holding Companies with Assets Greater than \$10 Billion*, FED. FIN. INSTS. EXAMINATION COUNCIL, <https://www.ffiec.gov/nicpubweb/nicweb/HCSGreaterThan10B.aspx> [<https://perma.unl.edu/RKZ4-2LQT>].
  33. *See, e.g.*, BD. OF GOVERNORS OF THE FED. RESERVE, *CALIBRATING THE GSIB SURCHARGE*, (2015), <https://www.federalreserve.gov/aboutthefed/boardmeetings/gsib-methodology-paper-20150720.pdf> [<https://perma.unl.edu/YX43-HXRK>].
  34. It is, of course, possible that non-GSIB financial firms will become systemically important going forward. Indeed, until 2008, the paradigmatic Wall Street “banks” were not BHCs but stand-alone investment banks—Goldman Sachs, Morgan Stanley, Merrill Lynch, Lehman Brothers, and Bear Stearns. (In 2008, all either converted to BHCs, were bought by BHCs, or failed. *See* FCIC REPORT, *supra* note 1, at 280–91, 324–43, 353–86.) While this problem lies somewhat beyond the scope of this Article, it is worth noting that the appropriate response to this threat is for the Dodd-Frank-created Financial Stability Oversight Council to designate any such firm as systemically important, which would subject the firm to prudential regulation by the Federal Reserve, and for the Federal Reserve to compel the firm to engage in the same sort of pre-failure structural adjustments that have made orderly resolution for GSIBs plausible. *See* 12 U.S.C. § 5323.



Figure 1: Illustrative GSIB Structure<sup>35</sup>

An important point about GSIBs is that even as they house giant banks, they are *also* a locus of *shadow*-banking activity in their non-bank subsidiaries. For example, the broker-dealer arms of the GSIBs have continued to fund themselves with significant quantities of short-term debt even after the crisis.<sup>36</sup> While the bank subsidiaries of a GSIB have automatic access to the safety net and a special resolution regime, the broker-dealer subsidiaries do not.<sup>37</sup>

## B. Capital and Liquidity

Two essential concepts in understanding bank failure are *capital* and *liquidity*. One justification for placing a firm into resolution or bankruptcy proceedings might be that it owes more to creditors than its assets are worth. To try to prevent this from happening, banks must meet capital requirements. Capital requirements are exceedingly complicated in their details,<sup>38</sup> but conceptually straightforward: they mandate that the value of a bank's assets exceed the bank's lia-

35. Fed. Deposit Ins. Corp., Title II Resolution Strategy Overview 14 (Aug. 2012), <https://www.fdic.gov/resauthority/sifiresolution.pdf> [https://perma.unl.edu/KH6X-CC84].

36. See, e.g., Eric S. Rosengren, President & Chief Exec. Officer, Fed. Reserve Bank of Bos., Keynote Remarks at the Conference on the Risks of Wholesale Funding, Fig. 8 (Aug. 13, 2014), <https://www.bostonfed.org/news-and-events/speeches/broker-dealer-finance-and-financial-stability.aspx> [https://perma.unl.edu/MB4W-6G7K] (showing the persistence of post-crisis broker-dealer reliance on short-term funding sources such as repos and securities lending).

37. Regarding banks' access to the safety net, see, for example, *What's Covered*, FED. DEPOSIT INS. CORP., <http://www.fdic.gov/deposit/covered/> [https://perma.unl.edu/FC63-FGJK]; *The Federal Reserve Discount Window*, <http://www.frbdiscountwindow.org/Pages/General-Information/The-Discount-Window.aspx> [https://perma.unl.edu/WB5Y-V8MU]. Regarding broker-dealers' ineligibility for safety net coverage, see, for example, 12 U.S.C. § 378 (2012) (prohibiting securities dealers from engaging in the business of banking).

38. See 12 C.F.R. § 3.10 (2018).

bilities by a minimum amount.<sup>39</sup> (They have nothing to do with how much cash a bank holds.)<sup>40</sup> The thicker a bank's capital buffer, the more the bank can absorb losses in the value of its assets without in turn defaulting on its own obligations. (I will return to capital regulation in some detail below.)<sup>41</sup>

It is important to note that a bank can be insolvent—that is, it can have negative capital because its liabilities exceed the value of its assets—while remaining current on its obligations for a considerable period of time.<sup>42</sup> Banks are, however, also famously vulnerable to the reverse problem: they may, under certain conditions, be *unable* to meet their obligations—for example, honoring depositor withdrawal requests—even if they are fundamentally solvent.<sup>43</sup>

This latter problem for banks arises because of a “liquidity” mismatch between their assets and liabilities. An asset is “liquid” if it can be sold quickly for full value. Cash is perfectly liquid; Treasuries and publicly-traded shares are very liquid.<sup>44</sup> An individual loan by a bank to a customer or homeowner or small business, on the other hand, tends to be illiquid—that is, it cannot be sold quickly for its full value.<sup>45</sup> Liquidity is important for a bank: if its depositors demand

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39. See, e.g., CARNELL ET AL., *supra* note 31, at 217–18 (defining “capital” in the bank regulatory context as distinct from other usages).

40. See, e.g., Anat R. Admati et al., *Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation* 1 (Oct. 22, 2013) (unpublished article), <https://www.gsb.stanford.edu/faculty-research/working-papers/fallacies-irrelevant-facts-myths-discussion-capital-regulation-why> [<https://perma.unl.edu/7U83-EVF8>] (observing that discussion of capital regulation is “often clouded by confusion between capital requirements and liquidity or reserve requirements”).

41. See *infra* section III.B.

42. As Douglas Shackelford and his co-authors observe, “even [a firm] that is unsound—if it can conceal its losses and keep on bringing in new investors—may indefinitely postpone the day of reckoning. Bernard L. Madoff Investment Securities LLC might be (seemingly) flourishing to this day if the financial crisis had not triggered cash demands from its investors that exceeded its on-hand liquid capital.” Douglas A. Shackelford et al., *Taxation and the Financial Sector*, in *TAXATION AND THE FINANCIAL CRISIS* 148, 157–58 (S. Alworth & Giampolo Arachi eds., 2012). The effect is, of course, even stronger at insured depositories, where most depositors need not fear loss even in the event of bank failure.

43. See, e.g., *id.* (providing that “even a sound and well-managed firm may be subject to a bank run”); see also Douglas W. Diamond & Philip H. Dybvig, *Bank Runs, Deposit Insurance, and Liquidity*, 91 J. POL. ECON. 401 (1983) (modeling how a run could occur even on solvent but illiquid banks).

44. Of course, every debt obligation is a liability for the borrower, but an asset for the claimant. Demand deposits, the paradigmatic form of bank liability, constitute an extremely liquid asset for the depositor.

45. John Crawford, *Capital Accounts: Bank Capital, Crises, and the Determinants of an Optimal Regulatory Approach*, 66 HASTINGS L.J. 1161, 1167 (2015) (“An asset may be *illiquid* . . . because of the time it takes to sell it at full price; because of the discount from full value one must accept in selling it; or both. The time lag may be due to the difficulty of identifying a willing buyer or to the buyer's need to perform due diligence before closing the deal. Even with a willing buyer and time

their principal back at unexpectedly high rates, a bank may run out of cash and be forced to monetize other assets in order to meet redemption requests.<sup>46</sup> If its assets are illiquid—as individual bank loans typically are—the bank may be forced either to halt redemptions (i.e., stop giving depositors their money back) or to sell assets at depressed prices, both of which can have extremely pernicious knock-on effects.<sup>47</sup> As a buffer against unexpectedly high rates of deposit withdrawals, banks must hold some percentage of their deposit base “in the form of vault cash or deposits with Federal Reserve Banks.”<sup>48</sup> (These are reserve, not capital, requirements.) If withdrawals exceed the buffer, banks can also seek loans from the Federal Reserve’s “discount window.”<sup>49</sup>

Similar liquidity problems may afflict shadow banks, and it is worth recalling that even as shadow banks may hold assets that ap-

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for diligence, the seller may suffer a ‘lemons’ discount if the seller cannot credibly communicate all the (good) information about the asset’s quality to the buyer.”).

46. In a famous scene in the movie *It’s a Wonderful Life*, George Bailey (played by Jimmy Stewart) talks his bank customers out of running on the bank by explaining that the bank’s assets were loans on their neighbor’s houses, which the bank could not collect at a moment’s notice:

[Y]ou . . . you . . . you’re thinking of this place all wrong. As if I had the money back in a safe. The, the money’s not here. Your money’s in Joe’s house . . . right next to yours. And in the Kennedy house, and Mrs. Macklin’s house, and, and a hundred others. Why, you’re lending them the money to build, and then, they’re going to pay it back to you as best they can. Now what are you going to do? Foreclose on them?

“*It’s a Wonderful Life*”, INTERNET MOVIE SCRIPT DATABASE, <http://www.imsdb.com/scripts/It's-a-Wonderful-Life.html> <https://perma.unl.edu/7FWU-JBHX>].

47. Halting redemptions can cause consequential losses for claimants, *infra* note 59, as well as create contagious runs on sister banks, *infra* note 60. On the other hand, engaging in asset sales at depressed prices can create extremely destructive negative externalities as other firms holding the same or similar assets have to mark them down, weakening their capital position and—if the assets are being used as collateral—forcing the firm to scramble to find other cash or securities as collateral. See Anil K. Kashyap et al., *Rethinking Capital Regulation in FED. RESERVE BANK OF KAN. CITY, MAINTAINING STABILITY IN A CHANGING FINANCIAL SYSTEM* 431, 440–41, (2008), <https://www.kansascityfed.org/~media/files/publicat/sympos/2008/kashyaprajanstein031209.pdf?la=EN> [<https://perma.unl.edu/D3GK-XNN7>] (describing this dynamic as “the fire-sale externality”). These firms then may be forced to liquidate assets at fire sale prices, leading to a vicious cycle. *Id.* Further, as banks hoard liquidity in this type of environment, it may constrain lending to new, creditworthy consumers and businesses, harming economic growth. *Id.* at 442 (describing a “credit-crunch externality”).
48. Reserve REQUIREMENTS, Bd. Governors Fed. Reserve Sys., <https://www.federalreserve.gov/monetarypolicy/reservereq.htm> [<https://perma.unl.edu/AH96-PD6A>] (last updated Nov. 3, 2017).
49. The discount window refers to the mechanism by which the Federal Reserve may extend loans to depository institutions. See *The Federal Reserve Discount Window*, FED. RESERVE DISCOUNT WINDOW, <https://www.frbdiscountwindow.org/en/Pages/General-Information/The-Discount-Window.aspx> [<https://perma.unl.edu/WB5Y-V8MU>] (last updated June 6, 2015).

pear more liquid than traditional bank assets do in normal times, a key feature of financial crises is the desiccation of previously liquid asset markets.<sup>50</sup> Unlike banks, shadow banks lack automatic access to lending by the Federal Reserve. However, the largest banks *and* bank holding companies—which, recall, house much of the shadow banking activity in our financial system<sup>51</sup>—face complex liquidity requirements, which may be satisfied by cash *or* other instruments that receive a regulatory imprimatur as liquid.<sup>52</sup> Furthermore, the Federal Reserve may lend to non-depositories in “unusual and exigent circumstances” under Section 13(3) of the Federal Reserve Act.<sup>53</sup> The Federal Reserve used its authority under the provision to provide liquidity to large broker dealers (operating as shadow banks) during the crisis in 2008.<sup>54</sup> Concerns over moral hazard, however, prompted Congress in the Dodd Frank Act to try to limit the authority so that it can be used only to provide liquidity to the entire financial system—that is, as part of programs with broad-based eligibility—rather than to prevent the failure of specific institutions.<sup>55</sup>

### C. Bankruptcy, Bank Resolution, and the Orderly Liquidation Authority

Bankruptcy exists to prevent the destructive effects of “grab law” that would ensue if creditors could enforce their contractual rights to collect from an insolvent firm.<sup>56</sup> The defining feature of bankruptcy is

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50. *See, e.g.*, FCIC REPORT, *supra* note 1, at 250–51 (describing the onset of the first wave of the liquidity crisis in 2007, with BNP Paribas suspending redemptions at three investment funds due to an inability to value assets arising from the “complete evaporation of liquidity in certain market segments of the U.S. securitization market”).

51. *See infra* section II.A.

52. The principal liquidity requirement banks and BHCs must meet is a “liquidity coverage ratio” (LCR). The LCR requires large banking organizations to “maintain an amount of high quality liquid assets . . . that is no less than 100 percent of its total net cash outflows over a prospective 30 calendar-day period.” Liquidity Coverage Ratio; Liquidity Risk Measurement Standards, 79 Fed. Reg. 61440, 61443 (Oct. 10, 2014). For a description of assets that may count toward the HQLA requirement, see Visual Memorandum, Davis Polk & Wardwell LLP, U.S. Basel III Liquidity Coverage Ratio Final Rule, 37–43, (Sept. 23, 2014), [http://www.davispolk.com/files/9.23.14.US\\_Basel\\_3.LCR\\_Final\\_Rule\\_.pdf](http://www.davispolk.com/files/9.23.14.US_Basel_3.LCR_Final_Rule_.pdf) [<https://perma.unl.edu/TB2J-V8G8>].

53. 12 U.S.C. § 343(3)(A) (2012).

54. *See, e.g.*, FINANCIAL CRISIS MANUAL, *supra* note 2, at 18–40.

55. 12 U.S.C. § 343(3)(B)(i) (2012).

56. THOMAS H. JACKSON, THE LOGIC AND LIMITS OF BANKRUPTCY LAW 8–9 (1986) (“Creditor remedies outside of bankruptcy . . . can be accurately described as a species of ‘grab law,’ represented by the key characteristic of first-come, first-served.”). As a stylized example, consider a firm that makes widgets. The firm can sell the widgets for more than it costs to make them, but its profits are too small to service pre-existing loans. (Imagine the firm took out the loans in an ill-fated attempt to expand into the gadgets market.) The firm is insolvent, but by

an automatic “stay” on all claims on the firm or the debtor’s estate in order to preserve and maximize enterprise value and the aggregate recovery to creditors, and to ensure that contractual priority among creditors is honored.<sup>57</sup>

While bankruptcy can solve an important collective action problem for most firms, its central tool—the stay—would be extremely destructive in the context of banks. (Indeed, banks cannot legally be put into bankruptcy.)<sup>58</sup> Bankruptcy inevitably creates a degree of delay and uncertainty for creditors. The most important class of creditors for a bank is, of course, its depositors. The mere whiff of any possible interference or delay in their ability to access their full principal is enough to trigger a run—that is, the *en masse* withdrawal of deposits, with its myriad destructive effects. These destructive effects may include the suspension of deposit redemptions, which, while it may save the bank as an institution, may impose costs on depositors that are much higher than any ultimate investment losses.<sup>59</sup> Even more problematic is the contagion risk that can arise from suspending redemptions at one bank: depositors at sister banks may fear a similar fate and decide

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continuing to produce widgets, it ensures that creditors *in aggregate* will be able to recover more. But each creditor will have an incentive to foreclose on the firm’s assets to satisfy her claim, even if it means key equipment will no longer be available for widget production—thus halting the firm’s (profitable) operations and lowering the aggregate amount available for recovery. If the creditor wins the race, she may be paid in full, and others’ losses are of no concern to her. Even if a particular creditor has altruistic impulses, holding back simply means someone else will win the race and the overall result will be the same: production will cease, and the pie will shrink. This can be modeled as a “prisoners dilemma” or a “tragedy of the commons.” *Id.* at 10–14. This dynamic is what bankruptcy law (successfully) aims to stop. *Id.*

57. 11 U.S.C. § 362 (2012). It is worth noting that the stay does not operate with respect to certain financial contracts, typically called “qualified financial contracts” (QFCs). See Charles W. Mooney Jr., *The Bankruptcy Code’s Safe Harbors for Settlement Payments and Securities Contracts: When is Safe Too Safe?*, 49 TEX. INT’L L.J. 245, 246 n.2 (2014) (citing various provisions of the bankruptcy code that operate as an exemption from the automatic stay for QFCs).
58. 11 U.S.C. § 109(b), (d) (2012) (specifically defining “debtor” for purposes of Chapter 7 and Chapter 11 of the bankruptcy code to exclude banks); *id.* §§ 301(a), 303(a) (limiting both voluntary and involuntary cases under the bankruptcy code to “debtors”).
59. See Ricks, *supra* note 13, at 83 (explaining that because deposits and deposit equivalents are held primarily to facilitate near-term transactions for their claimants, their default—unlike the default on a long-term debt claim—can “cause *consequential* losses to their holders—opportunity costs, operational disruption, reputational damage, or even default. Critically, these losses are distinct from, and might far exceed, any *investment* losses that their holders experience.”).

to run as well.<sup>60</sup> Widespread runs are incredibly damaging and constitute the essence of a financial crisis.<sup>61</sup>

It is clear, then, that a different mechanism is called for in dealing with faltering banks. In short, depositors need to feel confident that they will experience neither loss nor delay in accessing their principal in order to prevent a bank's failure from triggering widespread runs.<sup>62</sup> The "no loss" criterion is met by federal deposit insurance.<sup>63</sup> The "no delay" criterion is met by a special resolution process run by the FDIC. A traditional FDIC bank resolution is extraordinarily quick: it is often accomplished in a weekend, with depositors receiving immediate access to their deposits.<sup>64</sup> The FDIC has a great deal of discretion in managing the resolution process,<sup>65</sup> and it can pay off creditors and make decisions about how to deal with the assets of a failed bank without awaiting a judge's decision.

Bank resolution prevents the problems that would ensue if banks were put into bankruptcy. It does not, however, extend to *shadow* banks. This creates difficulties because the inadequacy of bankruptcy applies just as much to shadow banks as it does to banks: the risks of contagion and the vicious knock-on effects exist with respect to deposit-*like* creditors just as they do with respect to depositors. The major loci of shadow banking today are the GSIBs' non-bank subsidiaries. These subsidiaries, as well as the parent holding companies themselves, are *not* subject to bank resolution. The default method of dealing with them if they fail is bankruptcy. This is a problem.<sup>66</sup>

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60. See Hal S. Scott, *Connectedness and Contagion: A Global Perspective*, Address to the International Monetary Fund 3 (Nov. 7, 2016), <https://www.imf.org/external/np/seminars/eng/2016/contagionrisk/110716.pdf> [https://perma.unl.edu/F2B9-TYL8] (defining contagion as a situation in which "actual failure or fear of failure of a financial institution causes short-term creditors-investors to withdraw and withhold funding for financial institutions generally out of lack of information or irrational panic").

61. See, e.g., Geithner, *supra* note 7 ("It's important to understand why financial systems are so vulnerable to crises. First, and most important, they are inherently prone to panics and runs.").

62. See Crawford, *supra* note 6, at 105.

63. 12 U.S.C. § 1821(a)(1) (2012). The FDIC is also empowered, with the consent of the Treasury Secretary and two-thirds of the Board of Governors of the Federal Reserve, to protect deposits above the insurance cap in the event it determines that doing so is necessary to preserve the financial stability of the United States. This is referred to as the "systemic risk" exception. See 12 U.S.C. § 1823(c)(4)(G) (2012).

64. See, e.g., CARNELL ET AL., *supra* note 31, at 502.

65. *Id.* at 501–08. It is important to note that unless the systemic risk exception is invoked, *supra* note 63, the FDIC is constrained by "least cost resolution" requirements, which mandate the FDIC adopt a resolution strategy that leads to the lowest direct cost to the deposit insurance fund. 12 U.S.C. § 1823(c)(4) (2012).

66. There are compelling arguments that the optimal design of the financial system would stamp out shadow banking entirely; if it did, then most of the challenge of resolving large non-bank financial institutions would disappear. See *generally*

Congress attempted to address this problem in the Dodd-Frank Act with the creation of the OLA.<sup>67</sup> The OLA confers authority on the FDIC to resolve non-bank financial institutions whose failure would threaten financial stability, and to do so outside of bankruptcy, upon the recommendation and with the approval of the Secretary of the Treasury and the majority of the Board of Governors of the Federal Reserve.<sup>68</sup> Invocation of the OLA requires, *inter alia*, a determination by the Treasury Secretary that “the financial company is in default or in danger of default”; that its failure and resolution outside the OLA “would have serious adverse effects on financial stability in the United States”; and that “no viable private sector alternative is available to prevent . . . default.”<sup>69</sup>

On its own, however, this new authority would be unlikely to prevent contagious spillovers, for two reasons. First, the complexity of a GSIB’s capital structure, organizational design, and web of counterparty relationships is far greater than that of a traditional bank, making it much harder for any resolution authority to meet the “no delay” condition by making clean decisions in a short period of time.<sup>70</sup> Second, even if the FDIC could act with the requisite speed in resolving a GSIB, it would lack credible authority to protect all the non-deposit creditors whose claims serve as deposit substitutes; thus,

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RICKS, *supra* note 26. While this is something to work toward in the longer term, the *near*-term politics of such a move are likely intractable. *See, e.g.*, Vítor Constâncio, Vice President, European Cent. Bank, Macroprudential Policy in a Changing Financial System, Remarks at the Second ECB Macroprudential Policy and Research Conference, (May 11, 2017), <https://www.ecb.europa.eu/press/key/date/2017/html/ecb.sp170511.en.html> [<https://perma.unl.edu/8MRG-TRSR>] (concluding that Ricks’s proposal to stamp out shadow banking seems “too complex to be within the realm of practical possibility”).

67. 12 USC § 5384 (2012).

68. *Id.* § 5383. This is sometimes referred to as “three keys turning”—the Fed, the FDIC, and the Secretary of the Treasury all have to agree. If the firm is a broker-dealer, then the Securities and Exchange Commission acts “in consultation with the Corporation.” *Id.* § 5383(a)(1)(B). If the firm is an insurance company, then the Director of the Federal Insurance Office acts “in consultation with the Corporation.” *Id.* § 5383(a)(1)(C).

69. *Id.* § 5383(b).

70. *See, e.g.*, DAVID SKEEL, *THE NEW FINANCIAL DEAL* 125 (2011) (noting that in traditional bank resolutions the FDIC deals primarily with deposit liabilities); Stephen J. Lubben, *OLA After Single Point of Entry: Has Anything Changed?*, in *AN UNFINISHED MISSION: MAKING WALL STREET WORK FOR US* 13 (Mike Konczal & Marcus Stanley eds., 2013) (observing that the OLA on its own terms is ill-equipped to deal with derivatives contracts); Randall D. Guynn, *Are Bailouts Inevitable?*, 29 *YALE J. REG.* 121, 150 (2012) (noting that while “the FDIC has considerable experience resolving community and medium-sized banks . . . , it has no experience resolving a global SIFI. The business and balance sheets of global SIFIs are very different from and more complex than those of community and regional banks.”).

it would fail to meet the “no loss” condition.<sup>71</sup> Again, failing to meet either condition could be enough to spark contagious runs—precisely what special resolution authorities aim to prevent.

Regulators have come up with an ingenious two-pronged solution to the problem.<sup>72</sup> First, to address the challenge of speed, they have proposed a strategy that focuses all resolution efforts at the holding company level.<sup>73</sup> Under this “single-point of entry” (SPOE) strategy, all subsidiaries will be transferred to a new “bridge holding company” and will, if all goes as planned, continue their operations without interruption.<sup>74</sup> No deposit-like claimants will experience delay in accessing their principal. Second, to ensure that deposit-like creditors receive their *full* principal, regulators have finalized a set of rules to try to ensure the GSIB has issued enough equity and long-term debt—in tandem, referred to as “total loss absorbing capacity” (TLAC)—at the holding company level to absorb all BHC losses on an aggregate basis.<sup>75</sup> Because long-term debt claimants cannot effectively “run” by demanding their money back in the near-term, and because they tend to hold the claims as investments rather than as part of their transaction reserve,<sup>76</sup> imposing losses on this debt is unlikely to create the same sort of systemic risks that imposing losses on short-term debt does.<sup>77</sup>

To facilitate the SPOE strategy, the rules require not only that the largest GSIBs issue large amounts of long-term debt at the holding company level but also that they *refrain* from issuing deposit-like

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71. See Crawford, *supra* note 6, at 106–07. It is worth noting that failing to prevent haircuts of deposit-like debt exacerbates the problem of delay: these creditors would not automatically be made whole and determining how much they *should* receive could be a time-consuming process.

72. Steven Schwarcz analyzes the regulators’ move to make the OLA potentially workable as one from a *reactive* to a *proactive* resolution approach. See Steven L. Schwarcz, *Beyond Bankruptcy*, (Feb. 16, 2017) (unpublished paper), [http://scholarship.law.duke.edu/faculty\\_scholarship/3755/](http://scholarship.law.duke.edu/faculty_scholarship/3755/) [<https://perma.unl.edu/NBY4-P582>].

73. Resolution of Systemically Important Financial Institutions: The Single Point of Entry Strategy, 78 Fed. Reg. 76614 (Dec. 18, 2013). It is worth noting that while the “single point of entry” strategy was originally developed as a way to implement the Orderly Liquidation Authority provided under Title II of Dodd-Frank, proposals to amend the bankruptcy code now also routinely assume a single point of entry strategy for dealing with the failed institution. See *infra* note 174.

74. *Id.*

75. Total Loss-Absorbing Capacity, Long-Term Debt, and Clean Holding Company Requirements for Systemically Important U.S. Bank Holding Companies and Intermediate Holding Companies of Systemically Important Foreign Banking Organizations, 82 Fed. Reg. 8266 (Jan. 24, 2017) [hereinafter Total Loss-Absorbing Capacity].

76. See Ricks, *supra* note 13, at 91.

77. See *supra* notes 46–47, 59–61, and accompanying text.



claims at the holding company level.<sup>78</sup> While many remain skeptical of how well this combined approach will actually work when push comes to shove,<sup>79</sup> there is a good deal of optimism that it will prove effective.<sup>80</sup>

### III. TRIGGER PROBLEMS

Much has been written on how to structure the resolution process for GSIBs so that, once it is triggered, regulators can avoid the terrible choice between bailouts and contagion risk.<sup>81</sup> A critical piece of this puzzle has, however, largely been overlooked: what criteria should determine *when* the resolution process is triggered? In this Part, the Article examines aspects of the regulatory landscape that could have pernicious effects on the decision-making process for triggering a resolution. In the next Part, the Article lays out a framework for a better approach.

#### A. The Wrong Trigger: Liquidity

In considering bankruptcy and resolution proceedings, it is useful to distinguish liquidity crises from capital insolvency.<sup>82</sup> I argue in this section that a liquidity crisis—that is, running low on, or completely out of, cash and liquid assets necessary for a firm to meet its obligations—may be an appropriate trigger for non-financial firms entering

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78. See *supra* notes 46–47, 59–61, and accompanying text; see also John Crawford, *Credibly Losers: A Regulatory Design for Prudential Market Discipline*, 54 AM. BUS. L.J. 107 (2017) (explaining how the long-term debt and “clean holding company” requirements make it possible to impose losses on (certain) creditors without creating conditions for contagion).

79. See, e.g., Matt Levine, *Bank Bailouts and Property Taxes*, BLOOMBERG: VIEW (June 7, 2017), <https://www.bloomberg.com/view/articles/2017-06-07/bank-bailouts-and-property-taxes> [https://perma.unl.edu/3S6T-AG82] (“The big question in post-2008 bank regulation is: Have regulators figured out how to wind up big failing banks without causing a panic or requiring taxpayer bailouts? And there has been a ton of skepticism about the answer.”).

80. See, e.g., Joint Comment Letter from John Court, et al. to Robert E. Feldman, Exec. Sec’y, Fed. Deposit Ins. Corp. 7–10 (Feb. 18, 2014) (quoting optimistic statements by a variety of financial regulators); Jerome Powell, Governor, Fed. Reserve, Ending “Too Big to Fail,” Remarks at the Institute of International Bankers 2013 Washington Conference 6 (Mar. 4, 2013) (praising single-point-of-entry as “a classic simplifier, making theoretically possible something that [had previously] seemed impossibly complex”).

81. See, e.g., David A. Skeel Jr., *Single Point of Entry and the Bankruptcy Alternative*, in *ACROSS THE GREAT DIVIDE: NEW PERSPECTIVES ON THE FINANCIAL CRISIS* 312–13 (Hoover Inst. & Brookings Inst., Martin Neil Baily & John B. Taylor eds., 2014); Lubben, *supra* note 70; Crawford, *supra* note 78; Randall D. Guynn, *Are Bailouts Inevitable?*, 29 YALE J. REG. 121 (2012); Schwarcz, *supra* note 72.

82. See *supra* section II.B.

bankruptcy<sup>83</sup> but creates significant difficulties as a trigger for banks and shadow banks.<sup>84</sup> This may be obvious to some readers,<sup>85</sup> but it is important to spell out why it is problematic given its employment in one of the most important post-crisis regulatory exercises GSIBs must engage in: crafting a resolution plan or “living will.”<sup>86</sup>

Living wills—mandated by section 165 of the Dodd-Frank Act—are plans certain banks and bank holding companies must develop that lay out how they can be unwound in bankruptcy without disrupting the broader financial system.<sup>87</sup> Among other things, the planning process may involve making organizational and operational changes to facilitate a smooth unwinding,<sup>88</sup> as well as laying out clearly defined steps for what the firm will do when its capital or liquidity falls below pre-established thresholds. Although some have expressed skepticism about the likelihood that the plans will be worth much once a GSIB is *in* bankruptcy,<sup>89</sup> there are reasons to think that the process of devel-

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83. “Cash flow” insolvency—that is, default on debt—is the trigger for involuntary bankruptcy filings in the United States. *See generally* 11 U.S.C. § 303 (2012). At the same time, for *voluntary* bankruptcy filings, capital insolvency is likely the most common driver—though in the United States, any eligible firm may file so long as it does so in “good faith,” which does not necessarily mean the firm must be insolvent (or illiquid). *See In re Integrated Telecom Express*, 384 F.3d 108 (3d Cir. 2004) (citing *In re SGL Carbon Corp.*, 200 F.3d 154 (3d Cir. 1999) (identifying “two inquiries that are particularly relevant to the question of good faith: (1) whether the petition serves a valid bankruptcy purpose, *e.g.*, by preserving a going concern or maximizing the value of the debtor’s estate, and (2) whether the petition is filed merely to obtain a tactical litigation advantage”).

84. It is worth noting that liquidity may be an appropriate trigger for pre-resolution remedial actions by SIFI regulators. *See infra* section IV.B.

85. For example, there is a rich literature on establishing triggers for contingent convertible bonds (CoCos). *See infra* section IV.B. No CoCo proposal of which I am aware uses a liquidity-based trigger for conversion. *See, e.g.*, Charles W. Calomiris & Richard J. Herring, *How to Design a Contingent Convertible Debt Requirement That Helps Solve Our Too-Big-to-Fail Problem*, 25 J. APPLIED CORP. FIN. 21, 41–49 (2013) (summarizing proposed triggers from a variety of different CoCo proposals).

86. *See Living Wills (or Resolution Plans)*, Bd. Governors Fed. Reserve Sys., <https://www.federalreserve.gov/supervisionreg/resolution-plans.htm> [<https://perma.unl.edu/K3AC-F4F8>] (last updated March 1, 2018).

87. *Id.*

88. *See, e.g.*, John Carney, *The New Plan to Bail Out ‘Too-Big-to-Fail’ Banks*, WALL ST. J. (Oct. 12, 2016), <https://www.wsj.com/articles/the-new-plan-to-bail-out-too-big-to-fail-banks-1476264604> (describing GSIBs’ reaction to living will guidance by creating “holding compan[ies] to sit between [the GSIBs]’ shareholder-owned parent compan[ies] and [their] subsidiaries” in order to “hold resources that can be rushed to support subsidiaries” that cannot be “grabbed” by outside claimants).

89. Matt Levine, *Living Wills Make Banks Think About Death*, BLOOMBERG: VIEW (April 14, 2016), <https://www.bloomberg.com/view/articles/2016-04-14/living-wills-force-banks-to-think-about-death> [<https://perma.unl.edu/29PZ-5MCU>] (“It seems implausible that any big bank could lay out a plan, in the level of detail that regulators seem to want, that could reliably guide it through any actual

oping living wills is salutary insofar as it forces bank executives to think hard about and plan for various threats to the viability of the firm.<sup>90</sup> As Dwight Eisenhower famously observed, when dealing with emergencies, “plans are worthless, but planning is everything.”<sup>91</sup> While this statement is likely true of the living will process in general, there is at least one feature of regulators’ approach to living will planning that is pernicious: the requirement that GSIBs have liquidity-based triggers for filing for bankruptcy.<sup>92</sup> In critiquing this requirement, it is helpful to distinguish (i) the mandated assumption of GSIB “self-funding” through bankruptcy—i.e., that the GSIB can do without government liquidity assistance in bankruptcy—from (ii) the requirement that this assumption drive bankruptcy *filing* decisions.

*Self-funding.* The Federal Reserve’s and FDIC’s guidance on living wills directs firms to develop “a methodology for estimating the liquidity needed after the parent’s bankruptcy filing to stabilize the surviving material entities and to allow those entities to operate post-filing.”<sup>93</sup> It is assumed that the firm’s subsidiaries will continue opera-

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bankruptcy. The actual context of a big bank’s failure will determine what the bank does; a cash-flow budget concocted years earlier to fulfill a regulatory requirement seems unlikely to be a useful guide.”).

90. Matt Levine argues that the exercise of thinking seriously about failure can have a salutary effect on bank managers:

The point of the living wills . . . is to sit banks down and make them comb through their businesses in excruciating detail, with a focus on grim aspects like liquidity crunches and operational risks in bankruptcy. A useful result of the living wills is that, if they’re done correctly, they give regulators a good overall picture of how a bank works, how money flows between its parts, what its pressure points are, and how it responds to crisis. But a much more important result is that, if they’re done correctly, they give *bankers themselves* that same overall picture: They force a bank’s executives and directors to understand the workings of the bank in a detailed and comprehensive way. And if they’re done incorrectly, that’s useful too: They let the regulators and bankers know what they don’t know.

*Id.*

91. Dwight D. Eisenhower, U.S. President, Remarks at the National Defense Executive Conference (Nov. 14, 1957) (transcript available at <http://www.presidency.ucsb.edu/ws/?pid=10951> [<https://perma.unl.edu/NC7K-TKD5>]).
92. See FED. DEPOSIT INS. CORP. & Bd. OF GOVERNORS OF THE FED. RESERVE SYS., GUIDANCE FOR 2017 § 165(D) ANNUAL RESOLUTION PLAN SUBMISSIONS BY DOMESTIC COVERED COMPANIES THAT SUBMITTED REPORTS IN JULY 2015 7–8, <https://www.federalreserve.gov/newsevents/pressreleases/files/bcreg20160413a1.pdf> [<https://perma.unl.edu/A3X2-B9UD>] [hereinafter LIVING WILL GUIDANCE] (directing firms to develop “a methodology for estimating the liquidity needed after the parent’s bankruptcy filing to stabilize the surviving material entities and to allow those entities to operate post-filing,” and stating “[t]he [Resolution Liquidity Execution Need (RLEN)] estimate should be incorporated into the firm’s governance framework to ensure that the firm files for bankruptcy in a timely way, i.e., prior to the firm’s [high quality liquid assets] falling below the RLEN estimate”).
93. *Id.* at 7.

tions in bankruptcy and will be able to meet their obligations with no liquidity assistance from the government.<sup>94</sup>

Here it is worth noting that even industrial firms will often need “debtor-in-possession” financing in bankruptcy to prevent the disruption of core operations that could lead to the destruction of going-concern value.<sup>95</sup> The concern about the disruption of core operations is magnified with banks and shadow banks, where a firm’s customers are not simply buying products but using the firm as a place to store their money based upon the promise that they can access it seamlessly for near-term transactional needs—which is what, of course, deposits and deposit equivalents are principally about.<sup>96</sup>

The living will guidance requires that large banks and BHCs estimate how many such customers/creditors will flee—i.e., withdraw their funding—in a bankruptcy process and reserve precisely enough cash and “high quality liquid assets” (which—it is assumed—can easily and quickly be converted into cash) to meet the withdrawal re-

94. *Id.* at 6 (“The firm should have the liquidity capabilities necessary to execute its preferred resolution strategy.”). The assumption is that the firm will continue to operate even in bankruptcy or resolution—what for a normal firm involves a Chapter 11 bankruptcy process (reorganization) instead of a Chapter 7 process (liquidation).

95. *See* 11 U.S.C. § 364 (2012). As Barry Adler and his co-authors explain, A new loan—credit from a supplier or cash from a bank—is a common early objective of a debtor once it files a bankruptcy reorganization petition. Such a loan is called debtor-in-possession or DIP financing. . . .

Take the case of a trucking firm that has just filed a Chapter 11 petition. The payroll checks issued yesterday will bounce unless postpetition financing is found. From a theoretical perspective, one might think that all the payroll checks *should* bounce. The workers, after all, have only prepetition claims. They should not be paid until the end of the case. But the debtor will likely take a more practical view. If the checks bounced, the workers likely would not work anymore and the firm would have to close down. If the debtor’s trucking business is viable despite the bankruptcy, this would be a loss to all.

BARRY E. ADLER ET AL., *BANKRUPTCY: CASES, PROBLEMS AND MATERIALS* 479 (Robert C. Clark et al. eds., 4th ed. 2007).

96. Assistant Vice President of the New York Federal Reserve Joseph Sommer distinguishes between “bonded debt,” such as corporate bonds, and “financial liabilities,” such as bank deposits, and observes,

[T]his notion of a financial liability as a product has implications for insolvency law, apart from priorities. Insolvency law assumes that firms often need a breathing spell from their creditors, so that they can pick themselves up, continue operating, and start reorganizing. It therefore places all claims in a collective procedure and places a moratorium on efforts to collect assets. However, financial products are operations of the financial firm. Freezing performance on a financial product, whether by automatic stay or treatment as a claim, is akin to prohibiting a carmaker in Chapter 11 from making and selling cars, or an airline from selling tickets, buying jet fuel, and flying planes.

Joseph H. Sommer, *Why Bail-In? And How!*, 2014 FRBNY ECON. POL’Y REV. 207, 211, 217.

quests.<sup>97</sup> On one hand, to prevent this from turning into something like a one hundred percent reserve requirement,<sup>98</sup> GSIBs must assume that many short-term creditors in these circumstances will *not* run—that is, not withdraw or refuse to roll over their loans. On the other hand, it is perilous to assume that many such customers/creditors will willingly stay put if there is even the slightest concern about the outcome of the bankruptcy process or the specter of delay.<sup>99</sup>

There is thus a tension. A potential resolution of the tension might lie in recognizing that even if the assumption of self-funding is ill-founded, (i) there *are*, in fact, ways the government *could* step in to provide any required funding if worse came to worst,<sup>100</sup> but that (ii) forcing firms to operate under the assumption that the government will not do so will have a healthy impact on their liquidity management.<sup>101</sup>

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97. See LIVING WILL GUIDANCE, *supra* note 92, at 6. It is worth noting that the assumption that non-cash assets will be able to be monetized quickly could be tested during a crisis. See *supra* note 50 and accompanying text.

98. A one hundred percent reserve requirement would require banks to hold one hundred percent of their deposits in vault cash (or on deposit at the Federal Reserve). As noted above, banks do not hold all deposits in reserve. See *Reserve Requirements*, *supra* note 48 and accompanying text. In this context, there would be two differences: first, the requirement could be met not only with cash and accounts at the Federal Reserve but also with highly liquid assets such as Treasuries. Second, the requirement would be set not by deposits but by all “runnable” debt—uninsured deposits and other short-term claims on the GSIB.

99. For example, even depositors *under the federal insurance cap* began withdrawing their savings from Washington Mutual, the giant thrift, in the days leading up to its failure on September 25, 2008, due to concerns over potential delays in accessing their money. See, e.g., E. Scott Reckard, *Deposit Run at WaMu Forced Their Hand, Regulators Say*, L.A. TIMES (Sept. 25, 2008, 8:25 PM), [http://latimesblogs.latimes.com/money\\_co/2008/09/just-as-with-in.html](http://latimesblogs.latimes.com/money_co/2008/09/just-as-with-in.html) [<https://perma.unl.edu/FH94-PL66>] (quoting one customer who “had withdrawn nearly his entire business account from the Laguna Hills branch the week before on the advice of financial advisors, even though his account did not exceed federal insurance limits,” and explaining “[a]ny interruptions would cause real problems in my life”).

100. For example, if the OLA is invoked, the FDIC, which would be responsible for the resolution process, would be able to borrow from the Treasury Department, lending the money on to recapitalized GSIB, so that the GSIB could meet redemption demands from its creditors. 12 U.S.C. § 5390(n) (2012). It might also be possible that the Federal Reserve could lend to the recapitalized GSIB using its emergency lending authorities, despite post-crisis restrictions that have been placed on this authority. 12 U.S.C. § 343 (2012); see also John Crawford, *The Moral Hazard Paradox of Financial Safety Nets*, 25 CORNELL J.L. & PUB. POL’Y 95, 121–22 (outlining ways that the Federal Reserve might work around the ostensible restrictions on its emergency lending authorities). Although the Federal Reserve cannot lend to insolvent institutions, the bridge holding company it would lend to in a Title II resolution should, in theory, be solvent as it would not adopt the old holding company’s long-term debt obligations. See *supra* section II.C.

101. This is somewhat similar to the idea of “constructive ambiguity,” an approach advocated by some for lender-of-last-resort function. Under this approach, regula-

*Liquidity as Trigger.* As with the living will process in general, then, it may be possible to believe that the self-funding-through-bankruptcy assumption is both absurd on its face and salutary in its effects. What is clearly harmful, however, is mandating that this assumption drive bankruptcy filing decisions. The Federal Reserve's guidance directs that firms estimate the liquidity they will need in bankruptcy or resolution—the so-called Resolution Liquidity Execution Need (RLEN)—and that this “estimate should be incorporated into the firm's governance framework to ensure that the firm files for bankruptcy in a timely way, i.e., prior to the firm's [high quality liquid assets] falling below the RLEN estimate.”<sup>102</sup>

There are two significant problems with this directive. First, as noted above, illiquidity does not necessarily imply insolvency.<sup>103</sup> It is possible for the value of a bank's assets to exceed its liabilities, but for withdrawal demands to overwhelm cash reserves or easily salable assets. The liquidity tripwire for banks mandated in the Federal Reserve's guidance for GSIB living wills could therefore lead to the death, or at least disruption,<sup>104</sup> of a viable institution. This is particularly so during widespread crises. Indeed, the aim of preventing such needless harm undergirds the most famous of all crisis-fighting rules, “Bagehot's dictum:” “to avert panic, central banks should lend early and freely (ie [sic], without limit), to solvent firms, against good collateral, and at ‘high rates[.]’”<sup>105</sup> In a widespread crisis, it is possible that the Federal Reserve would extend such lending, as it did throughout 2008,<sup>106</sup> thus enabling GSIBs to avoid tripping their own liquidity

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tors do not commit to rescuing firms facing a liquidity crisis, in order to mitigate moral hazard and induce firms to take precautions so that they will not need emergency support; but at the same time, regulators maintain flexibility to intervene if a liquidity crisis nevertheless comes to pass in order to prevent systemic spillovers. *See, e.g.*, Charles A. E. Goodhart & Haizhou Huang, *A Model of the Lender of Last Resort 25* (Int'l Monetary Fund, Working Paper No. 99/39, 1999), <https://www.imf.org/external/pubs/ft/wp/1999/wp9939.pdf> [<https://perma.unl.edu/ZFV6-BJ2D>]. The strategy suggested here, however, need not employ ambiguity: regulators could commit to intervention, while compelling banks to pretend like there will be no intervention. Of course, this latter approach relies not on market discipline but on regulatory rules about liquidity management.

102. LIVING WILL GUIDANCE, *supra* note 92, at 7–8.

103. *See supra* section II.B.

104. If a GSIB bankruptcy follows the single-point-of-entry process, *supra* section II.C, then the GSIB's operating subsidiaries would not be killed off but rather transferred to a new bridge holding company.

105. Paul Tucker, Deputy Governor, Bank of Eng., Remarks at the Bank of Japan 2009 International Conference “Financial System and Monetary Policy: Implementation”: The Repertoire of Official Sector Interventions in the Financial System: Last Resort Lending, Market-Making, and Capital 3 (May 27–28, 2009) (transcript available at <https://www.bis.org/review/r090608c.pdf> [<https://perma.unl.edu/M5JX-SR5S>]). Walter Bagehot was a 19th century financial writer, editor of *The Economist*, and author of the classic *Lombard Street*.

106. *See, e.g.*, FINANCIAL CRISIS MANUAL, *supra* note 2, at 18–40.

wire for a bankruptcy filing. But if the Federal Reserve has not (yet) established such a program in a budding crisis, the liquidity trigger could exacerbate vicious crisis dynamics.<sup>107</sup> This gives rise to the second, and potentially more serious, problem with the Federal Reserve's guidance. As Paul Tucker, former Deputy Governor of the Bank of England, has observed,

When distressed, banks and others often choose to cut back lending, as well as to sell assets, in order to save liquidity and reduce leverage. If, as in late 2008 and early 2009, working capital financing is rationed, the transmission into economic activity can be rapid and pronounced. . . . The interlinkages within the system can prompt individual firms to take desperate efforts to stave off bankruptcy and its attendant costs, if others seem to be ailing. But such measures may have perverse effects for the system as a whole when the mitigating action is fire sales that depress asset values, reducing household wealth and increasing businesses' cost of capital.<sup>108</sup>

Professor Hal Scott makes a similar point when he observes:

[T]he new adoption of *private* liquidity requirements represents a retreat by the Fed from providing *public* liquidity as the [lender of last resort]. Ironically, the individual private liquidity requirements may actually reduce collective private liquidity because they require each bank to hoard its own liquidity rather than making it available to others when not needed.<sup>109</sup>

Of course, if one risk of a liquidity trigger is that it could lead to the death or disruption of a viable bank and potentially exacerbate crisis dynamics, there is also the more familiar risk that liquidity will eventually force regulators' hands, but only after it is too *late*—i.e., after the losses have grown to such an extent that regulators are faced with the dilemma of either engaging in a bailout (even if it is veiled) or risking significant contagion effects from failing to protect deposit-like debt. This more familiar risk, however, suggests we should work to bolster *capital*-based triggers—a subject addressed in the next section.

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107. Recall that the Federal Reserve is no longer authorized to engage in emergency lending with the specific purpose of saving a particular institution. See *supra* notes 53–55 and accompanying text.

108. Paul Tucker, *The Design and Governance of Financial Stability Regimes: A Common-Resource Problem That Challenges Technical Know-How, Democratic Accountability and International Coordination*, in 3 CTR. FOR INT'L GOVERNANCE INNOVATION ESSAYS ON INT'L FIN. 1, 8 (Sept. 2016).

109. Scott, *supra* note 60, at 13–14. Scott takes his critique a step further, attacking bank liquidity requirements more generally: “[B]ank liquidity requirements may worsen a crisis as banks are forced to hoard liquid assets and are thus unable to lend to one another. That’s the worst medicine: In a crisis, you want banks to lend to other institutions that need money.” Hal S. Scott, *To Spur Small Business, First Free the Banks*, N.Y. TIMES (May 15, 2017), <https://www.nytimes.com/2017/05/15/opinion/bank-regulations-liquidity.html>. Scott, then, believes liquidity requirements can be pernicious even outside the context of bankruptcy triggers. While there may be good arguments on either side of that debate, using liquidity as a bankruptcy filing trigger for a bank seems clearly to fail the cost-benefit analysis.

## B. Capital and Timeliness

If using liquidity as a resolution trigger has harmful consequences, the obvious alternative is capital. Using capital as a triggering metric may, however, lead to too much *delay* in putting GSIBs into resolution.<sup>110</sup> In this section, I lay out the costs of delay and explore the various causes for it.

### 1. *The Costs of Delay*

While acting too early may waste administrative resources and risk needlessly disrupting the financial system, acting too late creates the risk of compounding losses such that they outstrip the parent company's TLAC.<sup>111</sup> We then wind up in the same predicament the new resolution mechanisms were designed to help us avoid: a choice between bailout or risking contagion. If there is no bailout and losses are imposed on deposit-like claimants, the risk of catastrophic contagion rises significantly.<sup>112</sup> But if losses are *not* imposed on these claimants, then they must be absorbed by the rest of the industry or by taxpayers.<sup>113</sup>

A threshold question in understanding the costs of trigger shyness is why a bank's losses might be expected to worsen with delay. After all, banks generally make money, and their executives and employees presumably *want* to make money. It is possible, therefore, that if we leave an undercapitalized bank alone, it will dig its way *out* of the hole and back into solvency.<sup>114</sup> There are, however, both theoretical and historical reasons to think that a less happy scenario—one in which

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110. As noted, the OLA's invocation requires a determination by the Treasury Secretary that a "financial company is in default or in danger of default." 12 U.S.C. § 5383(b)(1) (2012). This is unlikely on its own to provide discipline in the timely invocation of OLA—indeed, given banks' ability to continue operating for extended periods while insolvent so long as they do not face runs, *see supra* subsection III.B.1.ii, one can imagine OLA's invocation may be limited, under current law, to situations in which a SIFI is facing a crippling run, which may be too late to avoid metastatic losses from swamping TLAC. *See* Total Loss-Absorbing Capacity, *supra* note 75.

111. *See supra* section II.C.

112. *See* Scott, *supra* note 60 and accompanying text.

113. Other industry actors might absorb losses if, for example, the FDIC provides funding to a GSIB in resolution, but if the GSIB cannot repay the money, the FDIC can recover the sums from other eligible financial companies. 12 U.S.C. § 5390(o)(1)(D)(ii) (2012).

114. Indeed, some suggest this is what happened with GSIBs post-crisis, with a good deal of government help. *See, e.g.,* Steve Randy Waldman, *Yes, Virginia. The Banks Really Were Bailed Out.*, INTERFLUIDITY BLOG (Nov. 29, 2011, 9:08 AM), <http://www.interfluidity.com/v2/2587.html> [<https://perma.unl.edu/66SA-46HE>] ("After assuming the banking system's downside risk, the US government engineered a wide variety of favorable circumstances that helped banks 'earn' their way back to quasi-health.").



losses metastasize at a weak or dying bank—remains a significant risk, and that regulators should therefore act swiftly once they determine a bank is insolvent or nearing insolvency.

a. “*Gambling for Resurrection*” I: Theory

From a theoretical standpoint, shareholders of an insolvent firm have an incentive to make risky bets to “gamble for resurrection.”<sup>115</sup> This is primarily due to shareholders’ limited liability: they cannot be forced to contribute (further) resources to the firm if the firm defaults on its debt. Once the firm’s losses outstrip equity, losses fall on creditors, while shareholders’ *other* assets are protected.<sup>116</sup> Shareholders of thinly or negatively capitalized banks are therefore likely to discount the potential downside of risky investments, “shifting” losses onto creditors, the deposit insurance fund, or the taxpayer.<sup>117</sup> Indeed, shareholders may have an incentive to make risky bets even when the gamble has a negative expected value.

To illustrate this dynamic, consider the stylized example of a firm whose liabilities exceed the value of its assets by \$20, but which has not yet been placed in bankruptcy or resolution proceedings. The firm is considering two investments. Investment (1) has a ten percent chance of gaining \$100 and a ninety percent chance of losing \$100; and investment (2) has a ninety percent chance of gaining \$10 and a ten percent chance of losing \$10. The first investment has an expected value of *negative* \$80,<sup>118</sup> while the second has an expected value of (positive) \$8.<sup>119</sup> The second bet is thus superior from the aggregate

115. See, e.g., ANAT ADMATI & MARTIN HELLWIG, THE BANKERS’ NEW CLOTHES: WHAT’S WRONG WITH BANKING AND WHAT TO DO ABOUT IT 33 (2013) (“Gambling for resurrection, taking bets in the spirit of ‘heads I win; tails, my creditors lose’ may be tempting if there is no other way to avoid bankruptcy.”).

116. As Andrew Haldane, chief economist and executive director of monetary analysis and statistics at the Bank of England, puts it, “while uncertainty increases both upside and downside risks, downside risks are capped by limited liability. For shareholders, the sky is the limit but the floor is always just beneath their feet. To maximiz[e] shareholder value, therefore, banks need simply to seek bigger and riskier bets.” Andrew G. Haldane, *The Doom Loop*, in 34 LONDON REVIEW OF BOOKS 21, 21 (2012), <http://www.lrb.co.uk/v34/n04/andrew-haldane/the-doom-loop> [<https://perma.unl.edu/QD3F-GC45>].

117. This type of “risk-shifting” behavior was most famously modeled in Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305 (1976). See also Lucian A. Bebchuk, *Ex Ante Costs of Violating Absolute Priority in Bankruptcy*, 57 J. FIN. 445, 447 (2002) (stating equity holders may favor a more risky investment “even if the risky project offers a somewhat lower expected return”); Robert E. Scott, *The Truth About Secured Financing*, 82 CORNELL L. REV. 1436, 1448–49 (1997) (recognizing debt can carry “an incentive for the firm’s managers . . . to engage in higher-risk projects” which “can lead to excessively risky investments”).

118. This is equal to  $0.1 * \$100 - 0.9 * \$100$ .

119. This is equal to  $0.9 * \$10 - 0.1 * \$10$ .

perspective of all stakeholders in the firm; while it will not return the firm to solvency, it will mitigate the losses to creditors. The shareholders, however, do not bear any of the losses in either scenario; because capital is already negative, any *further* losses will be borne by creditors. Therefore, the expected return to *shareholders* from the two investments yields a different result: the expected return to shareholders of the first potential investment is \$8,<sup>120</sup> whereas the expected value of the second potential investment is zero.<sup>121</sup> The shareholder will thus prefer the first investment in this stylized example, even though both the probability of loss and the magnitude of loss in the downside scenario will be much greater.

This example illustrates potential perverse incentives for *shareholders*, but, of course, *managers* are the ones making the actual decisions for the firm.<sup>122</sup> Managers of insolvent banks may, however, face a similar asymmetric payoff profile even if their only goal is to preserve their job.<sup>123</sup> Furthermore, the standard executive pay package at GSIBs includes a significant degree of equity-based compensation.<sup>124</sup> As Lucian Bebchuk and Holger Spamann have observed, “[b]ecause bank executives expect to share in any gains that might flow to common shareholders, but are insulated from losses that the realization of risks could impose on preferred shareholders, bondholders, depositors, and taxpayers, executives have incentives to give insufficient weight to the downside of risky strategies.”<sup>125</sup>

It is important to note that the thicker a firm’s capital cushion is, the less shareholders and managers will be able to shift losses onto other claimants, and the less the perverse risk-shifting incentives highlighted in the above example will apply. As Richard Carnell explains, “[c]apital is like the deductible on an insurance policy: the

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120. This is equal to  $0.1 * (\$100 - \$20)$ . Note that even in this good state of the world, the shareholders will need to spend \$20 to climb out of their capital hole. The \$100 in (further) losses in the event of failure is ignored by shareholders in this stylized example: again, shareholders have already lost everything and due to limited liability, do not bear any further liability for the firm’s losses.

121. Even in the good state of the world, in which the investment yields \$10, this will serve merely to mitigate losses to creditors and will not fill the capital hole of \$20. The equity position of the firm will continue to be negative.

122. See generally ADOLPH A. BERLE JR. & GARDINER C. MEANS, *THE MODERN CORPORATION AND PRIVATE PROPERTY* (1933) (positing the separation of ownership and control under modern corporate structures).

123. This is true if the manager’s job retention is contingent on the bank’s “resurrection.” See ADMATI & HELLWIG, *supra* note 115 and accompanying text.

124. See, e.g., PAUL HODGSON ET AL., COUNCIL OF INST’AL INV’RS, *WALL STREET PAY: SIZE, STRUCTURE, AND SIGNIFICANCE FOR SHAREOWNERS* 7 (2010), <http://online.wsj.com/public/resources/documents/CIIWhitePaperWallStreetPayFINAL11302010.pdf> [<https://perma.unl.edu/D44W-SV5U>] (showing the various components of CEO compensation at the largest financial institutions).

125. Lucian A. Bebchuk & Holger Spamann, *Regulating Bankers’ Pay*, 98 *Geo. L.J.* 247, 247 (2010).

higher the deductible, the greater the incentive to avoid loss. As capital falls, an institution's incentives to avoid loss fall with it."<sup>126</sup> Thus, the perverse incentives described here are likely to arise precisely when initial losses have already eroded a firm's capital.

b. *"Gambling for Resurrection" II: History*

While the example above is highly stylized, the dynamic of "gambling for resurrection" was central to the savings & loan (S&L) crisis of the 1980s.<sup>127</sup> S&Ls were a type of insured depository institution specializing in making mortgage loans.<sup>128</sup> (They met the functional definition of what we have defined as a bank.)<sup>129</sup> Hundreds of S&Ls failed during the 1980s, but a large number were permitted to continue operating for extended periods—often years—with capital buffers that were razor thin, or even negative by some measures.<sup>130</sup> At the outset of the crisis, trouble arose primarily from rising market interest rates, rather than from rising defaults by those that had borrowed from the bank.<sup>131</sup> Rising interest rates increased the interest the S&Ls had to *pay* to their depositors, but did not increase the money flowing *into* the S&Ls from their existing stock of assets—primarily long-term fixed-rate mortgages.<sup>132</sup> (The rates on these mortgages had been set before market interest rates rose.) According to Bert Ely, "In 1981 and 1982 the interest rate spreads for S&Ls (the difference between the average interest rate on their mortgage portfolios and their average cost of funds) were -1.0 percent and -0.7 percent, respectively."<sup>133</sup> Measuring assets by what they could be sold for in the mar-

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126. Richard Scott Carnell, *A Partial Antidote to Perverse Incentives: The FDIC Improvement Act of 1991*, 12 ANN. REV. BANKING L. 317, 320 (1993).

127. For a good, comprehensive account of the S&L crisis, see LAWRENCE J. WHITE, *THE S&L DEBACLE: PUBLIC POLICY LESSONS FOR BANK AND THRIFT REGULATION* (1991).

128. *See, e.g., id.* at 13.

129. *See supra* section II.A.

130. *See, e.g.,* WHITE, *supra* note 127, at 19 tbl.2-5; *see also* Elijah Brewer III, *Full-Blown Crisis, Half-Measure Cure*, 13 ECON. PERSP. 2, 3 fig.1 (Nov. 1989) (showing the solvency of the S&L industry from 1980–1988 under regulatory accounting principles, generally accepted accounting principles, tangible accounting principles, and market value accounting).

131. Bert Ely, *Savings and Loan Crisis*, in *THE CONCISE ENCYCLOPEDIA OF ECONOMICS* (David R. Henderson ed., 2d ed. 2008), <http://www.econlib.org/library/Enc/SavingsandLoanCrisis.html> [<https://perma.unl.edu/KVV7-697T>]. Rising interest rates created a problem for S&Ls because their liabilities were short-term, while their holdings included lots of long-term assets like mortgages. The interest rates for the mortgages were fixed at prevailing (low) rates, while the interest rates on the S&L's deposits shot up. *See id.*

132. *Id.*

133. *Id.*

ket rather than with historical accounting methods,<sup>134</sup> many S&Ls owed more than their assets were worth—that is, they were insolvent.<sup>135</sup>

Regulators, however, permitted market-insolvent S&Ls to continue operating, hoping they would dig themselves out of their holes, and slackening various rules to permit them to make the attempt. One trick (among many) regulators used for this purpose involved the invention of a new instrument called the “income capital certificate” (ICC).<sup>136</sup> The Federal Savings and Loan Insurance Corporation (FSLIC)—the now-defunct agency that served the same function for S&Ls that the FDIC did for other depositories<sup>137</sup>—permitted S&Ls that were too sick to raise capital from private investors to instead raise capital by issuing ICCs to the FSLIC.<sup>138</sup> Then, instead of receiving *cash* (in exchange for shares) on private markets, the S&Ls would receive promissory notes from the FSLIC (which was severely under-

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134. If a mortgage is valued at \$100 when a bank makes the loan, historical accounting methods will maintain the \$100 value less any principal payments made on the mortgage. Market measures of accounting, however, could yield a quite different valuation, even in the absence of default risk, if interest rates change. In order to understand why this is so, imagine

a perpetual bond, sold to the public for \$100 and promising \$5 interest per annum. This implies market interest rates of five percent. As long as the relevant market interest rate stays at five percent—and assuming away credit risk—the bondholder will be able to sell the bond for \$100. Now imagine interest rates jump to ten percent. This means that other investors can now secure the same income stream of \$5 per annum for just \$50. No one would pay more than \$50 for an equivalent cashflow. Thus, the original bond, which could be sold for \$100 yesterday, will only fetch \$50 today. The value of the bond has declined due to a change in market interest rates. This is true even if the bond has zero default risk and the secondary market for it is infinitely liquid.

Of course, most debt claims are not perpetual. It turns out, however, that the longer the remaining maturity of the debt claim, the more a given jump in interest rates eats into the claim’s value. (Equivalently, the sooner you can withdraw your principal and put it to work at the higher interest rates, the less you lose.)

John Crawford, *Shining a Light on Shadow Money*, 69 VAND. L. REV. EN BANC 185, 193–94 (2016).

135. See WHITE, *supra* note 127, at 80 tbl.5-7. It is important to note that most of these S&Ls remained solvent according to *regulatory* accounting standards. *Id.* at 86 tbl.5-9. See also *infra* subsection III.B.2.iii (discussing the shortcomings of capital as a measure of solvency).

136. Michael Dotsey & Anatoli Kuprianov, *Reforming Deposit Insurance: Lessons from the Savings and Loan Crisis*, 76 FED. RES. BANK OF RICH. ECON. REV. 3, 12 (1990).

137. The Financial Institutions Reform, Recovery and Enforcement Act of 1989 abolished FSLIC. Rose Marie Kushmeider, *The U.S. Federal Financial Regulatory System: Restructuring Federal Bank Regulation*, 17 FDIC BANKING REV. 1, 4 (2005), <https://www.fdic.gov/bank/analytical/banking/br17n4full.pdf> [https://perma.unl.edu/MR7U-ESAS].

138. Dotsey & Kuprianov, *supra* note 136, at 12.

capitalized itself).<sup>139</sup> The ICCs were subordinate to all of the bank's other liabilities. This meant that if push came to shove and the bank did fail, the FSLIC would have to absorb losses in the amount of the promissory notes *before* any uninsured creditors did.<sup>140</sup> This was not the only such gimmick.<sup>141</sup>

In addition to these accounting tricks, the activities that S&Ls were permitted to engage in expanded:

In 1980 and again in 1982, Congress and the regulators granted S&Ls the power to invest directly in service corporations, permitted them to make real estate loans without regard to the geographical location of the loan, and authorized them to hold up to 40 percent of their assets as commercial real estate loans.<sup>142</sup>

As Bert Ely also wrote, "Congress and the Reagan administration naïvely hoped that if S&Ls made higher-yielding, but riskier, investments, they would make more money to offset the long-term damage caused by fixed-rate mortgages."<sup>143</sup> Many S&Ls responded by getting more aggressive (that is, less careful) in their underwriting and risk management.<sup>144</sup> The unhappy result was that, "[u]nlike the initial financial difficulties of most insolvent thrifts, which were largely attributable to the effect of high interest rates on the value of their mortgage portfolios, most losses after 1982 stemmed from credit quality problems."<sup>145</sup> Figure 2, below, illustrates how even after falling interest rates had partially reversed the interest-rate-based losses that had initially caused the S&Ls' problems, losses ballooned due primarily to defaults on risky loans and investments that insolvent but (newly) unfettered S&Ls had made.

139. *Id.*

140. *Id.*

141. Another gimmick to facilitate the sale of dying S&Ls to (relatively) healthy S&Ls (thus saving FSLIC from having to intervene) permitted the acquiring institution to

count as good will the difference between the market value of assets acquired and the value of liabilities assumed. If a firm acquired an S&L with assets whose market value was five billion dollars and whose liabilities were six billion . . . , the one-billion dollar difference was counted as goodwill, and the goodwill was then counted as capital.

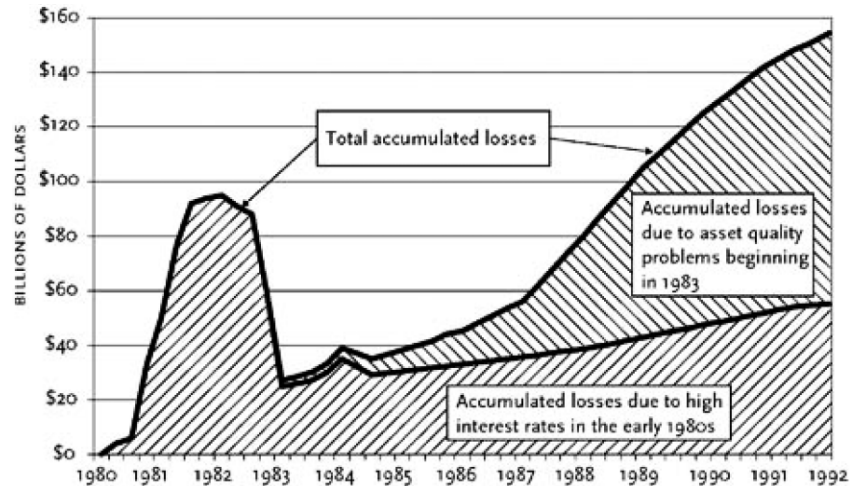
Ely, *supra* note 131.

142. *Id.*

143. *Id.*

144. Dotsey & Kuprianov, *supra* note 136, at 14 (stating that because the government allowed them to continue operating and federal insurance kept depositors from running, "many insolvent thrifts found it easy to engage in a variety of risky and imprudent investment schemes. As time went on, evidence surfaced that the losses at many institutions were attributable to gross mismanagement . . ."). Greater aggressiveness in lending increased the risk of losses but also the potential profitability if things went well.

145. *Id.*

Figure 2: Accumulated Losses Arising from S&L Crisis<sup>146</sup>

Ultimately the S&L industry bankrupted the FSLIC and had to be bailed out by taxpayers to the tune of \$124 billion.<sup>147</sup>

### c. Resolution's Salutary Effect on Incentives

As we have seen, the preferred resolution strategy that authorities have adopted for GSIBs involves recapitalizing the parent holding company so that old equity is zeroed out and long-term debt is converted to equity in a new holding company, while the actual activities of the GSIB's operational subsidiaries continue uninterrupted.<sup>148</sup> If the central problem with delayed resolution is the snowball effect of losses due to management's perverse incentives to gamble for resurrection, one might ask how placing the firm into resolution, but allowing it to continue its operations, changes that calculus.

There are at least two ways in which the resolution process may help stanch the losses of a GSIB. First, the very act of recapitalizing the firm should have salutary effects on incentives; it automatically increases the size of the firm's capital buffer,<sup>149</sup> thereby reducing the risk-shifting incentives of the firm's residual claimants, making them

146. Ely, *supra* note 131, at fig.1 (titled "FSLIC/Resolution Trust Corporation's Accumulation of Losses During the 1980s and Early 1990s (quarterly estimates—June 30, 1980, to June 30, 1992)").

147. Timothy Curry & Lynn Shibut, *The Cost of the Savings and Loan Crisis: Truth and Consequences*, 13 FDIC BANKING REV. 26, 33 (2000).

148. *See supra* section II.C.

149. As we have seen, capital is a measure of assets minus liabilities. By eliminating long-term debt as liabilities, and converting it into equity claims, the result of (assets – liabilities) increases.

less likely to prefer strategies with high upsides but a high risk of failure.<sup>150</sup>

Second, the resolution of a large financial firm is likely to be accompanied by the removal of the executives deemed responsible for the firm's failure—indeed, the OLA requires their removal.<sup>151</sup> In many instances, one might expect new management—particularly to the degree its mandate is seen as steadying a faltering ship—to be less invested in trying to redeem bets gone bad with the sorts of high-risk wagers that define the gambling-for-resurrection dynamics. In particular, if new managers do not feel personally invested in particular underperforming projects or divisions, they might be more willing to cut losses by selling them or shutting them down.

## 2. *Causes of Delay*

There are several causes of delay in triggering resolution or bankruptcy proceedings for failing financial firms. First, shareholders and managers have incentives to delay filing for bankruptcy in the absence of a liquidity crisis. Similarly, the incentive structure facing regulators leans heavily against proactive resolution. Finally, capital, the principal metric for determining when to place a firm into resolution, tends to lag real-time economic developments.

### a. *Private Actors' Bias Towards Delay*

A filing for bankruptcy may be either voluntary—that is, with the cooperation of the firm's management and board of directors—or involuntary. Under certain conditions, creditors can force an involuntary filing upon the firm's defaulting on a debt payment.<sup>152</sup> As argued above, this is likely an appropriate trigger for nonfinancial firms, but a bad trigger for financial firms.<sup>153</sup> What, then, about a voluntary filing based on a deteriorating capital position?

As a threshold matter, it is worth noting that even as the living will guidelines create liquidity and capital tripwires for bankruptcy, they do not create a legal duty for boards of directors to file for bankruptcy at those points; the directors' duties are still defined by state law. In any event, there are strong reasons to believe that SIFI managers will have incentives not to file for bankruptcy in a timely manner if the matter were left to them. First, to the degree managers' interests align with shareholders' due (for example) to equity-based compensation, they will likely want to delay filing for as long as possible. As Robert Merton observed in 1974, shareholders' claims on a firm

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150. See Carnell, *supra* note 126 and accompanying text.

151. 12 U.S.C. § 5386(4) (2012).

152. See 11 U.S.C. § 303 (2012).

153. See *infra* section III.A.

can be modeled as call options on the firm's assets.<sup>154</sup> Even if a firm has negative capital,<sup>155</sup> its shares are likely to have positive value due to the fact that the shareholders, like (out-of-the-money) call option holders, can claim the upside value of the firm if it *eventually* climbs out of its capital hole.<sup>156</sup> A bankruptcy filing, however, generally has the effect of terminating, or at least greatly reducing, the option value of the shares, as equity is typically zeroed out, or at least significantly diluted, in the bankruptcy process.<sup>157</sup> (The extinguishment of shareholders' claims effectively terminates their option on the firm's assets.)<sup>158</sup> For this reason, shareholders likely prefer to remain out of bankruptcy for as long as possible, so as not to foreclose the chance of profiting if gambling for resurrection pays off.<sup>159</sup>

Beyond this, managers may view a bankruptcy filing as an admission of failure and resist such an admission to the degree it is inconsistent with their self-image. Finally, there are good reasons to believe that a bankruptcy process that is not done in close coordination with regulators could wind up having a destructive impact on the surviving operations of the firm,<sup>160</sup> and managers may (understandably) wish to avoid this.

#### b. *Regulators' Bias Towards Delay*

If private actors have an incentive to delay filing, the natural follow-up question is why *regulators* would permit BHCs with razor-thin or negative capital to gamble for resurrection.<sup>161</sup> One reason, of course, is that they may not appreciate the logic behind BHCs' risk-shifting incentives; as noted, these firms surely do not want to *lose* money.<sup>162</sup>

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154. See generally Robert C. Merton, *On the Pricing of Corporate Debt: The Risk Structure of Interest Rates*, 29 J. FIN. 449 (1974).

155. See *supra* section II.B.

156. See *Out of the Money – OTM*, INVESTOPEDIA, <https://www.investopedia.com/terms/o/outofthemoney.asp> [<https://perma.unl.edu/T9DE-R3LP>] (explaining out-of-the-money options and their valuation).

157. Bankruptcy does not always automatically mean equity is zeroed out. See generally Allan C. Eberhardt et al., *Security Pricing and Deviations from the Absolute Priority Rule in Bankruptcy Proceedings*, 45 J. FIN. 1457 (1990) (describing shareholders' success in extracting value from their claims in bankruptcy proceedings).

158. One of the factors that determines the value of an option is the time to expiration; after the expiration date, the option is worthless. See generally Fischer Black & Myron Scholes, *The Pricing of Options and Corporate Liabilities*, 81 J. POL. ECON. 637 (1973).

159. See *supra* subsection III.B.1.

160. See *infra* note 178 and accompanying text and note 179.

161. Regulators have authority to place financial companies into the OLA process upon a determination of "systemic risk." 12 U.S.C. § 5383 (2012). They can also exert moral suasion on firms' boards of directors to file for bankruptcy if they believe the firm is not viable.

162. See *supra* subsection III.B.1.i.



Another set of reasons might be grouped together under the rubric of “capture”—the excessive identification of regulators with the industry they regulate. This can, of course, arise from a direct conflict of interest—for example, when a regulator acquiesces to decision-makers at a firm where she hopes one day to work.<sup>163</sup> It can, however, take subtler forms, like when a regulator shows “deference to high-status regulated executives [or] to those with whom [she] has face-to-face relationships, because of empathy or the desire to avoid conflict.”<sup>164</sup> While a decision on triggering a SIFI resolution would be made at the highest level, capture could be a problem even if it affected only lower-level regulators, if it were to shape the information high-level officials received.<sup>165</sup>

A third factor—particularly salient in the context of the S&L crisis—is that when problems affect the banking system as a whole, regulators may fear they lack the resources, in terms of personnel and

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163. For example, in the book *Flashboys*, Michael Lewis strongly implies that staffers at the Securities and Exchange Commission (SEC) had a conflict of interest in overseeing high frequency trading firms (HFTs) based on hopes of future employment with these entities. Lewis describes a presentation at the SEC by former Royal Bank of Canada employee Brad Katsuyama explaining a new product (“Thor”) aimed at preventing HFTs from front-running broker-dealers’ and other institutional investors’ bids. A young SEC staffer surprised Katsuyama by arguing that “Thor” was unfair to HFTs. This led to a lively debate among the SEC staff, with older staffers taking Katsuyama’s side and younger ones the side of HFTs. Lewis reports,

After the meeting, RBC conducted a study, never released publicly, in which they found that more than two hundred SEC staffers since 2007 had left their government jobs to work for high-frequency trading firms or the firms that lobbied Washington on their behalf. Some of these people had played central roles in deciding how, or even whether, to regulate high-frequency trading. For instance, in June 2010, the associate director of the SEC’s Division of Trading and Markets, Elizabeth King, had quit the SEC to work for Getco[, a large HFT]. The SEC, like the public stock exchanges, had a kind of equity stake in the future revenues of high-frequency traders.

MICHAEL LEWIS, *FLASH BOYS: A WALL STREET REVOLT* 106 (Michael Lewis ed., 1st ed. 2014).

164. Philip Wallach, *What is Regulatory Capture?*, THE NEW RAMBLER (2015), <http://newramblerreview.com/book-reviews/political-science/what-is-regulatory-capture> [<https://perma.unl.edu/96EZ-THEE>] (reviewing DANIEL CARPENTER & DAVID A. MOSS, *PREVENTING REGULATORY CAPTURE: SPECIAL INTEREST INFLUENCE AND HOW TO LIMIT IT* (2014)).

165. For example, a study of the failure of the large bank Washington Mutual (WaMu) found that bank examiners had repeatedly noted weaknesses in areas such as asset quality and risk controls, but continued to award the bank a “2,” or “satisfactory,” on its regulatory rating scale. DEP’T OF THE TREASURY OFFICES OF INSPECTOR GEN., *EVALUATION OF FEDERAL REGULATORY OVERSIGHT OF WASHINGTON MUTUAL BANK* 2, 8, 10, 15, 16 (2010). The study concluded, “[g]iven the multiple repeat findings related to asset quality and management, and considering the definitions of the composite ratings, it is difficult to understand how [the regulator] continued to assign WaMu a composite 2-rating year after year.” *Id.* at 16.

funds to pay off insured depositors, to tackle the problem head on by shutting down multiple institutions.<sup>166</sup>

A fourth factor that was relevant in the recent crisis is that even as regulators use the proper theoretical criterion for triggering resolution (*viz.*, capital), the way that they measure it is flawed and does not capture the “real” state of the bank’s balance sheet.<sup>167</sup> I will return to this point below.<sup>168</sup>

Fifth, there may be concern about political backlash when the SIFI’s managers and lobbyists contest the finding of nonviability. The plausibility of these objections will be higher where there is no liquidity crisis—and of course, one argument of this Article is that the triggering process should be independent of liquidity crises, as bank resolution in the era of the FDIC tends to be. As Paul Tucker has observed, “If faced with uncertain long-term benefits but an immediate risk of unpopularity, a policy maker might incline toward delaying action until the resilience-eroding threats of exuberance or imbalances were widely perceived.”<sup>169</sup>

A final factor, particularly important in the context of GSIBs, is that regulators may harbor concerns about the efficacy of the resolution *process* to prevent contagious spill-overs.<sup>170</sup> Here it is worth mentioning a potential development that is of profound importance to trigger-timing: the proposed repeal of the OLA and its replacement with a new subchapter of the bankruptcy code drafted specifically to deal with the failure of a GSIB.<sup>171</sup> While the Trump administration has backed away from repealing OLA,<sup>172</sup> the idea’s popularity with some members of Congress makes it worth briefly addressing.<sup>173</sup>

The repeal of OLA would represent a significant step backwards despite the fact that several of the best aspects of regulators’ current OLA strategy—single-point-of-entry resolution and long-term debt at the holding company as a pre-positioned loss absorber—have largely been integrated into the proposed reforms of the bankruptcy code.<sup>174</sup>

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166. See Dotsey & Kuprianov, *supra* note 136, at 12 (“The [S&L] industry’s staggering losses overwhelmed the resources of the FSLIC. Hundreds more institutions that had become economically insolvent were not closed because the FSLIC lacked the resources to deal with them.”).

167. See, e.g., *infra* note 191 and accompanying text.

168. See *infra* subsection III.B.2.iii.

169. Tucker, *supra* note 108, at 48.

170. Skeel, *supra* note 81, at 324–25.

171. See Financial CHOICE Act of 2017, H.R. 10, 115th Cong. (2017) [hereinafter CHOICE Act 2.0].

172. DEP’T OF TREASURY, ORDERLY LIQUIDATION AUTHORITY AND BANKRUPTCY REFORM: REPORT TO THE PRESIDENT OF THE UNITED STATES PURSUANT TO THE PRESIDENTIAL MEMORANDUM ISSUED APRIL 21, 2017 (2018).

173. CHOICE Act 2.0, Title I.

174. See, e.g., John C. Dugan & Randy Benjenk, *CHOICE Act 2.0: House Financial Services Committee Revises Regulatory Reform Bill*, HARV. L. SCH. F. ON CORP.

There are strong reasons to believe that the repeal of OLA would significantly increase the chance that the bankruptcy/resolution process will go awry. Some of these reasons are specific to the reforms that have been proposed, while others are likely inherent in any regulatory scheme that relies solely on bankruptcy to deal with the failure of a GSIB. Among the former reasons are a lack of a viable liquidity provider,<sup>175</sup> the disempowerment of regulators to trigger a bankruptcy

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GOVERNANCE AND FIN. REG. (May 8, 2017), <https://corpgov.law.harvard.edu/2017/05/08/choice-act-2-0-house-financial-services-committee-revises-regulatory-reform-bill/> [<https://perma.unl.edu/E8N9-BEFT>] (stating that the proposed new bankruptcy code subchapter in the CHOICE Act “is intended to facilitate the ‘single point of entry’ strategy that most G-SIBs have adopted in their resolution plans”).

175. CHOICE Act 2.0, unlike Dodd-Frank Title II, lacks a mechanism to provide liquidity to the GSIB while it is in resolution. *Id.* Under Title II, the FDIC can, within certain limits, borrow from the Department of Treasury to lend to the GSIB so it can meet its obligations as they come due. 12 U.S.C. § 5384(d) (2012). If the GSIB winds up not being able to pay the loans back, then the shortfall must be met by a special levy on other SIFIs. 12 U.S.C. § 5390(o) (2012). The availability of such a lending source is extremely important, as failure to meet obligations as they come due, or the mere fear that they will not be met—or, indeed, the fear that *others* may fear they will not be met—can spark the very run-like behavior special bankruptcy and resolution procedures are designed to prevent. *See, e.g.*, Michael S. Barr, *Eliminating OLA Is Careless and Shortsighted*, AMER. BANKER (May 11, 2017, 12:46 PM), <https://www.americanbanker.com/opinion/eliminating-ola-is-careless-and-shortsighted> [<https://perma.unl.edu/8JHP-6BJJ>] (emphasizing the importance of OLA’s “FDIC-provided liquidity in a crisis through the Treasury Department’s ‘orderly liquidity fund,’ which is backed by the firm’s assets, when private-sector lenders are likely to balk. Without that, resolution is a fool’s errand and likely to spark widespread panic.”). It is worth contrasting SIFI failure with a typical bankruptcy, in which funding for ongoing operations provided by private lenders is routine; such arrangements are called debtor-in-possession, or “DIP,” financings. 11 U.S.C. § 364 (2012). Such private lending is facilitated by bankruptcy courts’ authority to give DIP lenders priority over most pre-bankruptcy claims. *Id.* § 364(c)(1). Under CHOICE Act 2.0, however, private lenders to the recapitalized GSIB would not automatically receive such protections because the loans would likely not be made to the legacy holding company, which is the entity in bankruptcy, but rather to the new bridge holding company, which is *not* in bankruptcy. (The new bridge holding company is where all the operational subsidiaries—those that are likely to face liquidity squeezes—would be housed.) More importantly, it is extremely unlikely that private lenders will have the resources to prevent a full-fledged run. The largest private DIP financing to date was approximately \$9 billion. *See* Billy Cheung, *Energy Future Holdings Lining up \$9 Billion Bankruptcy Financing*, REUTERS (Mar. 27, 2014), <http://www.reuters.com/article/us-energy-future-hd-loans/energy-future-holdings-lining-up-9-billion-bankruptcy-financing-idUSBREA2Q13020140327> [<https://perma.unl.edu/CL6Q-RHFB>] (explaining that the \$9 billion DIP financing was “eclipsed only by General Motors \$33 billion DIP loan,” which was extended not by private parties, but by the U.S. Treasury under special authorization from Congress). To put this in perspective, JP Morgan had over a quarter-trillion dollars in non-deposit short-term liabilities at the end of 2016. JPMorgan Chase & Co., *Form 10-K for the Fiscal Year Ended Dec. 31, 2016*, SEC. & EXCH. COMM’N 296 (2016), [<https://www.sec.gov/Archives/edgar/data/19617/000001961717>

filing,<sup>176</sup> and (for some firms) the difficulty of pre-planning a bankruptcy.<sup>177</sup> Foremost among the latter reasons—those that are likely intractable within a bankruptcy context—is the extreme difficulty of international coordination outside a resolution process managed by regulators.<sup>178</sup> As Jeff Gordon and Mark Roe have argued:

A U.S. bankruptcy court will lack deep prior relationships or the authority to reach understandings with foreign regulators in advance of a bankruptcy filing. This increases the likelihood that foreign regulators or foreign courts, at the behest of local interests, will seize assets within their jurisdiction. For a global SIFI, such seizures are likely to be the death-knell of a successful bankruptcy.<sup>179</sup>

In short, the abolition of OLA—particularly when the “replacement” is so flawed—will significantly increase the risk of catastrophic contagion resulting from triggering a GSIB resolution.

The problem here *may* play itself out through a disruptive bankruptcy filing similar to the Lehman Brothers’. An equally plausible path, however, is that regulators will do everything they can to *prevent* a SIFI from being put into resolution. In other words, regulators’ readiness to pull the trigger requires some degree of confidence that the process has a good chance of working. Repealing the OLA would undermine this confidence and have a significant negative impact on efforts to counteract regulators’ bias towards delay.

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000314/corp10k2016.htm] [<https://perma.unl.edu/J8HZ-WJ34>] (providing year-end balances for “federal funds purchased and securities loaned or sold under repurchase agreements,” “commercial paper,” and “other borrowed funds”).

176. See Mark J. Roe & David A. Skeel Jr., *Bankruptcy for Banks: A Sound Concept That Needs Fine-Tuning*, N.Y. TIMES: DEALBOOK (Aug. 16, 2016), <https://www.nytimes.com/2016/08/17/business/dealbook/bankruptcy-for-banks-a-sound-concept-that-needs-fine-tuning.html> (“If the regulators think that a bankruptcy is needed, but that a bailout or alternative resolution process is not needed, they cannot directly force a filing. . . . True, regulators can pressure bank managers to reluctantly file, but the regulators may have to concede conditions to bank executives to make them file quickly; if the bank does not file quickly, the regulators may decide that to save the economy, they have to bail the bank out. In the extreme case, bank management may just refuse to file for bankruptcy.”).
177. See, e.g., 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 (May 23, 2017), <http://blogs.harvard.edu/bankruptcyroundtable/files/2017/05/Scholars-Letter-on-OLA-final-for-Congress-1.pdf> [<https://perma.unl.edu/8KFB-29JK>] (arguing that bankruptcy would only be plausible for a systemically important financial institution if it had engaged in the living will process, but that the CHOICE Act 2.0 would eliminate regulatory authority to subject non-bank SIFIs to this planning process).
178. See, e.g., Barr, *supra* note 175 (citing the importance to a non-disruptive process of “global coordination with foreign regulators, based not only on prenegotiated legal memorandums of understanding, but also on collaborative war-gaming, communications and, most important, the development of a trusted relationship between the FDIC and other overseas regulators earned over time”).
179. Gordon & Roe, *supra* note 177, at 3.

*c. Capital Shortcomings*

As mentioned above, a potentially significant cause of delay in triggering resolution arises from the shortcomings of regulatory capital as a timely measure of solvency. Recall that capital is a measure of the value of a bank's assets minus its liabilities.<sup>180</sup> (Capital regulations apply on a consolidated basis to BHCs, as well as to banks. In this section, for ease of explication, "bank" should be read to refer to both depositories and BHCs.) A bank's assets do not consist primarily of land, factories, inventory, or intellectual property, but rather of promises by people, firms, and governments to pay the bank money in the future.<sup>181</sup> Of course, those promises may be broken and borrowers may default.<sup>182</sup> How, then, do we value these assets? For some assets there is an established market price, but many bank assets do not trade in active secondary markets. For these less liquid assets, the details of valuation can be complex,<sup>183</sup> but are conceptually simple: we make an educated guess. As financial journalist and former investment banker Matt Levine has put it,

A bank is a collection of contracts that provide for future cash flows, and the value of those contracts depends on your guesses about the future cash flows. [Accounting] rules give you some guidance about how to guess—with different [accounting] rules providing different guidance for different purposes—and then you get some smart people to make the best possible guess. A bank's income statement—and balance sheet—is just a set of social conventions about predicting the future.<sup>184</sup>

Because valuing banks' assets involves making educated guesses about future repayments and interest rates,<sup>185</sup> it is possible that a sudden shift in expectations can cause a swift, significant change in the valuation of assets. And because capital represents the difference

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180. See *supra* section II.B.

181. When a bank makes a loan, it represents a liability for the borrower but an asset for the bank—it represents the contractual right to future cash flow from the borrower. Bank assets consist overwhelmingly of cash and senior debt claims. See, e.g., CARNELL ET AL., *supra* note 31, at 105–06 (providing aggregate statistics on holdings of FDIC-insured institutions).

182. Default risk is credit risk, but as the S&L crisis illustrates, banks may also face other types of risk, such as interest rate risk. See *supra* subsection III.B.1.ii.

183. See, e.g., Bd. of Governors of the Fed. Reserve Sys., Supervisory Policy and Guidance Topics: Allowance for Loan and Lease Losses (ALLL), <https://www.federalreserve.gov/supervisionreg/topics/alll.htm> [<https://perma.unl.edu/ET4L-PLES>] [hereinafter ALLL GUIDANCE] (providing links to policy letters and the relevant provisions of the Bank Holding Company Supervision Manual and the Commercial Bank Examination Manual dealing with loan loss accounting).

184. Matt Levine, *Bank of America Made \$168 Million Last Quarter, More or Less*, BLOOMBERG: VIEW (Oct. 15, 2014), <https://www.bloomberg.com/view/articles/2014-10-15/bank-of-america-made-168-million-last-quarter-more-or-less> [<https://perma.unl.edu/X4RT-YUYV>].

185. On the effect of market interest rates on the value of debt claims, see Crawford, *supra* note 134, at 193–94.

between the value of a bank's assets and its liabilities, such a shift would also mean a sudden change in the capital position of the bank.<sup>186</sup>

It turns out, however, that regulatory measures of market values often lag behind the market in accounting for such shifts. For example, when market actors expect a higher percentage of defaults on a bank's loans, that does not necessarily mean that the bank will increase its accounting-based provisions for expected defaults or losses in a timely manner.<sup>187</sup> Thus, regulatory measures of capital are infamous as "lagging indicators" of trouble at banks; that is, there is often a significant lag between trouble materializing with respect to a bank's assets (or the market's recognition of such trouble) and the reflection of that trouble in the bank's regulatory accounting measures.<sup>188</sup> This problem was particularly salient during the financial crisis.<sup>189</sup> Darrell Duffie has observed that Citigroup (which arguably received more government support than any other institution during the crisis<sup>190</sup>)

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186. It is worth noting that there are different categories of capital: common equity; Tier 1 (which encompasses common equity, perpetual noncumulative preferred shares, and a few other "rarefied" equity instruments); and Tier 2 (which includes various types of long-term debt). CARNELL ET AL., *supra* note 31, at 223–25. Tier 2 counts as capital because it is a more stable form of funding than, for example, deposits, as claimants can withdraw their principal on demand. But the definition of capital as assets less liabilities applies most squarely to common equity and Tier 1 capital.

187. *See generally* ALLL GUIDANCE, *supra* note 183 (providing guidance on accounting for loan losses).

188. One way to think about this is that markets update their expectations about future borrower defaults (and interest rate moves) more frequently than banks do.

189. *See* U.S. TREASURY DEP'T, PRINCIPLES FOR REFORMING THE U.S. AND INTERNATIONAL REGULATORY CAPITAL FRAMEWORK FOR BANKING FIRMS 6 (2009), [https://www.treasury.gov/press-center/press-releases/Documents/capital-statement\\_090309.pdf](https://www.treasury.gov/press-center/press-releases/Documents/capital-statement_090309.pdf) [<https://perma.unl.edu/F8P8-A7E6>] ("Many of the firms that failed or required extraordinary government assistance during the recent crisis were well capitalized under existing regulatory capital standards. This highlights how the existing regulatory capital and accounting rules generate capital ratios for banking firms that too often are a lagging indicator of financial distress. For example, the existing capital rules generally provide that a banking firm's capital does not reflect unrealized gains or losses on available-for-sale securities. These and other similar features of the capital framework reduce the credibility of regulatory capital ratios for market participants and reduce the usefulness of such ratios for supervisors.")

190. In a 2014 speech, Senator Elizabeth Warren observed that "[d]uring the financial crisis, when all the support through TARP and from the FDIC and Fed is added up, Citi received nearly half a trillion dollars in bailouts . . . . That's almost \$140 billion more than the next biggest bank got." *Enough is Enough: Elizabeth Warren Launches Fiery Attack After Congress Weakens Wall Street Regs*, WASH. POST: WONKBLOG (Dec. 12, 2014), <http://www.washingtonpost.com/blogs/wonkblog/wp/2014/12/12/enough-is-enough-elizabeth-warrens-fiery-attack-comes-after-congress-weakens-wall-street-regulations/> [<https://perma.unl.edu/TS8Q-TD7U>] (pro-

had a Tier-1 capital ratio that never fell below 7% during the course of the financial crisis, and was measured at 11.8% at roughly its weakest moment in December 2008, when the stock-market capitalization of [Citigroup's] holding company fell to around \$20 billion [ ], or about 1% of its total accounting assets. Because of the limited-liability treatment of equity and because of significant prevailing uncertainty over the true valuation of [Citigroup's] assets, this stock-market valuation suggests that [Citigroup's] assets probably had a market value well below its debt principal in late 2008.<sup>191</sup>

The problem was not unique to Citigroup. Bank of England executive director Andrew Haldane has captured the breadth and depth of the problem by comparing regulatory measures of capital for “crisis” and “no crisis” banks leading up to and during the crisis.<sup>192</sup> (Haldane’s groupings include not just banks as we have defined them, but various types of financial institutions—banks, BHCs, and government-sponsored entities such as Fannie Mae—in the United States and abroad.)<sup>193</sup> The “crisis” and “no crisis” categories are determined based on whether a bank failed or likely would have failed absent sig-

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viding the text of Senator Warren’s speech). It is worth noting, however, that the government did not ultimately suffer any direct losses from its interventions in support of Citigroup. To wit, roughly half of the “nearly half a trillion dollars” in support came in the form of an agreement by the government to share (the majority of the) losses on a \$301 billion asset pool held by Citigroup. See FINANCIAL CRISIS MANUAL, *supra* note 2, at 78–79 (explaining that the agreement would force Citigroup to absorb the first \$39.5 billion in losses, after which the government would absorb ninety percent of any losses). The agreement was terminated with no losses to the government. See U.S. Dept’t of Treasury, *Treasury Prices Sale of Citigroup Subordinated Notes for Proceeds of \$894 Million* (May 30, 2013), [https://www.treasury.gov/initiatives/financial-stability/news-room/news/Pages/TREASURY-PRICES-SALE-OF-CITIGROUP-SUBORDINATED-NOTES-FOR-PROCEEDS-OF-\\$894-MILLION.aspx](https://www.treasury.gov/initiatives/financial-stability/news-room/news/Pages/TREASURY-PRICES-SALE-OF-CITIGROUP-SUBORDINATED-NOTES-FOR-PROCEEDS-OF-$894-MILLION.aspx) [<https://perma.unl.edu/XR6J-UXKB>] (“In December 2009, the loss-sharing arrangement was terminated at the request of Citigroup. Because neither Treasury, nor the FDIC, nor the Federal Reserve was ever required to make any payment under the arrangement, and they have had no obligation to do so since December 2009, all income received through the program constitutes a net gain to the taxpayer.”). The government also profited (though likely did not get an appropriate risk-adjusted return) from its direct capital injections into Citigroup. See David Lawder, *U.S. Exits Citigroup Stake and Earns \$12 Billion Profit*, REUTERS (Dec. 10, 2010), <https://www.reuters.com/article/us-citigroup-treasury-offering/u-s-exits-citigroup-stake-and-earns-12-billion-profit-idUSTRE6B55KP20101207> [<https://perma.unl.edu/28PA-29F5>].

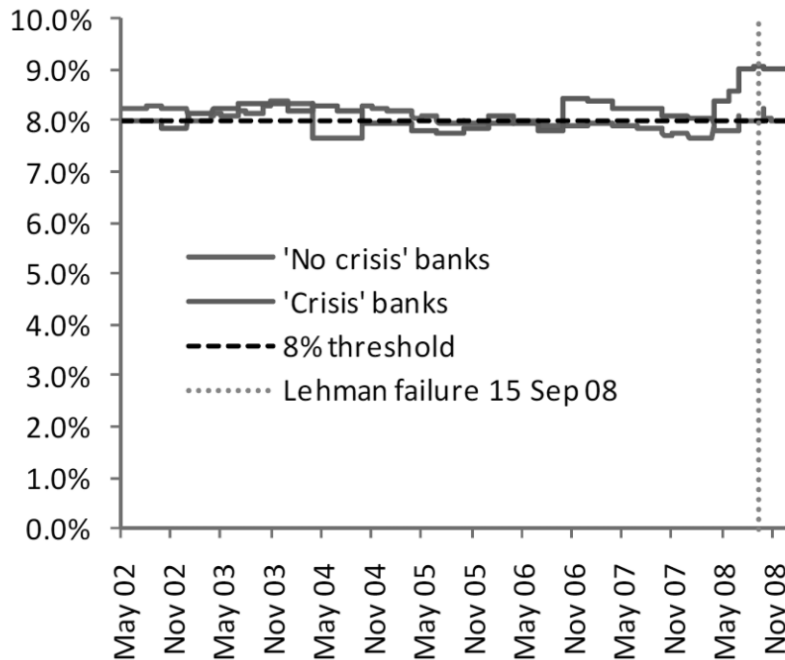
191. Darrell Duffie, *Contractual Methods for Out-of-Court Restructuring of Systemically Important Financial Institutions* (Stanford Univ. Working Grp. On Econ. Pol’y, Nov. 9, 2009), <http://www.darrellduffie.com/uploads/policy/DuffieRestructuringOutOfCourt2009.pdf> [<https://perma.unl.edu/KLQ3-WP29>]. (Duffie refers to “Citibank” rather than Citigroup, but his observations are apropos of Citigroup, the holding company, on a consolidated basis, rather than just Citibank, its commercial banking subsidiary.)

192. Andrew G. Haldane, Exec. Dir., Bank of Eng., Remarks at the American Economic Association: Capital Discipline 14 (Jan. 9, 2011), <http://www.bis.org/review/r110325a.pdf> [<https://perma.unl.edu/G7GP-ALB2>].

193. *Id.*

nificant government support in the fall of 2008.<sup>194</sup> Chart 1, below, provides a comparison of the Tier 1 regulatory capital ratios<sup>195</sup> for the two groups of banks from mid-2002 through late 2008.

Chart 1: Tier 1 Capital Ratios for “Crisis” and “No Crisis” Banks<sup>196</sup>



As the chart illustrates, regulatory capital was actually *higher* at the “crisis” banks than the “no crisis” banks from roughly mid-2006

194. Haldane explains,

["Crisis" banks] are a set of major financial institutions which in Autumn 2008 either failed, required government capital or were taken over in distressed circumstances. These are RBS, HBOS, Lloyds TSB, Bradford & Bingley, Alliance & Leicester, Citigroup, Washington Mutual, Wachovia, Merrill Lynch, Freddie Mac, Fannie Mae, Goldman Sachs, ING Group, Dexia and Commerzbank.

*Id.* at 14. “No crisis” banks in his estimation include “HSBC, Barclays, Wells Fargo, JP Morgan, Santander, BNP Paribas, DeutscheBank, Crédit Agricole, Société Générale, BBVA, Banco Popular, Banco Sabadell, Unicredit, Banca Popolare di Milano, Royal Bank of Canada, National Australia Bank, Commonwealth Bank of Australia and ANZ Banking Group.” *Id.*

195. Tier 1 capital encompasses common equity, perpetual noncumulative preferred equity, and a handful of other instruments. CARNELL ET AL., *supra* note 31, at 223–25.

196. Haldane, *supra* note 192.



through the height of the crisis in Autumn 2008, and indeed shot up in mid-2008, so that the troubled banks *looked* healthiest at the very moment they either failed or required significant assistance to survive.

In Part IV, below, I explore approaches to mitigating the problems with respect to accuracy and timeliness posed by capital *qua* resolution trigger. While there is significant room for improvement, it is nevertheless worth emphasizing that perfection is likely not attainable on this front. For instance, while the mismatch between market and regulatory measures of solvency were stark leading up to the crisis, it also true that the risk of a correlated downturn in home prices was neglected in the mid-2000s,<sup>197</sup> and that most losses arose from lending that occurred before the market had fully awakened to the risks. Loans based on shoddy underwriting and faulty assumptions had already been made, and there was little that even the most diligent regulators could have done at that point to avoid steep losses.<sup>198</sup>

#### IV. THE PATH AHEAD

This Part explores appropriate responses to the gaps and obstacles described in Part III and proposes several other ways to bolster the resolution triggering process. Responses to the problems regarding the (mis)use of liquidity as a trigger are considered here in section IV.A. The implications of problems of capital and timeliness—slightly less straightforward—are explored in section IV.B. Establishing a credible

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197. See, e.g., Joshua Coval et al., *The Economics of Structured Finance*, 23 J. ECON. PERSP. 3, 20 (2009) (“In March 2007, First Pacific Advisors discovered that Fitch used a model that assumed constantly appreciating home prices, ignoring the possibility that they could fall.”). On the problem of neglected risks and their role in financial crises, see Nicola Gennaioli, *Neglected Risks: The Psychology of Financial Crises*, 105 AMER. ECON. REV. 310 (2015) (presenting “a psychological theory of the neglect of risk and financial crises”).

198. It is worth noting that financial firms were paying significant dividends to shareholders, eroding their capital base, even as they were bleeding losses in 2007 and 2008. See, e.g., ADMATI & HELLWIG, *supra* note 115, at 174–75. At the time, regulators lacked effective tools to prevent this, even if they had wanted to do so. Post-crisis, regulators have several tools to prevent large bank holding companies, at least, from engaging in capital distributions at moments when they should be shoring up their capital position. See CARNELL ET AL., *supra* note 31, at 239 (describing the post-crisis requirement of a “capital conservation buffer,” above and beyond capital adequacy requirements, and the attendant restrictions on capital distributions for firms whose buffers are too small); see also Bd. of Governors of the Fed. Reserve Sys., DODD-FRANK ACT STRESS TEST 2017: SUPERVISORY STRESS TEST METHODOLOGY AND RESULTS (2017), <https://www.federalreserve.gov/publications/files/2017-dfast-methodology-results-20170622.pdf> [<https://perma.unl.edu/ZXF6-635M>] (describing stress tests and the comprehensive capital analysis and review applied to the largest BHCs on an annual basis, and noting that “[i]f the Federal Reserve objects to a firm’s capital plan, the firm may only make capital distributions that the Federal Reserve has not objected to in writing”).

and effective framework for triggering resolution in a timely fashion based on capital—or more precisely, on actual or imminent insolvency—is difficult. Section IV.B considers past experience with this precise problem in the context of traditional bank resolutions, along with various proposals for optimizing the triggering process that have arisen in three areas: bank resolution, “contingent convertible bond” design, and SIFI resolution. I conclude that a set of rules proposed pursuant to Dodd Frank Section 166 but never finalized provides a good blueprint for establishing an optimal triggering framework. In section IV.C, I consider the possibility that timeliness issues will persist even after the steps proposed in section IV.B are implemented and suggest an increase in the long-term debt component of TLAC as a possible mitigant; if delay creates the risk of ballooning losses, then increasing the loss-absorbing debt that GSIBs are required to issue is a way to help prevent these losses from forcing regulators into another bailout-or-panic dilemma. Finally, in section IV.D, I address the question of how much discretion should rest with regulators once triggering guidelines have been established.

#### A. Bolstering the Public Liquidity Backstop

The policy prescriptions that flow from the problems described in section III.A, above, appear relatively straightforward. First, liquidity should not be used as a triggering metric for resolution or bankruptcy (though it may make sense to use it as a trigger for heightened supervisory attention). Second, to the degree the current GSIB configuration persists,<sup>199</sup> emergency lending authorities should be bolstered rather than restricted. Specifically, the restrictions Dodd-Frank placed on the Federal Reserve’s emergency lending authorities should be rolled back.<sup>200</sup> Stronger emergency lending authorities would facilitate regulators’ ability to prevent vicious knock-on effects that might arise from a run on a solvent financial institution. The typical objection to strengthened emergency lending authorities is that it will foster moral hazard.<sup>201</sup> If moral hazard is a concern, however, the appropriate response is not to eliminate emergency lending but rather

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199. *See supra* note 66.

200. *See* 12 U.S.C. §§ 343(3)(A), (B)(i) (2012); *see, e.g.*, FINANCIAL CRISIS MANUAL, *supra* note 2, at 18–40.

201. *See, e.g.*, MARC LABONTE, CONG. RESEARCH SERV., R44185, FEDERAL RESERVE: EMERGENCY LENDING 17 (2016) (“One broader economic concern with [the Fed’s emergency lending authority] raised by House Financial Services Committee Chairman Jeb Hensarling is that ‘its use risks exacerbating moral hazard costs.’ Moral hazard is the concept that firms will take greater risks if they are protected from negative outcomes. In this case, moral hazard occurs because firms are more likely to be more reliant on short-term lending if they anticipate access to Fed lending during a liquidity crisis.” (internal citation omitted)).

to marry it to heightened risk constraints, including capital and activity constraints.<sup>202</sup>

## B. Promoting Timeliness

This section explores ways to counteract regulators' bias towards delay and the problem of timeliness and capital.

### 1. Background: Prompt Corrective Action

The S&L crisis, as noted, was severely exacerbated by regulators' unwillingness to pull the plug on weak and insolvent S&Ls.<sup>203</sup> After the S&L crisis, Congress tried to address the problem of regulatory bias toward delay with the FDIC Improvement Act of 1991, which created a "prompt corrective action" (PCA) regime, obliging banks and regulators to take certain prescribed steps when capital fell below predetermined levels.<sup>204</sup> There are several possible levels of "early remediation" prior to resolution;<sup>205</sup> and when a bank's "tangible equity ratio"<sup>206</sup> falls below two percent, there is a presumption that reg-

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202. See generally John Crawford, *Lesson Unlearned?: Regulatory Reform and Financial Stability in the Trump Administration*, 117 COLUM. L. REV. ONLINE 127 (2017) (arguing that shadow banks create the same risks as banks; that these risks are not susceptible to market solutions; and that the regulatory paradigm that applies to banks should be extended to shadow banks); see also GEITHNER, *supra* note 4, at 430 (comparing the denial to regulators of absence fighting to taking fire-fighting equipment away from the fire department: it "ensures that the equipment won't be used, but isn't much of a strategy for reducing fire damage").

203. See *supra* subsection III.B.1.ii.

204. The heart of the prompt corrective action regime is the creation of different capital-based categories, with different regulatory consequences for banks depending on which category they fall in. The categories are "well capitalized," "adequately capitalized," "undercapitalized," "significantly undercapitalized," and "critically undercapitalized"; and bank regulators are required to specify by regulation "for each relevant capital measure the levels at which an insured depository institution" meets such measure. 12 U.S.C. § 1831o(b)(1), (c)(2) (2012). The centerpiece of early remediation is a "capital restoration plan" that regulators deem credible; other restrictions may include, depending on the level of remediation, restrictions on expansion and acquisitions; removal of the bank's officers and directors; and a requirement that the bank's parent company provide a guarantee of its capital restoration plan (stepping in to fill the gap if the bank fails to do so). 12 U.S.C. §§ 1831o(e)(2), (e)(2)(C)(1), e(2)(C)(ii), f(2).

205. *Id.*

206. The tangible equity ratio is defined as "tier 1 capital *PLUS* cumulative preferred stock and related surplus *LESS* intangibles except qualifying purchase mortgage servicing rights (PMSR) divided by total assets *LESS* intangibles except qualifying PMSR." COMPTROLLER OF THE CURRENCY, BC-268, BANKING CIRCULAR: PROMPT CORRECTIVE ACTION 2 (1993). On tier 1 capital, see CARNELL ET AL., *supra* note 31, at 223–25.

ulators will place it in resolution.<sup>207</sup> The goal of this regime is to override the type of bias towards delay that regulators exhibited during the S&L crisis.

While the locus of the financial crisis of 2007–2008 was shadow banks rather than banks,<sup>208</sup> depositories also came under significant stress.<sup>209</sup> In 2011, the General Accounting Office (GAO) issued a report analyzing the efficacy of PCA during the crisis and its aftermath.<sup>210</sup> The GAO found that “of the 569 banks that fell into the undercapitalized or lower capital categories of PCA [between 2006 and 2010], 270 failed.”<sup>211</sup> Although a “principal goal of PCA is to prevent losses to the [deposit insurance fund] for the vast majority of bank failures,” every single one of these 270 failed banks caused losses to the deposit insurance fund.<sup>212</sup> The median level of losses taken as a percentage of bank assets was a staggering 27.7%, meaning that many of the banks were deeply insolvent by the time they were finally put into resolution.<sup>213</sup>

The magnitude of the losses from these banks—*despite* the strictures of the PCA regime—suggest a difficulty beyond regulatory incentives: namely, the timeliness and accuracy of solvency measures. Even if regulatory incentives are perfectly aligned with the public good, they can only be as good as the metrics that inform their decisions, and capital poses some serious difficulties on this front.

## 2. *Establishing Clear Guidelines and Addressing Capital’s Shortcomings*

Even as capital—or, more generally, balance sheet (in)solvency—is retained as the appropriate metric for triggering resolution, it might be possible either to improve the way it is measured or to heighten the level at which it triggers resolution. In this section, I consider various proposals to effect such changes, developed in three different contexts: as part of proposals for improving PCA for banks, as part of the design

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207. 12 U.S.C. § 1831o(h); FDIC, RISK MANAGEMENT MANUAL OF EXAMINATION POLICIES 2.1-8 (2015), <https://www.fdic.gov/regulations/safety/manual/section2-1.pdf> [<https://perma.unl.edu/2HQG-BU4S>] (providing current threshold for the category “critically undercapitalized”).

208. *See generally* RICKS, *supra* note 26.

209. *See, e.g.*, FCIC REPORT, *supra* note 1, at 365–71 (describing runs on Washington Mutual and Wachovia). A number of smaller banks failed in the aftermath of the crisis. *Id.* at 401 (“Between January 2009 and December 2010, 297 banks . . . failed; most were small and medium-sized banks.”).

210. U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-11-612, BANK REGULATION: MODIFIED PROMPT CORRECTIVE ACTION FRAMEWORK WOULD IMPROVE EFFECTIVENESS (2011) [hereinafter GAO REPORT].

211. *Id.* at 17. During this period, twenty-five banks failed without having gone through PCA remediation beforehand. *Id.*

212. *Id.* at 9, 17.

213. *Id.* at 19–20.

of “contingent convertible” bonds, and as part of a Dodd-Frank-mandated early remediation regime for GSIBs that has been proposed but not finalized.

First, in its report on the failings of the prompt corrective action regime in the aftermath of the crisis, the GAO considered proposals for improving the PCA’s triggering criteria.<sup>214</sup> The proposed new methods boiled down to (i) raising the capital trigger levels and (ii) adding an additional trigger or triggers.<sup>215</sup> The option of a different trigger “would require regulators to monitor other aspects of a bank’s performance, such as asset concentration, asset quality, or liquidity, and if problems were identified, to take increasingly severe actions to address problems in that area.”<sup>216</sup> I believe both approaches make a great deal of sense in the context of the pre-resolution phases of PCA’s early remediation regime, where higher required capital ratios and other metrics could trigger heightened supervisory attention and tightened risk constraints on the bank. When it comes to triggering actual *resolution*, however, these approaches face greater obstacles to efficacy. With respect to heightened capital, it is easy to imagine that there would be political backlash against placing a GSIB into resolution when its balance sheet measures imply that it is still solvent and viable.<sup>217</sup> (Nevertheless, the underlying point here—triggering the process when it is likelier that there will be sufficient credible loss absorbing capacity in the capital structure—has much to recommend it, as discussed in greater detail in section IV.C below.)

Other metrics, such as “asset quality,” are inappropriate as truly independent triggers for resolution but may inform a more nuanced picture of the actual capital position of the bank. For example, poor asset quality (due, perhaps, to delinquency on loans owed to a financial institution) should only play a role in a decision to trigger resolution to the degree that it bears directly on the likelihood of imminent insolvency—a likelihood that ideally should be captured directly by a firm’s capital position.

A second area where trigger design has received a great deal of attention is in the extensive literature on a loss-absorbing instrument called the contingent convertible bond, or CoCo. CoCos are issued as

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214. See *supra* notes 204–207 and accompanying text.

215. *Id.* at 35–43. The GAO designated three categories of proposed reforms: (1) “Incorporat[ing] an institution’s risk profile into the PCA capital category thresholds”; (2) “raise all PCA capital category thresholds”; and (3) “add an additional PCA trigger.” *Id.* Category (1), however, may be seen as a variation on category (3).

216. *Id.* at 40.

217. See Calomiris & Herring, *supra* note 85, at 41 (emphasizing that “delayed recognition [of losses] is not only a technical challenge. Supervisors are subject to substantial political pressure, and that pressure often leads them to prefer to forbear and ‘play for time’ . . .”).

bonds, with regular interest and principal payments, but are designed to absorb losses upon some contractually defined triggering event—for example, by converting to equity or simply missing scheduled payments—without causing default or bankruptcy.<sup>218</sup> CoCos have been embraced by prudential regulators in Europe, but not in the United States.<sup>219</sup> Though U.S. regulators have not encouraged CoCo issuance, there have been a number of proposals both in other jurisdictions and in the United States on how best to design the instrument, including how to trigger the CoCo's loss-absorbing function.<sup>220</sup>

These proposals overwhelmingly recommend some version of a *market* measure for triggering the CoCo conversion—a position informed by the shortcomings of accounting measures of capital highlighted above.<sup>221</sup> The proposals thus tend to retain the idea of balance sheet solvency as the relevant triggering metric but would try to achieve greater accuracy and timeliness by the use of market measures rather than regulatory accounting measures. As one illustration of the potential for market measures to provide a (more) timely picture of a firm's solvency, harken back to Chart 1, which showed that “crisis” banks looked healthier according to regulatory capital measures than “no-crisis” banks did leading up to and during the crisis. Now consider Chart 2, below, which compares the same groups of banks over the same time period based on a measure of the *market's* perception of the banks' health—viz., the market value of each bank's equity relative to its asset base. Here, the picture is very different.

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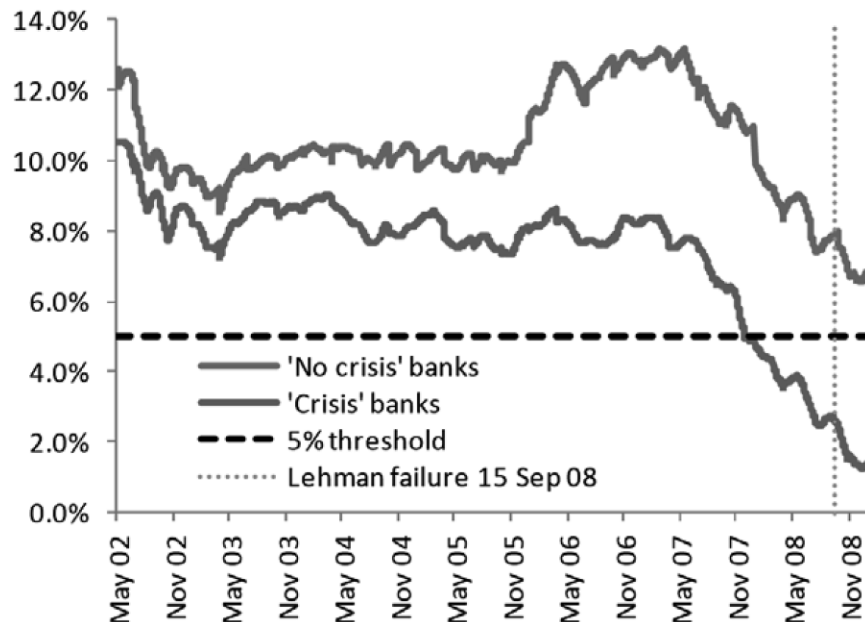
218. The long-term debt component of TLAC can be seen as, “in essence, a conversion-to-equity CoCo triggered by a regulatory determination that the issuer is non-viable and married to a resolution process—though this is an analytic rather than a terminological point.” Crawford, *supra* note 78, at 151.

219. European bank regulators count CoCos as Tier 1 capital, but U.S. bank regulators do not. See, e.g., Ciara Linnane, *What Are CoCos, and Why Is Everyone Freaking Out About Them?*, MARKETWATCH (Feb. 9, 2016), <http://www.marketwatch.com/story/what-are-cocos-and-why-is-everyone-freaking-out-about-them-2016-02-09> (CoCos “have become popular with European banks as they work to meet more stringent regulatory requirements on bank capital in the wake of the financial crisis. They are counted as Tier 1 contingent convertible bonds, or additional Tier 1 capital.”); Erin McHugh, *Understanding Contingent Convertible Securities: A Primer* 3, NERA ECON. CONSULTING (May 2016), [http://www.nera.com/content/dam/nera/publications/2016/Understanding\\_Contingent\\_Convertible\\_Securities-A\\_Primer.pdf](http://www.nera.com/content/dam/nera/publications/2016/Understanding_Contingent_Convertible_Securities-A_Primer.pdf) [<https://perma.unl.edu/A4BF-767S>] (explaining that U.S. banks have not issued CoCos in part because “US regulators do not currently allow CoCos to qualify as [Tier 1] capital”).

220. See Calomiris & Herring, *supra* note 85, at 44–46.

221. See *supra* subsection III.B.2.iii.

Chart 2: Market Capitalization<sup>222</sup> as a Percentage of the Book-Value of Total Assets<sup>223</sup>



The graph suggests that markets understood that the “crisis” banks were in significantly worse shape than the “no crisis” banks leading up to and during the crisis.<sup>224</sup> It is worth giving strong consideration, therefore, to incorporating market measures of solvency into the triggering process.

A third source for honing trigger design arises from work done pursuant to Section 166 of the Dodd Frank Act, under which the FDIC and Federal Reserve must promulgate rules establishing requirements for early remediation at the largest BHCs.<sup>225</sup> In 2012, the FDIC and Federal Reserve proposed a set of rules that included the

222. Market capitalization is the product of the number of a firm’s outstanding shares times the share price. Share price, of course, is a forward-looking measure based on the market’s expectations of future cash flows. *See, e.g., Market Capitalization Defined*, INVESTOPEDIA, <http://www.investopedia.com/articles/basics/03/031703.asp> [<https://perma.unl.edu/62K6-JTQE>]. Regulatory capital, on the other hand, is a historical accounting measure. Common equity, for example, is equal to the funds a firm receives when it issued its shares (par value plus paid-in surplus) plus net retained earnings. *See, e.g., CARNELL ET AL., supra note 31, at 218.*

223. Haldane, *supra* note 192.

224. For a theoretical perspective on why markets might do better than regulators at this job, see Crawford, *supra* note 78, at 115–17.

225. 12 U.S.C. § 5366 (2012).

early remediation requirements,<sup>226</sup> but the parts of the rule touching on these requirements were never finalized.<sup>227</sup> The rule would have created a system analogous to the PCA, with four remedial categories, but for GSIBs rather than banks, and would have incorporated the best GAO reform ideas.<sup>228</sup> Specifically, the rule's triggers for escalating remedial steps included liquidity, stress test failures,<sup>229</sup> and deficiencies in risk management, while resolution is triggered based on falling below any one of three capital measures.<sup>230</sup> Table 1, on the following page, lays out the triggers for each remedial level in the proposed rule.<sup>231</sup>

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226. Enhanced Prudential Standards and Early Remediation for Covered Companies, 77 Fed. Reg. 594 (proposed Jan. 5, 2012) [hereinafter Proposed Early Remediation Rule].
227. Enhanced Prudential Standards for Bank Holding Companies and Foreign Banking Organizations, 79 Fed. Reg. 17240, 17264 n.73 (Mar. 27, 2014) [hereinafter Final Rule on Enhanced Prudential Standards] (noting that the Board did not adopt a final rule with respect to the early remediation requirements that had been part of the proposed rule).
228. *See supra* notes 214–216 and accompanying text.
229. Stress tests are exercises carried out by the Federal Reserve pursuant to Dodd Frank Act § 165 that simulate various economic scenarios, including “severely adverse” conditions, and model the effect of these scenarios on the capital position of large U.S. banking organizations. 12 U.S.C. § 5365(i) (2012). If a bank’s capital is depleted too severely under the test simulations, the Federal Reserve may limit or prevent the bank from making capital distributions (e.g., dividends) to its shareholders. *See, e.g.*, Ryan Tracy, *What Are The Fed’s Stress Tests?*, WALL ST. J. (Jun. 22, 2017), <https://www.wsj.com/articles/what-are-the-feds-stress-tests-1498123802> (“[Stress tests] are also important for investors in U.S. banks because if banks fail, they aren’t allowed to increase the amount of money they return to shareholders through dividends or share buybacks.”).
230. Specifically, resolution would be triggered if the firm falls below three percent for either its Tier 1 risk-based capital ratio or its Tier 1 leverage ratio; or if the firm falls below six percent for its (total) risk-based capital ratio. Proposed Early Remediation Rule, *supra* note 226, at 636. On Tier 1 capital, see CARNELL ET AL., *supra* note 31, at 223–25. The leverage ratio measures capital against total assets; risk-based capital ratios measure capital against risk-weighted assets. *See* CARNELL ET AL., *supra* note 31, at 225–32. Risk-weighted assets are computed by multiplying asset values by prescribed risk-weightings—for example, Treasuries have a risk weighting of 0, general obligation state bonds of 20%, and loans 90 days past due of 150%—and adding the products. *Id.*
231. *Summary of the Federal Reserve’s Proposed Rules for Enhanced Prudential Standards and Early Remediation Requirements for Covered Companies* 28, Davis Polk & Wardwell LLP (Dec. 23, 2011), [https://www.davispolk.com/files/12.23.11\\_summary\\_federal\\_reserve\\_proposed\\_rules.pdf](https://www.davispolk.com/files/12.23.11_summary_federal_reserve_proposed_rules.pdf) [<https://perma.unl.edu/4FD8-ERL2>].



	Level 1	Level 2**	Level 3**	Level 4
<b>Risk-Based Capital (RBC) Ratios and Leverage Ratio Levels</b>	Federal Reserve determines Covered Company's capital structure, capital planning processes or amount of capital held is not commensurate with the level and nature of risks to which it is exposed	10% > RBC ratio $\geq$ 8% or 6% > Tier 1 RBC ratio $\geq$ 4% or 5% > Tier 1 leverage ratio $\geq$ 4%	Two complete consecutive quarters of Level 2 RBC capital or leverage ratios or 8% > RBC ratio $\geq$ 6% or 4% > Tier 1 RBC ratio $\geq$ 3% or 4% > Tier 1 leverage ratio $\geq$ 3%	RBC ratio < 6% or Tier 1 RBC ratio < 3% or Tier 1 leverage ratio < 3%
<b>Stress Tests</b>	Noncompliance with Federal Reserve capital plan and stress testing rules	Results under severely adverse scenario in any quarter of planning horizon pursuant to supervisory stress test reflect: 5% > Tier 1 RBC ratio $\geq$ 3%	Results under severely adverse scenario in any quarter of planning horizon pursuant to supervisory stress test reflect: Tier 1 RBC ratio < 3%	N/A
<b>Enhanced Risk Management and Risk Committee Standards</b>	Signs of weakness in meeting standards	Multiple deficiencies in meeting standards	Substantial noncompliance in meeting standards	N/A
<b>Enhanced Liquidity Risk Management Standards</b>	Signs of weakness in meeting standards	Multiple deficiencies in meeting standards	Substantial noncompliance in meeting standards	N/A
<b>Market Indicators</b>	Median value of any market indicator exceeds the applicable threshold for the breach period	N/A	N/A	N/A

Importantly, the rule would also incorporate a number of different *market* measures as triggers for the *first* stage of remediation—a stage requiring the Federal Reserve to “produce an internal report on the elements evidencing deterioration within 30 days of [the] Level 1 trigger breach and determine whether the institution should be elevated to a higher level of remediation.”<sup>232</sup>

These market measures would include both equity-based and debt-based metrics,<sup>233</sup> but would not (yet) be used to trigger resolution. In the proposed rule, the reasons given for not using market-based measures as resolution triggers include (i) concerns about the measures’ validity—that is, the degree to which they may be over- and under-inclusive in identifying firms for resolution—as well as (ii) the fact that “market prices may adjust to reflect this use and potentially become less revealing over time.”<sup>234</sup>

It is beyond the scope of this Article to evaluate these concerns in depth with respect to any of the various metrics the Federal Reserve lists in the proposed rule, but it is worth briefly fleshing them out a bit. (I should note that I am cautiously optimistic that the concerns can be adequately addressed.) Regarding the first point, validity (or accuracy), it is worth distinguishing between debt- and equity-based measures. Debt-based measures ideally capture the risk of insolvency by providing a market-based estimate of the likelihood a firm will default on its debt obligations. If the market fears that default may occur due to a liquidity crisis rather than fundamental (balance-sheet) insolvency, however, then debt-based metrics may provide a noisy signal of a firm’s capital position.

This problem could potentially be addressed if (i) the Federal Reserve were given greater authority to provide emergency liquidity support to GSIBs,<sup>235</sup> (ii) it established clear guidelines for doing so, and (iii) the market developed confidence in these guidelines. Then, in theory at least, market actors would not fear a solvent GSIB defaulting due to a liquidity crisis. A second concern with debt-based measures is likely to be the (il)liquidity of the markets.<sup>236</sup> The accuracy and timeli-

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232. Proposed Early Remediation Rule, *supra* note 226, at 636. The Federal Reserve proposed six different market measures, four equity-based indicators and two debt-based indicators. The equity-based indicators are expected default frequency, marginal expected shortfall, market equity ratio, and option-implied volatility. The debt-based indicators are credit default swaps and subordinated bond spreads. *Id.* at 640.

233. *Id.*

234. *Id.*

235. *See supra* section IV.A.

236. With respect to bonds, Oliver Hart and Luigi Zingales have observed, [B]ond prices suffer from the problem of market segmentation and illiquidity. Bond issues differ along several dimensions: promised yield, maturity, covenants, callability, and so on. As a result of this lack of standardization, the market for each bond issue tends to be rather illiq-

ness of market prices depends on the efficiency of the market, which in turn depends (*inter alia*) on how liquid the market is.<sup>237</sup> The price of debt instruments may lag real-time economic developments due to this relative illiquidity.

Equity-based measures, on the other hand, are more likely to derive from highly liquid markets.<sup>238</sup> There are two potential issues with equity, however. First, if a bank has made risky investments such that it has a relatively high likelihood of failure, but also a likelihood of very high profits in the event the investments pay off, it may support a relatively high share price.<sup>239</sup> Thus, even a perfectly accurate share price may be noisy with respect to the occurrence we care about: failure. Second, it is theoretically possible for those who have taken a short position<sup>240</sup> on a firm to try to manipulate the share price by launching a short-selling “attack” on the firm’s shares.<sup>241</sup> As Darrell Duffie has observed, “Markets need not be so efficient that bargain-hunting buyers of shares would react quickly enough to offset the downward price impact caused by sellers.”<sup>242</sup> As Duffie also notes, however,

Such a self-generating decline in share prices, sometimes called a ‘death spiral,’ could be mitigated by a trigger that is based instead on a trailing average share price—for example, the average closing price of the shares over the pre-

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uid, with most bond issues trading only occasionally. This illiquidity makes bond prices a less reliable indicator than credit default swap prices.

Oliver Hart & Luigi Zingales, *A New Capital Regulation for Large Financial Institutions*, 13 AM. L. ECON. REV. 453, 478 (2011). While Hart and Zingales favor credit default swap (CDS) prices, CDS are still likely to be significantly less liquid than stock. *See, e.g.*, Aline van Duyn, *Study Highlights CDS Shortcomings*, FIN. TIMES (Oct. 11, 2010), <https://www.ft.com/content/8c845ae4-d567-11df-8e86-00144feabdc0> (reviewing a study that found even the most actively traded CDS “change hands only a few times per day”).

237. *See, e.g.*, Tarun Chordia et al., *Liquidity and Market Efficiency*, 87 J. FIN. ECON. 249 (2008) (finding evidence that greater market liquidity supports greater efficiency).
238. Hart & Zingales, *supra* note 236, at 478 (“equity is very liquid”).
239. *Id.* Though highly liquid, equity “does not provide a good indicator of the probability of default. Equity is insensitive on the downside (because of limited liability) and very sensitive on the upside; thus, a small probability of a positive event can sustain significant equity prices even in the presence of a high probability of default.” *Id.*
240. If an investor has taken a “short” position on an asset, the investor makes money if the asset loses value.
241. Short-selling involves “the sale of a security that is not owned by the seller or that the seller has borrowed. Short selling is motivated by the belief that a security’s price will decline, enabling it to be bought back at a lower price to make a profit.” *Short Selling*, INVESTOPEDIA, <https://www.investopedia.com/terms/s/short-selling.asp> [<https://perma.unl.edu/XCA4-X5TSI>].
242. Darrell Duffie, *A Contractual Approach to Restructuring Financial Institutions*, in ENDING GOVERNMENT BAILOUTS AS WE KNOW THEM 109, 116 (Kenneth E. Scott et al. eds., 2010).

ceding 20 business days. In that case, any adverse price impact on a given day would receive a weight of 1/20 toward the trailing average price used in the conversion trigger.<sup>243</sup>

While a manipulator might be able to affect a share price over a very short period, one can assume it would be much more difficult to do so for any sustained period of time in public equity markets.

The second point—that “market prices may adjust to reflect [their use as a trigger] and potentially become less revealing over time”—reflects concern over what is commonly known as “Goodhart’s law,” after British economist Charles Goodhart, which holds that “any observed statistical regularity will tend to collapse once pressure is placed on it for control purposes.”<sup>244</sup> Capital regulation arguably provides a good example of this: if we make a “dumb” leverage ratio<sup>245</sup> the binding constraint on banks, then it “may encourage banks to increase their risk per unit of assets, reducing [the leverage ratio’s] usefulness as an indicator of bank failure.”<sup>246</sup> If, on the other hand, we make risk-based capital requirements<sup>247</sup> binding, then banks may seek out assets that appear “safe” for regulatory purposes, but carry hidden risk.<sup>248</sup> In any event, it is not clear to me that Goodhart’s Law would necessarily apply to many of the market-based measures the Federal Reserve is considering, but attention to the issue is certainly appropriate as regulators attempt to discern the most useful market indicators of bank failure.<sup>249</sup>

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243. *Id.*

244. Charles Goodhart, *Problems in Monetary Management, The U.K. Experience, in INFLATION, DEPRESSION, AND ECONOMIC POLICY IN THE WEST* 111, 116 (Anthony Kourakis ed., 1981).

245. The leverage limit sets capital requirements based on the total value of a bank’s assets, irrespective of their riskiness. *See, e.g.,* CARNELL ET AL., *supra* note 31, at 225.

246. Andrew G. Haldane, Exec. Dir., Bank of Eng., Speech at the Federal Reserve Bank of Kansas City’s Annual Jackson Hole Conference: The Dog and the Frisbee 15 (Aug. 31, 2012), <http://www.bis.org/review/r120905a.pdf> [<https://perma.unl.edu/8DWZ-HPCC>].

247. Under risk-based capital requirements, the size of a bank’s required capital buffer will vary depending on (a measure of) the riskiness of the bank’s assets. A bank with a riskier portfolio of assets will thus be required to maintain a thicker capital buffer than a bank with a “safe” portfolio of assets. *See, e.g.,* CARNELL ET AL., *supra* note 31, at 226–32.

248. This is a large part of the story of the financial crisis. *See, e.g.,* Viral V. Acharya et al., *Manufacturing Tail Risk: A Perspective on the Financial Crisis of 2007–2009*, 4 FOUND. AND TRENDS IN FIN. 247, 273–91 (2010).

249. For a good analysis of when the “law” is likely to apply and when it is not, see Noah Smith, *Two Versions of Goodhart’s Law*, NOAHPINION BLOG (Apr. 10, 2013), <http://noahpinionblog.blogspot.com/2013/04/two-versions-of-goodharts-law.html> [<https://perma.unl.edu/LDM2-EGG7>] (distinguishing a “false” version of Goodhart’s law—“[a]ny observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes”—from a “true” version—“[a]s soon as the government attempts to regulate any particular set of financial assets, these become unreliable as indicators of economic trends”).

While the proposed rule would not use market indicators to trigger anything but the first pre-resolution phase of early remediation, the Federal Reserve specifically stated that it “expects to review this approach after gaining additional experience with the use of market data in the supervisory process.”<sup>250</sup> The rule further states, “Given that the informational content and availability of market data will change over time, the Board also proposes to publish for notice and comment the market-based triggers and thresholds on an annual basis . . . .”<sup>251</sup> This seems to be a reasonable approach, balancing the potential promise of using market-based data with concerns about its long-term validity.

Finalizing and implementing this rule would go a long way to allaying concerns about the bias toward delay in triggering resolution under the OLA. The rule does two important things: it sets an (admittedly imperfect) objective, capital-based standard for when regulators should trigger resolution,<sup>252</sup> and it opens the door to incorporating market measures of (in)solvency into the resolution triggering process.

### C. Right-sizing the Loss-Absorbing Buffer

Even with the early remediation rules in place, there is a good chance that resolution will not be triggered until losses have eaten through all the equity claims and then some. This reflects the difficulty of overcoming all the challenges listed above: regulatory incentives to delay, bank incentives to ramp up risk, and the shortcomings of accounting measures, and perhaps even market indicators, to capture problems in real time.

While these challenges cannot be definitively solved, they can be mitigated. If it is unrealistic to assume that any set of rules or guidelines can ensure the resolution trigger is pulled precisely when capital falls to zero, the obvious solution is to ensure that plenty of *other* debt can absorb losses without untoward consequences or contagion effects—precisely what the long-term debt component of TLAC issued by the GSIB parent, as outlined above, is designed to do.<sup>253</sup> The rule requiring GSIBs to issue long-term debt as part of their TLAC has been finalized;<sup>254</sup> the relevant question, then, is whether the long-term debt component of TLAC is sufficiently high. Posing this question may help shed light on a critique leveled against the current re-

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250. Proposed Early Remediation Rule, *supra* note 226, at 640.

251. *Id.*

252. The rules for triggering the orderly liquidation process lean heavily on discretionary determinations by regulators regarding the likelihood of SIFI default and the attendant systemic risks. 12 U.S.C. § 5383(a)–(b) (2012).

253. *See supra* section II.C.

254. *See* Total Loss-Absorbing Capacity, 82 Fed. Reg. 8266 (2017).

quirement that roughly one-third of TLAC be in the form of long-term debt, as opposed to simply requiring more equity:

Why do it this way? One answer is . . . : You want to “ensure that there are sufficient resources available in resolution.” The idea is that, if banks run out of capital entirely—if they’re technically ‘insolvent’—then you can make them solvent again by poofing TLAC debt into equity. If they have no TLAC debt, only equity, then when they become insolvent you can’t do that. This strikes me as an extreme bit of formalism—why not make the requirement all equity, and seize the bank when it loses two-thirds of its equity?<sup>255</sup>

In one sense, the critique is correct: it would, in theory, work just as well to eliminate long-term debt, force GSIBs to issue more equity, and ask regulators to pull the plug on a GSIB—that is, put it into resolution—if it falls below some relatively high capital threshold. Another way to understand the long-term debt requirement, however, is as a mechanism to force regulators’ hands. Solvency is determined by capacity to meet debt obligations; there are good reasons to think that it would be more tempting for regulators to delay, and harder for them to overcome various industry and political pressures,<sup>256</sup> if they were asked to trigger resolution when the GSIB is still (apparently) solvent. Increasing the magnitude of the long-term debt requirement, in proportional and/or absolute terms, might be understood as a way to ensure that regulators take the ultimate step—launching a resolution process—when they can still legitimately avoid the bailout-or-panic dilemma.

It is worth briefly addressing three further points regarding the long-term debt requirement. First, even as a higher proportion of long-term debt vis-à-vis equity may ameliorate problems relating to trigger timing, there is a trade-off: it may exacerbate incentives to gamble for resurrection prior to resolution, as a thinner equity buffer makes shareholders less sensitive to downside risks. On the other hand, there are reasons to think that long-term debt may serve a disciplinary role more conducive to the goals of the prudential regulator than equity does.<sup>257</sup> This disciplinary role will probably not eliminate the trade-off, but it should mitigate it.

Second, some have expressed concern that *holders* of long-term debt will be tempting bailout beneficiaries for regulators.<sup>258</sup> *Unlike*

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255. Matt Levine, *Regulators Want Banks to Rescue Themselves Next Time*, BLOOMBERG: VIEW (Nov. 11, 2014), <https://www.bloomberg.com/view/articles/2014-11-11/regulators-want-banks-to-rescue-themselves-next-time> [<https://perma.unl.edu/5UUP-5GWE>].

256. See *supra* note 169 and accompanying text.

257. See generally Crawford, *supra* note 78.

258. See, e.g., Matt Levine, *Earnings, Bailouts and Lawsuits*, BLOOMBERG: VIEW (Jul. 19, 2016), <https://www.bloomberg.com/view/articles/2016-07-19/earnings-bailouts-and-lawsuits> [<https://perma.unl.edu/BV6J-CGPG>] (“If all that long-term bank debt is in the hands of sympathetic retirees, the government may not be excited about writing it down.”).

short-term debt, however, the problem with imposing losses on long-term debt is not structural, but rather one of fair advertising.<sup>259</sup> This is an entirely tractable problem: if long-term debt is marketed properly, one should feel just as comfortable imposing losses on such debt as one does on bank equity.<sup>260</sup>

Third, some object that increasing TLAC requirements too much will raise GSIBs' cost of funding. Anat Admati and her colleagues have compellingly critiqued these views in the context of equity capital: the cost of funding a firm should be independent of the funding mix, absent real-world distortions,<sup>261</sup> and the distortions in the context of GSIBs reflect primarily subsidies diverting wealth from taxpayers to the financial industry.<sup>262</sup> From a social standpoint, therefore, there are good reasons to think that increasing capital requirements would not be expensive, as many on Wall Street imply, and these reasons would apply to long-term debt as much as equity.

In any event, the key point is that an important response to the problem of capital as a lagging indicator—and one that is already in place at GSIBs, though perhaps not at an optimal level—is ensuring that there is adequate non-systemically important debt that can absorb losses during the resolution process.

#### D. Regulatory Discretion

A final issue worth addressing is the question of how much discretion regulators should retain in triggering resolution. This can be further divided into two questions: (i) how much discretion should regulators have to place a firm into resolution prior to its tripping the capital deficiency wire, and (ii) how much discretion should regulators have *not* to place a firm into resolution once it *has* tripped the capital deficiency wire? On the first question, I believe regulators should retain a good deal of discretion—even if, under normal circumstances, we would not expect them to exercise it—because of the problems with timeliness in using capital as a regulatory measure. On the second question, there may be less at stake than first meets the eye since

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259. See *supra* notes 75–77 and accompanying text; see Crawford, *supra* note 78, at 142–43 n.148.

260. ATIF MIAN & AMIR SUFI, HOUSE OF DEBT 125–26 (2014) (arguing that while deposits and deposit-like debt must be protected in a crisis, “[t]o prevent runs and preserve the payment system, there is absolutely no reason for the government to protect long-term creditors and shareholders of banks” (emphasis supplied)).

261. See Admati et al., *supra* note 40; see also Franco Modigliani & Merton H. Miller, *The Cost of Capital, Corporation Finance and the Theory of Investment*, 48 AM. ECON. REV. 261 (1958) (proving that absent real-world frictions and transaction costs, the value of a firm is independent of how it funds itself).

262. These include the tax preference for debt—interest payments are deductible but dividends are not—as well as the implicit guarantee that many believe the government provides creditors of SIFIs. See Admati et al., *supra* note 40, at 20–24.

regulators who do *not* want to place a firm into resolution could bless certain regulatory accounting tricks that make the firm look better capitalized than it really is. (Again, the experience of the FSLIC and S&Ls illustrates how hard it would be to prevent this.)<sup>263</sup> This highlights again that there is no silver bullet for improving the triggering framework. Even if regulators retain a certain degree of discretion, however, creating a strong presumption that a firm should be placed in resolution once its capital falls below a specified threshold would create a marked improvement over the current, vague guidelines for OLA.

## V. CONCLUSION

The most important goal of financial reformers in the wake of the crisis of 2008 was the elimination of the too-big-to-fail problem, and the central challenge in achieving that goal was finding a way to let systemically important firms fail without either bailing out creditors with taxpayer money or risking contagious runs throughout the financial system. While the steps regulators have taken so far—in adopting a single-point-of-entry strategy and in the TLAC rules—have brought us much closer to credibly achieving the goal than many initially thought possible, a key vulnerability in the current regulatory framework remains the lack of effective guidelines for triggering the resolution process. This Article explores how such guidelines could be established and how other features of the regulatory landscape that would impede the effective implementation of such guidelines should be addressed.

First and foremost, the early remediation rule proposed pursuant to Dodd-Frank Section 166, which would lay out objective criteria for triggering resolution, should be finalized and implemented. This would include the cautious incorporation of market measures into the remedial, and potentially into the resolution-triggering, process. Second, the liquidity tripwire for bankruptcy in the GSIB living will guidelines should be abolished, and regulators' emergency lending powers (to be paired with prudential oversight) should be bolstered. Finally, if, after the other steps have been implemented, concerns about timeliness linger, an increase in the long-term debt component of the TLAC requirements should be explored.

We cannot rely on regulators to act of their own accord like heroes in old Westerns who, brave but prudent, are never trigger-shy nor trigger-happy. We can, however, design a system that maximizes the likelihood that regulators will pull the trigger in a timely manner. This Article provides a blueprint for such a design project.

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263. *See supra* subsection III.B.1.ii.