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Article

Too Big To Fool: Moral Hazard, Bailouts, and Corporate Responsibility

Steven L. Schwarcz[†]

INTRODUCTION

There is an increasing worldwide regulatory focus on trying to end the problem of too big to fail (TBTF)¹: that systemically important financial firms² might engage in excessive risk-taking because they would profit from success and be bailed out by the government to avoid a failure. This is primarily a problem of moral hazard;³ persons protected from the negative consequences of their risky actions will be tempted to take more risks.⁴ Excessive risk-taking was widely seen as one of the pri-

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1. See, e.g., Too Big To Fail, Too Big To Exist Act, S. 1206, 114 Cong. (2015); INDEP. CMTY. BANKERS OF AM., ENDING TOO BIG TO FAIL (Jun. 25, 2013), <https://www.icba.org/docs/default-source/icba/news-documents/press-release/2013/endtbtfstudy.pdf>.

2. The acronym TBTF is sometimes used as an adjective by referring to systemically important financial firms as TBTF firms. For clarity, this Article hereinafter refers to these firms as simply systemically important firms.

3. Although TBTF has also been described as a problem of taxpayer-funded government bailouts, that description is partly circular. A systemically important firm would only need a bailout to avoid failure, and failure would most likely result from excessive risk-taking. If that risk-taking could be controlled, the need for government bailouts would be greatly reduced. Part IV.A of this Article examines how to control that risk-taking. Part IV.B of the Article examines how to minimize the public cost of bailing out systemically important firms that would fail notwithstanding that risk-taking control. See *infra* notes 172–91 and accompanying text.

4. See, e.g., GARY H. STERN & RON J. FELDMAN, TOO BIG TO FAIL: THE

mary causes of the 2007–2008 financial crisis (the “financial crisis”),⁵ and it is regarded as a continuing threat that can misallocate resources, increase public costs by necessitating government bailouts,⁶ and even cause another economic collapse.⁷

For these reasons, much of the financial regulation responding to the financial crisis, including the Dodd-Frank Act⁸—whose very preface states it is “[a]n Act . . . to end ‘too big to fail’”—has been inspired at least in part by the goal of ending TBTF.⁹ The principal domestic effort to achieve that goal is currently being undertaken by the Minneapolis Federal Reserve Bank (the “Minneapolis Fed”) under the leadership of its current

HAZARDS OF BANK BAILOUTS (2004); Neel Kashkari, President and CEO, Fed. Reserve Bank of Minneapolis, Lessons from the Crisis: Ending Too Big To Fail, Remarks at the Brookings Institution, Washington, D.C. (Feb. 16, 2016), https://www.minneapolisfed.org/~media/files/news_events/pres/kashkari-ending-tbtf-02-16-2016.pdf (referring to “the risks and challenges posed by large banks and moral hazard”).

5. See, e.g., FIN. CRISIS INQUIRY COMM’N, THE FINANCIAL CRISIS INQUIRY REPORT: FINAL REPORT OF THE NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES xviii–xix (2011) (identifying excessive risk-taking by systemically important firms as a primary cause of the financial crisis); Jacob J. Lew, Opinion, *Let’s Leave Wall Street’s Risky Practices in the Past*, WASH. POST (Jan. 9, 2015), https://www.washingtonpost.com/opinions/jacob-lew-lets-leave-wall-streets-risky-practices-in-the-past/2015/01/09/cf25b5f6-95d8-11e4-aabd-d0b93ff613d5_story.html (repeatedly attributing the financial crisis to “excessive risks taken by financial” firms); *The Origins of the Financial Crisis: Crash Course*, ECONOMIST (Sept. 7, 2013), <http://www.economist.com/news/schoolsbrief/21584534-effects-financial-crisis-are-still-being-felt-five-years-article> (identifying excessive risk-taking as one of three causes of the financial crisis, the other causes being irresponsible lending and regulators being “asleep at the wheel”).

6. For discussion of the ongoing concern of regulators over public costs associated with bailouts of systemically important firms, see Gustavo Gari, *Using Bazookas and Firewalls To Regulate Systemic Risk in the Financial Market: The Problems with Bailouts and Bank Breakups and the Case for Network Interconnectivity*, 12 FLA. ST. U. BUS. REV. 155, 165 (2013) (noting that Congress enacted the Dodd-Frank Act to try to avoid the need for taxpayer-funded bailouts of systemically important firms); Arthur E. Wilmarth, Jr., *The Dodd-Frank Act: A Flawed and Inadequate Response to the Too-Big-To-Fail Problem*, 89 OR. L. REV. 951, 1021 (2011).

7. STERN & FELDMAN, *supra* note 4, at 23–28.

8. See Dodd-Frank Wall Street Reform and Consumer Protection Act, 12 U.S.C. §§ 5301–5641 (2012).

9. Cf. John C. Coffee, Jr., *Systemic Risk After Dodd-Frank: Contingent Capital and the Need for Regulatory Strategies Beyond Oversight*, 111 COLUM. L. REV. 795, 797–98 (2011) (arguing that the Dodd-Frank Act is directed at freeing the public from again having to choose between the unpalatable externalities of bearing the cost of a massive infusion of capital into a firm whose risk-taking has left it facing collapse, and a possible systemic collapse).

President, former Assistant Secretary of the Treasury for Financial Stability Neel Kashkari.¹⁰ Kashkari claims “there is no question that [the] presence [of systemically important banks] at the center of our financial system contributed significantly to the magnitude of the [financial] crisis and to the extensive damage it inflicted across the economy.”¹¹ He also sees “widespread agreement among elected leaders, regulators and Main Street that we must solve the problem of TBTF.”¹²

The principal international effort to end TBTF is being led by the Financial Stability Board,¹³ an organization established by the G20 nations to monitor and make recommendations about the global financial system. To that end, the Financial Stability Board has published “two final guidance papers to assist the resolution planning work of authorities and firms, as part of the policy agenda to end ‘too-big-to-fail.’”¹⁴ These papers discuss, among other things, the progress in the “development of policies to address the risks posed by too-big-to-fail banks” in order to “contribute to greater resolvability of systemically important firms and resilience of the financial system.”¹⁵

This Article argues that, contrary to currently accepted regulatory wisdom, the problem of TBTF is exaggerated. The central evil of TBTF is based on an assumption: that the expectation of a bailout will cause systemically important firms to engage in

10. Fed. Reserve Bank of Minneapolis, *Seeking Comment on Ending Too Big To Fail*, <https://minneapolisfed.org/publications/special-studies/endingtbtf/share-your-ideas> (online form allowing individuals to submit “ideas, input and research” to help guide the initiative). Kashkari hoped to announce a formalized plan to end TBTF by the end of 2016. Kashkari, *supra* note 4, at 2.

11. Kashkari, *supra* note 4, at 2.

12. *Id.*

13. See, e.g., John Glover & Ilya Arkhipov, *End of ‘Too-Big-To-Fail’ Banking Era Endorsed by World Leaders*, BLOOMBERG (Nov. 15, 2015), <http://www.bloomberg.com/news/articles/2015-11-15/end-of-too-big-to-fail-banking-era-endorsed-by-world-leaders> (“World leaders [from the G20 nations] are set to endorse plans by regulators to end the era of too-big-to-fail banks, forcing them to raise as much as \$1.2 trillion, and backed proposals to wrap up sweeping reforms of rules for the global banking system.”).

14. Press Release, Fin. Stability Bd., FSB Publishes Further Guidance on Resolution Planning and Fifth Report to the G20 on Progress in Resolution (Aug. 18, 2016), <http://www.fsb.org/2016/08/fsb-publishes-further-guidance-on-resolution-planning-and-fifth-report-to-the-g20-on-progress-in-resolution>.

15. FIN. STABILITY BD., RESILIENCE THROUGH RESOLVABILITY – MOVING FROM POLICY DESIGN TO IMPLEMENTATION: 5TH REPORT TO THE G20 ON PROGRESS IN RESOLUTION 4 (2016), <http://www.fsb.org/wp-content/uploads/Resilience-through-resolvability---moving-from-policy-design-to-implementation.pdf>.

morally hazardous, and thus excessive, risk-taking.¹⁶ This Article contends that excessive corporate risk-taking is not caused by bailout-induced moral hazard (hereinafter, “moral hazard”).¹⁷ Rather, such risk-taking is more likely caused by other factors,¹⁸ including the governance requirement that corporate managers—including managers of systemically important firms—view the consequences of their firm’s actions from the standpoint of the firm and its investors, ignoring systemic externalities that can harm the public. As a result, regulating excessive risk-taking by ending TBTF can be inefficient,¹⁹ ineffective,²⁰ and sometimes even dangerous.²¹ Excessive risk-taking can, and should, be more directly and efficiently regulated by altering the governance of systemically important firms.

The Article proceeds as follows. Part I shows there is no evidence that moral hazard is the cause of excessive corporate risk-taking by systemically important firms. To the contrary, such firms are often so large and their actions so subject to scrutiny

16. See *supra* notes 1–4 and accompanying text. Although in theory a systemically important firm might not necessarily be TBTF, the financial literature treats the two synonymously. See, e.g., MARC LABONTE, CONG. RESEARCH SERV., R42150, SYSTEMICALLY IMPORTANT OR “TOO BIG TO FAIL” FINANCIAL INSTITUTIONS (2017) (treating systemically important firms as TBTF). This Article follows this approach to the extent that it assumes for analytical purposes that systemically important firms could be TBTF.

17. This Article refers to moral hazard in the bailout-induced sense, which is commonly linked to the problem of TBTF. In its broadest sense, moral hazard can refer to any “condition that insulates someone from the risk of or responsibility for an action.” BOUVIER LAW DICTIONARY 710 (Stephen Michael Sheppard, ed., compact ed., 2011). In that sense, a firm’s externalization of systemic harm also creates moral hazard.

18. See, e.g., Steven L. Schwarcz, *Controlling Financial Chaos: The Power and Limits of Law*, 2012 WIS. L. REV. 815 (discussing other factors that can cause systemically important firms to engage in excessive risk-taking, including limited liability and conflicts of interest between the firm’s secondary and senior managers).

19. TBTF regulation that focuses on limiting the size of systemically important firms can, for example, reduce economies of scale and scope. See *infra* notes 69–78 and accompanying text.

20. TBTF-motivated regulation that imposes higher capital requirements may not, for example, discourage excessive risk-taking. See *infra* notes 90–96 and accompanying text. And TBTF-motivated regulation that attempts to convert debt to equity has never been truly tested, can raise its own moral hazard concern, and may well make that debt too expensive. See *infra* notes 117–25 and accompanying text.

21. The Dodd-Frank Act’s TBTF-motivated restriction of the Federal Reserve’s authority to act as a lender of last resort to systemically important firms exacerbates the risk, for example, that a failing firm will trigger another financial crisis. See *infra* notes 128–32 and accompanying text.

that they would have difficulty taking excessive risks in the expectation of a bailout; they are, in the words of this Article's title, "too big to fool" the public. Part II explains why other factors can cause those firms to engage in excessive risk-taking. Part III analyzes why regulatory solutions to limit TBTF are misguided. Part IV shows how excessive risk-taking can, and should, be more directly regulated by internalizing the costs of systemic externalities and bailouts.

I. TBTF DOES NOT CAUSE MORALLY HAZARDOUS BEHAVIOR

There is no evidence, much less proof, that TBTF causes firms to engage in morally hazardous behavior. Most studies discussing such behavior merely assume it without actually offering evidence.²² Other studies conflate correlation and causation, assuming that if many systemically important firms engage in risky behavior, their behavior was predicated on bailout expectations.²³ The fallacy of that logic is clear:

22. See, e.g., JACOPO CARMASSI ET AL., OVERCOMING TOO-BIG-TO-FAIL: A REGULATORY FRAMEWORK TO LIMIT MORAL HAZARD AND FREE RIDING IN THE FINANCIAL SECTOR 16 (2010) (stating that "a blanket protection *may* exacerbate moral hazard and compromise market discipline") (emphasis added); Lawrence G. Baxter, *Fundamental Forces Driving United States and International Financial Regulation Reform*, 6 SUNGKYUNKWAN J. SCI. & TECH. L. 105, 113 (2012) ("The TBTF status [of certain] institutions . . . creates a class of institutions that are, in effect, 'protected' by government. They are able to borrow at lower cost because creditors do not believe they will be allowed to fail, and moral hazard is correspondingly increased as their managers become less sensitive to the costs of potential failure."); Frederic S. Mishkin et al., *How Big a Problem Is Too Big To Fail? A Review of Gary Stern and Ron Feldman's "Too Big To Fail: The Hazards of Bank Bailouts"*, 44 J. ECON. LIT. 988, 990 (2006) ("The result of the too-big-to-fail policy is that large banks are *likely* to take on greater risks, thereby making bank failures more likely.") (emphasis added).

23. See, e.g., Ning Gong & Kenneth D. Jones, *Bailouts, Monitoring, and Penalties: An Integrated Framework of Government Policies To Manage the Too-Big-To-Fail Problem*, 13 INT'L REV. FIN. ANALYSIS 299, 300 ("In this paper, we analyze the formulation of a government's bailout policy. Our model is based on three premises. First, a bank can choose either a safer or a riskier project (portfolio). Without any subsidy or bailout in the event of failure of the projects, shareholders prefer safer projects. Second, with a government subsidy (effectively bailout) in the event of failure, shareholders prefer riskier projects to the safer ones."); Ann Graham, *Bringing to Heel the Elephants in the Economy: The Case for Ending "Too Big To Fail"*, 8 PIERCE L. REV. 117, 125 n.40 (2010) (stating that, because many systemically important banks returned to "risky" behavior a year after being bailed out, namely "betting big on bonds, commodities and exotic financial products"—they were reliant on the promise of TBTF protection; Manja Völz & Michael Wedow, *Market Discipline and Too-Big-To-Fail*

Bailed-out banks are, by definition, in some sort of distress and exhibit high risk. But this might be simply due to bad luck rather than to bad behavior. Even a prudently managed bank might be distressed because of an exogenous shock. Using the bailout of such an unlucky bank to explain its risk is no evidence for moral hazard. Moral hazard problems arise only from the *additional* risk taking due to higher bailout *expectations*, which are usually not observable. . . . Econometrically, the identification of moral hazard therefore requires variables that well explain the likelihood of a bank bailout, but are uncorrelated with the risk taking of banks.²⁴

The economic studies purporting to “prove” that TBTF causes firms to engage in morally hazardous behavior merely show that systemically important firms can borrow at lower-than-average cost.²⁵ Economists presume this funding advantage derives from investor belief that these firms will be bailed out before they default.²⁶ That presumption, however, is

in the CDS Market: Does Banks’ Size Reduce Market Discipline?, 18 J. EMPIRICAL FIN. 195, 196 (2011) (“In practice, the TBTF policy appears to have been extended to varying degrees to banks outside the top eleven, which has led to excessive risk taking by large banks.”).

24. Lammertjan Dam & Michael Koetter, *Bank Bailouts and Moral Hazard: Evidence from Germany*, 25 REV. FIN. STUDS. 2343, 2344 (2012); cf. Skylar Brooks & Domenico Lombardi, *Sovereign Debt Restructuring: A Background*, GLOBAL CONSULTATIONS ON SOVEREIGN DEBT RESTRUCTURING (forthcoming) (manuscript at 9), http://new-rules.org/storage/documents/sovereign_debt_restructuring_background_paper_draft2014.pdf (discussing the difficulty of empirically identifying morally hazardous behavior in a sovereign debt context).

25. See, e.g., BD. OF GOVERNORS OF THE FED. RESERVE SYS., CALIBRATING THE GSIB SURCHARGE 13 (2015) (stating that some of the largest systemically important firms are believed to have a funding advantage). Former Federal Reserve Chairman Alan Greenspan has estimated informally that systemically important firms can borrow at a funding advantage of fifty basis points. See *Regulation and Resolving Institutions Considered “Too Big To Fail”*: Hearing Before the S. Comm. on Banking, Housing and Urban Affairs, 111th Cong. 34 (2009) (statement of Martin Neil Baily & Robert E. Litan, referencing Chairman Greenspan’s estimate).

26. BD. OF GOVERNORS OF THE FED. RESERVE SYS., *supra* note 25, at 13 (stating that the funding advantage “derives from the belief of some creditors that the government might act to prevent [a systemically important firm] from defaulting on its debts,” and that this funding advantage “creates an incentive for [those firms] to take on even more leverage and make themselves even more systemic (in order to increase the value of the [funding advantage] subsidy”). Compare MARC LABONTE, CONG. RESEARCH SERV., R42150, SYSTEMICALLY IMPORTANT OR “TOO BIG TO FAIL” FINANCIAL INSTITUTIONS 22 (2014) (describing as the “worst-case scenario” the possibility that government protection of systemically important firms “would provide a competitive advantage that would enable more risk taking than before”), with Thomas F. Huertas, *Resolution Reform*, 13 FIN. & ECON. REV. 86, 88 (2014) (“If the market expects the government to be able and willing to bail out banks . . . then such banks can borrow at lower

unjustified. There are many other reasons besides the expectation of a bailout why systemically important firms, which usually are large,²⁷ can borrow at lower-than-average cost, including that large firms generally have: (1) economies of scale;²⁸ (2) better access to debt markets;²⁹ (3) larger dividend pay-out ratios;³⁰ and (4) credit that is less vulnerable to market disruption.³¹ Nor do those studies attempt to examine whether systemically important firms can borrow at lower cost than nonsystemically important large firms.³²

cost than they would be able to do strictly on the basis of their stand-alone rating. This encourages risk-taking at the bank, creating what economists term ‘moral hazard.’”).

27. *Cf. infra* note 36 and accompanying text (discussing why systemically important firms are usually large).

28. VIRAL V. ACHARYA ET AL., *THE END OF MARKET DISCIPLINE? INVESTOR EXPECTATIONS OF IMPLICIT GOVERNMENT GUARANTEES* 4 (2016).

29. ANTONIOS ANTONIOU ET AL., *DETERMINANTS OF CORPORATE CAPITAL STRUCTURE: EVIDENCE FROM EUROPEAN COUNTRIES* 4 (2002). Large firms generally have better access to debt markets for reasons other than a TBTF perception. Most studies of that access make no reference to TBTF. *See, e.g.*, Jan Bartholdy & Cesário Mateus, *Debt and Taxes for Private Firms*, 20 INT’L REV. FIN. ANALYSIS 177, 177 (2011) (observing that “relatively large” firms generally have good access to debt markets because they are often “public on a stock exchange [and] financially sophisticated”); Armen Hovakimian et al., *Are Corporate Default Probabilities Consistent with the Static Trade-off Theory?*, 25 REV. FIN. STUD. 315, 317 (2012) (observing that “larger firms are less risky, have lower proportional bankruptcy costs, and have better access to debt markets”).

30. Christian Schoder, *Demand, q, Financial Constraints and Shareholder Value Revisited: An Econometric Micro-analysis of US Fixed Investment*, 7 INT’L J. ECON. & BUS. RESEARCH 28, 40 (2014).

31. Karen Gordon Mills & Brayden McCarthy, *The State of Small Business Lending: Credit Access During the Recovery and How Technology May Change the Game* 6 (Harvard Bus. Sch., Working Paper No. 15-004, 2014); *cf.* ORCUN KAYA, *CAPITAL MARKETS UNION: AN AMBITIOUS GOAL, BUT FEW QUICK WINS* 13 (Jan Schildbach ed., 2015) (discussing why banks have taken a cautious stance in lending to Euro-area small and medium size enterprises).

32. One of the most rigorous economic studies relied on by advocates of bailout-induced moral hazard is Bryan Kelly et al., *Too-Systemic-To-Fail: What Option Markets Imply About Sector-Wide Government Guarantees*, 106 AM. ECON. REV. 1278 (2016). The authors provide “new evidence from option prices that suggests the [U.S.] government absorbed aggregate tail risk during the 2007–2009 financial crisis by providing a sector-wide bailout guarantee to the financial sector.” *Id.* at 1318. In the words of the authors, though, this evidence only *suggests* that the government provided a bailout guarantee. *Id.* Furthermore, they make no claim that systemically important firms engaged in bailout-induced moral hazard. Even more significantly, their evidence of a “sector-wide bailout guarantee” does not apply to “individual banks.” *Id.* at 1279. To the contrary, they find that individual banks did not benefit from that guarantee. *Id.* They explain that result as follows: “[A]ny individual bank may still fail amid a collective guarantee . . .” *Id.*

The idea that TBTF causes systemically important firms to engage in morally hazardous behavior is also antithetical to managerial incentives. Managers take serious personal risks when they cause their firms to engage in excessive risk-taking with the expectation that the firm will be bailed out by the government. If, as in the case of Lehman Brothers, the government fails to bail out the firm, those managers are almost certain to lose their jobs.³³ Even if there is a bailout, it may well be conditioned on culpable managers resigning or otherwise giving recompense.³⁴ In either case, the ensuing reputational damage could permanently end a manager's financial career.³⁵

Moreover, systemically important firms are usually large,³⁶ and—by virtue of being systemically important—their actions are subject to more media and political scrutiny than ordinary firms.³⁷ If they take excessive risks in the expectation of a bailout, such firms will almost certainly be recognized and subjected to harsh criticism.³⁸

So why is there such a widespread belief that systemically important firms engage in morally hazardous behavior? One reason, perhaps, is that moral hazard is a common explanation for any excessive risk-taking,³⁹ including excessive risk-taking by

33. See, e.g., Susan Rose-Ackerman, *Risk Taking and Ruin: Bankruptcy and Investment Choice*, 20 J. LEGAL STUD. 277, 278 (1991) (“In practice, when a publicly held corporation files for bankruptcy, many top managers lose their jobs at the same time.”).

34. See, e.g., JEFFREY FRIEDMAN & WLADIMIR KRAUS, *ENGINEERING THE FINANCIAL CRISIS: SYSTEMIC RISK AND THE FAILURE OF REGULATION* 43 (2011) (“[W]hen Continental Illinois failed, its managers were fired and its shareholders were wiped out, and when [Long Term Capital Management] was bailed out, its principals were essentially wiped out, too. It would not be logical for any self-interested bank executive to run a bank into the ground because of his or her belief that *it* would then be bailed out *if* she would then be fired (and, if compensated with equities, wiped out.)”).

35. *Id.*

36. See INT'L MONETARY FUND ET AL., *GUIDANCE TO ASSESS THE SYSTEMIC IMPORTANCE OF FINANCIAL INSTITUTIONS, MARKETS AND INSTRUMENTS: INITIAL CONSIDERATIONS* (2009), <https://www.bis.org/publ/othp07.pdf> (discussing size as one of the key factors for determining a firm's systemic importance).

37. See, e.g., DELOITTE CTR. FOR REGULATORY STRATEGIES, *SIFI DESIGNATION AND ITS POTENTIAL IMPACT ON NONBANK FINANCIAL COMPANIES* 6 (2013), <http://www.fsroundtable.org/wp-content/uploads/2014/05/SIFI-designation-and-its-potential-impact-on-nonbank-financial-companies.pdf> (“SIFI designation indicates considerable additional scrutiny for a company.”).

38. That explains, as mentioned (*see supra* text accompanying notes 21–22), this Article's title—“too big to fool” the public.

39. See, e.g., Aviva Aron-Dine et al., *Moral Hazard in Health Insurance: Do Dynamic Incentives Matter?*, 97 REV. ECON. & STAT. 725 (2015) (finding moral

firms.⁴⁰ Attributing excessive corporate risk-taking to moral hazard also accords with the human inclination, inflamed by politicians and the media, to view harm as being caused by wrongdoers.⁴¹ It also goes without saying that “too big to fail” is a great sound-bite.

II. OTHER FACTORS CAUSE SYSTEMICALLY IMPORTANT FIRMS TO ENGAGE IN EXCESSIVE RISK-TAKING

If moral hazard does not cause systemically important firms to take excessive risks, then why do they sometimes engage in that risk-taking? There are several possible alternative explanations. To some extent, excessive risk-taking may result from a misalignment between managerial and investor interests.⁴² As later discussed, however, even perfectly aligning those interests would not sufficiently control that risk-taking.⁴³ Another possible explanation is that limited liability motivates shareholders of systemically important firms to take risks that could generate outsized personal profits, even if that greatly increases systemic risk.⁴⁴ But that explanation is incomplete because it is mostly

hazard in health insurance markets); J. David Cummins & Sharon Tennyson, *Moral Hazard in Insurance Claiming: Evidence from Automobile Insurance*, 12 J. RISK & UNCERTAINTY 29 (1996) (finding moral hazard in automobile insurance markets); Steven J. Harper, *Bankruptcy and Bad Behavior: The Real Moral Hazard: Law Schools Exploiting Market Dysfunction*, 23 AM. BANKR. INST. L. REV. 347, 365 (2015) (finding moral hazard by law schools “engag[ing] in bad behavior that fills classrooms and maximizes revenues” as the cost of tuition rises); Alan J. Kuperman, *The Moral Hazard of Humanitarian Intervention: Lessons from the Balkans*, 52 INT’L STUD. Q. 49 (2008) (finding moral hazard by humanitarian actors in cases of genocide and ethnic cleansing); James D. Shilling, *Introduction to the Special Issue of International Real Estate Review*, 18 INT’L REAL EST. REV. 149 (2015) (finding moral hazard in the housing market).

40. See, e.g., David Rowell & Luke B. Connelly, *A History of the Term “Moral Hazard”*, 79 J. RISK & INS. 1051 (2012).

41. This fundamental attribution bias not only leads observers to believe events are caused by people rather than external factors, but also prevents observers from seeking deeper reasons behind an event once a sufficient reason—like moral hazard by human actors—is found. See Dominik Duell & Dimitri Landa, *Attribution Bias in Strategic Environments*, EPSA 2013 ANN. GEN. CONF. PAPER 744, at 1, 7 (2013).

42. See *infra* note 146 and accompanying text.

43. Cf. *infra* note 147 and accompanying text (arguing that systemic externalities result from a different misalignment of interests: between the firm, its investors, and its managers on the one hand, and the public on the other hand).

44. See Steven L. Schwarcz, *The Governance Structure of Shadow Banking: Rethinking Assumptions About Limited Liability*, 90 NOTRE DAME L. REV. 1, 27–28 (2014).

limited to relatively small systemically important firms, such as hedge funds, that are managed directly by their primary investors.⁴⁵

Examining the corporate governance process reveals a more fundamental reason for excessive risk-taking. As part of their governance duties, a firm's managers⁴⁶ engage the firm in risk-taking in order to maximize profitability for the firm and its investors—principally its shareholders.⁴⁷ This shareholder primacy governance rule⁴⁸ creates a conflict between private and public interests: risk-taking that is excessive from a public perspective, in that it has a negative expected value to the public,⁴⁹ might benefit the firm and its investors.⁵⁰ For nonsystemically important firms, this conflict is either inconsequential⁵¹ or addressed through laws that prohibit the firm from causing harm or require the firm to internalize harmful costs.⁵²

For systemically important firms, however, the conflict can be highly consequential—especially if the risk-taking decision causes the firm to fail, externalizing systemic harm onto other market participants and the public, including ordinary citizens affected by an economic collapse.⁵³ Annex 1 to this Article illus-

45. *Id.* at 18.

46. *See, e.g.*, Christine Hurt, *The Duty To Manage Risk*, 39 J. CORP. L. 253, 256–57 (2014). By “managers,” I refer to those with ultimate responsibility to run the firm, such as a corporation's directors.

47. *See, e.g.*, RICHARD A. BREALEY ET AL., PRINCIPLES OF CORPORATE FINANCE 9–10 (10th ed. 2011).

48. *Cf.* Henry Hansmann & Reinier Kraakman, *The End of History for Corporate Law*, 89 GEO. L.J. 439, 443–48 (2001) (discussing the ideological convergence worldwide of shareholder primacy as a governance rule).

49. The expected value of an action to a party is determined by comparing the expected benefits and costs of the action to that party. Expected value thus depends on the party on whom the impact is being measured.

50. Steven L. Schwarcz, *Misalignment: Corporate Risk-Taking and Public Duty*, 92 NOTRE DAME L. REV. 1, 3 (2016) [hereinafter *Misalignment*].

51. *Cf.* Steven L. Schwarcz, *Collapsing Corporate Structures: Resolving the Tension Between Form and Substance*, 60 BUS. LAW. 109, 144 (2004) (observing that corporate risk-taking routinely causes externalities).

52. *See, e.g.*, STEPHEN M. BAINBRIDGE, CORPORATION LAW AND ECONOMICS 425 (2002) (arguing that negative externalities created by corporate conduct should be “constrained through general welfare legislation, tort litigation, and other forms of regulation”).

53. Steven L. Schwarcz, *Systemic Risk*, 97 GEO. L.J. 193, 204–06 (2008) [hereinafter *Systemic Risk*]. *See also* John Crawford, *The Moral Hazard Paradox of Financial Safety Nets*, CORNELL J.L. & PUB. POL'Y 95, 138 (“Financial firms . . . are under-incentivized to insure at the optimal level, given the fact that the potential systemic costs of their *own* failure would be borne primarily

trates this impact, using the example of a systemically important firm whose risk-taking has a positive expected value to its investors but a negative expected value to the public. Also, this public-versus-private conflict has not yet been effectively addressed through laws for systemically important firms. Traditional regulatory approaches, such as imposing legal prohibitions or requirements to internalize harmful systemic costs,⁵⁴ have failed.⁵⁵ That failure has led to the type of frustration expressed as the consensus of an international conference on financial regulation sponsored by the Federal Reserve Bank of Boston: “policy makers have made little progress in figuring out how they might actually” prevent another financial crisis.⁵⁶

There is another way to resolve the conflict. Regulators should re-examine the corporate governance rule that actually creates the conflict.⁵⁷ This approach is somewhat iconoclastic; the law ordinarily avoids regulating corporate governance to address externalities because interfering with governance is thought to “weaken[] the wealth-producing capacities of the firm.”⁵⁸ Part IV will explain, however, how corporate governance

by others.”); cf. Alessio M. Paces, *Illiquidity and Financial Crisis*, 74 U. PITT. L. REV. 383, 417 (2013) (arguing that it “may be tempting to simply let banks bear the consequences of their” risk-taking, but a bank failure might “affect[] all banks and the entire economy”). This market failure could be viewed as a type of tragedy of the commons, insofar as market participants suffer from the actions of other market participants depleting the shared resource of a common financial market. Cf. Antonio Cabrales et al., *Risk-Sharing and Contagion in Networks*, CESifo Working Paper No. 4715, 34 (2014) (“[T]ension arises from the fact that firms have always an incentive to form connected components of the size that minimizes the default probability of their members, thus ignoring the negative externality this behavior imposes on other firms.”). It also could be viewed as a more standard externality—and thus as a form of moral hazard, though not bailout-induced moral hazard—insofar as nonmarket participants (i.e., the citizens affected by an economic collapse) suffer from the actions of market participants.

54. Cf. *supra* notes 51–52 and accompanying text (referencing the application of traditional regulatory approaches to nonsystemically important firms).

55. See *Misalignment*, *supra* note 50, at 17–21 (demonstrating that substantive legal prohibitions and requirements to internalize harm may be “insufficient . . . to control the excessive corporate risk-taking that causes systemic externalities”).

56. Binyamin Appelbaum, *Skepticism Prevails on Preventing Crisis*, N.Y. TIMES, Oct. 5, 2015, at B1.

57. See *supra* notes 47–48 and accompanying text (discussing shareholder primacy).

58. Ian B. Lee, *The Role of the Public Interest in Corporate Law*, in RESEARCH HANDBOOK ON THE ECONOMICS OF CORPORATE LAW 106, 124 (Claire A. Hill & Brett H. McDonnell eds., 2012). See also Leo E. Strine, Jr. & Nicholas

law could be modified to resolve the conflict without unduly weakening the wealth production of systemically important firms.

In the financial context of this Article, focusing on corporate governance has another advantage over traditional regulatory approaches. Traditional approaches often depend on regulators precisely understanding the particular design and structure of financial firms, markets, and other related institutions at the time the regulation is promulgated.⁵⁹ Because these institutions constantly change,⁶⁰ traditional regulation becomes obsolete unless it is continuously updated to adapt to the changes.⁶¹ Such updating, however, can be costly and “is subject to political interference at each updating stage.”⁶² As a result, traditional regulation usually lags financial innovation.⁶³ Regulating corporate governance can overcome that regulatory time lag; if the firm is proposing to engage in a risky financial innovation, its managers

Walter, *Conservative Collision Course?: The Tension Between Conservative Corporate Law Theory and Citizens United*, 100 CORNELL L. REV. 335, 380–81 (2015) (contending that the most responsible, legitimate, and effective way to control externalities is to have the “legitimate instruments of the people’s will, reflective of their desire, set the boundaries for corporate conduct”); cf. Milton Friedman, *The Social Responsibility of Business Is To Increase Its Profits*, N.Y. TIMES MAG., Sept. 13, 1970, at 122, 124 (arguing that managers lack the political legitimacy and expertise to consider social interests).

59. Steven L. Schwarcz, *Regulating Financial Change: A Functional Approach*, 100 MINN. L. REV. 1441, 1442 (2016) [hereinafter *Regulating Financial Change*].

60. *Id.*

61. Cf. PERRY MEHLING, *THE NEW LOMBARD STREET: HOW THE FED BECAME THE DEALER OF LAST RESORT* 4–5 (2011) (arguing that because economics and finance “largely ignore the sophisticated mechanism that operates to channel cash flows . . . to meet cash commitments,” they have not “been particularly well suited for understanding the . . . [financial] crisis during which the crucial monetary plumbing broke down”).

62. *Regulating Financial Change*, *supra* note 59, at 1443.

63. *Id.* See also Edward J. Kane, *Policy Implications of Structural Changes in Financial Markets*, 73 AM. ECON. REV. 96, 97 (1983) (describing how regulatory responses lag behind innovations). In 2007, for example, the precrisis financial regulatory framework, which assumed the dominance of bank-intermediated funding, failed to adequately address a collapsing financial system in which the majority of funding had become nonbank intermediated. *Regulating Financial Change*, *supra* note 59, at 1443–44. Cf. Julia Black, *Restructuring Global and EU Financial Regulation: Character, Capacities, and Learning*, in FINANCIAL REGULATION AND SUPERVISION: A POST-CRISIS ANALYSIS 13 (Eddy Wymeersch et al. eds., 2012) (“[T]he system simply did not operate in the way that regulators, banks, and economists had thought it did. If you do not understand how the system works, it is very hard to build in mechanisms either for managing risk or for ensuring the system’s resilience when those risks crystallize.”).

must try to obtain the most current information about the innovation and its consequences.

III. TBTF-BASED REGULATION OF EXCESSIVE RISK-TAKING IS MISGUIDED

If the assumption that moral hazard causes systemically important firms to engage in excessive risk-taking is incorrect, then regulation starting from that assumption is unlikely to control that risk-taking and could even be harmful. This Part demonstrates that danger by examining the principal TBTF-based approaches to regulating excessive risk-taking that have been enacted into law or are being contemplated.

One such approach, breaking up firms and limiting their size, discussed in Section A,⁶⁴ seeks to reduce the number of systemically important firms in the first place. Another approach, imposing higher capital requirements, discussed in Section B,⁶⁵ seeks to make systemically important firms more robust so they are unlikely to experience financial problems. A third approach, converting debt to equity, discussed in Section C,⁶⁶ seeks to pre-engineer a change to a systemically important firm's capital structure that is triggered if the firm experiences financial problems—in effect, a pre-planned debt workout. A fourth approach, discussed in Section D,⁶⁷ seeks to control the failure of a systemically important firm in order to reduce moral hazard and the need for a bailout. The examination shows that these approaches can be inefficient, ineffective, or sometimes even dangerous.⁶⁸

64. See *infra* notes 69–81 and accompanying text.

65. See *infra* notes 82–109 and accompanying text.

66. See *infra* notes 115–25 and accompanying text.

67. See *infra* notes 128–46 and accompanying text.

68. On a more theoretical level, one might argue that any TBTF-based approach to regulating excessive risk-taking could backfire. Any such approach is primarily microprudential: it is designed to protect individual financial firms. Even though such an approach is also incidentally macroprudential (i.e., protective of the financial system) by making it less likely that individual systemically important firms will fail, Professor Rizwaan Jameel Mokal argues that trying to make the financial system stable by making it less likely that individual systemically important firms will fail can actually increase financial instability by ignoring the tendency of individual systemically important firms to try to externalize costs. Rizwaan Jameel Mokal, *Liquidity, Systemic Risk, and the Bankruptcy Treatment of Financial Contracts*, 10 BROOK. J. CORP. FIN. & COM. L. 15, 20, 68 (2015). In contrast, this Article's proposal,—to require managers to account for systemic externalities in their governance decisions—confronts that tendency and has a clearly macroprudential goal: to reduce systemic risk.

A. BREAKING UP FIRMS AND LIMITING THEIR SIZE

A commonly discussed TBTF-based regulatory approach is to break up systemically important firms and limit their size so they are no longer systemically important.⁶⁹ But if, as this Article argues,⁷⁰ moral hazard does not cause systemically important firms to engage in excessively risky behavior, then this approach would not directly address risk-taking.

Furthermore, this approach could be harmful: limiting firm size can undermine the economies of scale and scope that firms need to compete successfully in an increasingly globalized and interconnected world.⁷¹

69. See, e.g., Daniel K. Tarullo, Governor, Board of Governors of the Fed. Reserve, Speech at the Exchequer Club: Confronting Too Big To Fail (Oct. 1, 2009), 2009 WL 3372545 at *6 (“Another approach would be to attack the big-business problem head-on by limiting the size or interconnectedness of financial institutions. Some observers have even suggested that existing large firms should be split up into smaller, not-too-big-to-fail entities, in a manner a bit reminiscent of the break-up of AT&T in the early 1980s.”); Marc R. Reinganum, *Setting National Priorities: Financial Challenges Facing the Obama Administration*, 65 FIN. ANALYST J. 32, 34 (2009) (“In short, new policies should strive to make sure that no investment firm is too big to fail by either limiting the size of firms or prohibiting activities within a firm that can lead to failure.”); cf. Kashkari, *supra* note 4, at 5 (outlining a number of possible “transformative” approaches to ending TBTF, including “[b]reaking up large banks into smaller, less connected, less important entities”). Kashkari also suggests “[t]urning large banks into public utilities by forcing them to hold so much capital that they virtually can’t fail . . . [and] taxing leverage throughout the financial system to reduce systemic risks wherever they lie.” *Id.* Another option is to implement alternative resolution mechanisms that could address some of the perceived shortcomings of current resolution plans. *Id.* at 3. Cf. Joseph Lawler, *Warren Introduces Glass-Steagall Bill To Break up Big Banks*, WASH. EXAMINER (July 7, 2015), <http://www.washingtonexaminer.com/warren-introduces-glass-steagall-bill-to-break-up-big-banks/article/2567757> (discussing ongoing political efforts to reduce the size of systemically important firms). This Article does not purport to examine whether breaking up systemically important firms could create a too many to fail problem if multiple broken-up firms face highly correlated risks. Cf. John C. Coffee, Jr., *Systemic Risk After Dodd-Frank: Contingent Capital and the Need for Regulatory Strategies Beyond Oversight*, 111 COLUM. L. REV. 795, 801 (2011) (discussing those correlated risks).

70. See *supra* Part I (arguing that TBTF does not cause firms to engage in morally hazardous behavior) and Part II (arguing that excessive risk-taking results from externalized harm, not from reliance on a bailout).

71. Cf. Anna Kovner et al., *Do Big Banks Have Lower Operating Costs?*, FED. RES. BANK OF N.Y. ECON. POLY REV. 22 (2014) (“Consistent with recent research that identifies the presence of scale economies in banking, our results suggest that imposing size limits on banking firms would be likely to involve real economic costs. . . . [A] back-of-the-envelope calculation applied to our estimates implies that limiting [bank holding company] size to be no larger than 4 percent of GDP would increase total noninterest expense by \$2 billion to \$4 billion per quarter.”).

Large firms have many competitive advantages over smaller firms.⁷² As already mentioned, they can borrow at lower costs and have economies of scale.⁷³ The latter include (1) brand-based economies of scale due to the ability of large firms to obtain brand recognition at lower cost;⁷⁴ (2) cost-based economies of scale due to lower average cost per unit of output;⁷⁵ (3) and revenue-based economies of scale because financial service providers are more likely to advance them large loans and to underwrite large securities offerings.⁷⁶ Similarly, large firms may benefit by offering a broad range of products or services to a large client base.⁷⁷ Furthermore, in the increasingly global market of finance, larger financial firms can benefit by projecting a greater international presence and more easily offering cross-border financial products.⁷⁸ A TBTF-based regulatory approach that breaks up systemically important firms and limits their size would result in those firms losing out on these important advantages, and thus would be inefficient.

Limiting firm size can also raise practical issues. For example, it is unclear what metric should govern whether a firm is large enough that it should be broken up, especially for firms that are already relatively small but still pose a systemic risk.⁷⁹ Because it could limit profitability,⁸⁰ any effort to break up firms

72. I am not advocating that firms be any larger, however, than needed to achieve economies of scale and scope and other appropriate benefits. Size can create its own problems, including potentially making a firm too big to properly manage.

73. See *supra* notes 25–29 and accompanying text.

74. Jean Dermine, *European Banking: Past, Present, and Future*, in THE TRANSFORMATION OF THE EUROPEAN FINANCIAL SYSTEM, 31, 57–58 (Vitor Gaspar et al. eds., 2002).

75. *Id.*

76. *Id.*; cf. Joseph P. Hughes & Loretta J. Mester, *Who Said Large Banks Don't Experience Scale Economies? Evidence from a Risk-Return-Driven Cost Function*, 22 J. FIN. INTERMEDIATION 559, 561 (2013) (arguing that large banks have cost- and revenue-based economies of scale derived from their heightened risk-return tradeoff).

77. Dermine, *supra* note 74, at 29. Large firms even have defense-based economies of scale, because their size provides protection against takeover attempts. *Id.*

78. Cf. Jean Dermine & Dirk Schoenmaker, *In Banking, Is Small Beautiful?*, 19 FIN. MKTS., INSTRS. & INSTRUMENTS 1, 7 (2010) (arguing that smaller banks are less competitive in international finance).

79. Gary H. Stern & Ron Feldman, *Addressing TBTF by Shrinking Financial Institutions: An Initial Assessment*, REGION (Fed. Reserve Bank of Minneapolis, Minneapolis, Minn.), June 2009, at 10, <https://www.minneapolisfed.org/~media/files/pubs/region/09-06/shrinking.pdf>.

80. See *supra* notes 74–78 and accompanying text.

is also likely to be unpopular among, and therefore opposed by, shareholders.⁸¹

B. IMPOSING HIGHER CAPITAL REQUIREMENTS

Another TBTF-based approach to regulating excessive risk-taking is to impose higher capital and other requirements on systemically important firms.⁸² In the United States, for example, this is done by designating such firms as systemically important financial institutions, or SIFIs, which thereby subjects them to capital requirements set by the Federal Reserve.⁸³ These capital requirements are based on the framework known as the Basel Accords, promulgated by the Basel Committee on Banking Supervision under the auspices of the Bank for International Settlements.⁸⁴

In response to the financial crisis, the Basel Committee issued the Basel III recommendations, which are designed to further strengthen bank capital requirements beyond those set in the Basel I and Basel II recommendations.⁸⁵ The Federal Reserve's minimum capital requirements are based on Basel III.⁸⁶ The Federal Reserve is also subjecting eight U.S.-based globally

81. Stern & Feldman, *supra* note 79, at 10.

82. Cf. Anat R. Admati, *The Missed Opportunity and Challenge of Capital Regulation*, NAT'L INST. ECON. REV. No. 235, Feb. 2016, at R4 ("Capital regulation is critical to address distortions and externalities from . . . the failure of markets to counter incentives for recklessness."); Sanjai Bhagat et al., *Size, Leverage, and Risk-Taking of Financial Institutions*, 59 J. BANKING & FIN. 520, 521 (2015) ("[Our findings] suggest that instead of just limiting firm size, it may be more effective for regulators to strengthen and enhance regulations on equity capital requirements for all financial institutions.").

83. See Dodd-Frank Wall Street Reform and Consumer Protection Act, 12 U.S.C. § 5325(a)(1) (2012) (authorizing the Financial Stability Oversight Council to make recommendations to the Board of Governors of the Federal Reserve System on the "prudential standards and reporting and disclosure requirements" of SIFIs).

84. See, e.g., Thomas L. Hogan & Neil R. Meredith, *Risk and Risk-Based Capital of U.S. Bank Holding Companies*, 49 J. REG. ECON. 86, 90 (2016), <https://link.springer.com/article/10.1007/s11149-015-9289-8> (describing the Basel framework and measures specific to the United States).

85. BASEL COMM. ON BANKING SUPERVISION, BASEL III: A GLOBAL REGULATORY FRAMEWORK FOR MORE RESILIENT BANKS AND BANKING SYSTEMS 2, 56 (2011), <http://www.bis.org/publ/bcbs189.pdf>.

86. Hogan & Meredith, *supra* note 84, at 87.

systemically important banks (G-SIBs)⁸⁷ to risk-based capital surcharges over and above the Basel III recommended level.⁸⁸

The ability of capital requirements to prevent risk-taking is unclear, however.⁸⁹ Part of the articulated academic rationale for imposing capital requirements is that “[w]ith more capital, a large bank has more to lose if it goes under and, thus, has less incentives to take on risk.”⁹⁰ But the more widely accepted government regulatory rationale for imposing capital requirements is to protect financial institutions against unexpected losses.⁹¹ The Federal Reserve itself says the regulatory rationale is to enable banks and other financial firms to “hold adequate capital under adverse conditions to maintain ready access to funding, continue to serve as credit intermediaries, and continue operations.”⁹² The then-Chairman of the Financial Stability Board,

87. G-SIBs are banks whose collapse would threaten the entire international financial system. Meraj Allahrakha et al., *Systemic Importance Indicators for 33 U.S. Bank Holding Companies: An Overview of Recent Data*, OFF. FIN. RESEARCH BRIEF SERIES (Office of Financial Research), Feb. 12, 2015, at 1.

88. Press Release, Bd. of Governors of the Fed. Reserve Sys., (Dec. 9, 2014), <http://www.federalreserve.gov/newsevents/press/bcreg/20141209a.htm>. The surcharge, intended to become effective January 1, 2019, is to be calibrated based on each firm’s systemic risk profile. *Id.*

89. Cf. Alessio M. Paces, *The Future in Law & Finance* 24 (Erasmus Univ. Rotterdam, Law Working Paper No. 217/2013, 2013) (observing that “higher capital requirements cannot stop banks from taking excessive risk”).

90. Mishkin et al., *supra* note 22, at 996 (“Higher capital requirements thus . . . make the too-big-to-fail problem less severe.”); cf. Anjan V. Thakor, *Bank Capital and Financial Stability: An Economic Tradeoff or Faustian Bargaining?*, 6 ANN. REV. FIN. ECON. 185, 200 (2014) (observing that theories that emphasize the positive role of bank capital “rel[y] on the idea that the shareholders of better-capitalized banks have more to lose from bank failure and are therefore more likely to engage in costly borrower monitoring”); Hendrik Hakenes & Isabel Schnabel, *Bank Size and Risk-Taking Under Basel II*, 35 J. BANKING & FIN. 1436, 1437 n.5 (2011) (“Most of the existing [scholarly] literature focuses on moral hazard as the main motivation for capital requirements.”).

91. Kern Alexander & Steven L. Schwarcz, *The Macroprudential Quandary: Unsystematic Efforts To Reform Financial Regulation*, in RECONCEPTUALISING GLOBAL FINANCE AND ITS REGULATION 127, 136 (Ross Buckley et al. eds., 2016); cf. Admati, *supra* note 82, at R4 (“Well-designed capital regulation ensures that an appropriate part of funding is obtained and maintained from owners and shareholders . . . [who] automatically absorb losses”); Hakenes & Schnabel, *supra* note 90, at 1437 n.5 (acknowledging that “[a]nother prominent explanation [for imposing capital requirements is to] buffer against losses”).

92. Bd. of Governors of the Fed. Reserve Sys., Revised Temporary Addendum to SR Letter 09-4: Dividend Increases and Other Capital Distributions for the 19 Supervisory Assessment Program Bank Holding Companies 1 (Nov. 17, 2010), http://www.federalreserve.gov/boarddocs/srletters/2009/SR0904_Addendum.pdf.

Mario Draghi, likewise articulated that regulatory rationale in 2011.⁹³ He also has explicitly questioned the ability of capital requirements to prevent risk-taking.⁹⁴

It therefore appears unsettled whether higher capital requirements will discourage excessive risk-taking.⁹⁵ Even minimal discouragement might be beneficial, though, if there is no cost. Although certain economists argue that higher capital requirements have no associated public costs,⁹⁶ others argue to the contrary. Some fear that unintentionally excessive capital requirements can lead to social costs.⁹⁷ Others believe that capital requirements might reduce bank lending, thereby causing a credit shortfall that would harm the public.⁹⁸ Still others criticize capital requirements for cutting into global economic output

93. See Rainer Masera, *Taking the Moral Hazard out of Banking: The Next Fundamental Step in Financial Reform*, 64 PSL Q. REV. 105, 109 (2011) (“[The Chairman] . . . indicated that the new Basel III rules, aimed at strengthening banks’ capital buffers, were a positive step to help prevent future crises, by reducing the probability of the failure of large banks.”).

94. *Id.* (stating that the Basel III capital requirements do “not address the moral hazard problem”).

95. *But cf.* text accompanying note 193, *infra* (arguing that whether or not higher capital requirements would discourage excessive risk-taking, they should be considered to make a systemically important firm’s insolvency less likely).

96. ANAT ADMATI & MARTIN HELLWIG, *THE BANKERS’ NEW CLOTHES: WHAT’S WRONG WITH BANKING AND WHAT TO DO ABOUT IT* 98 (2013); *cf.* Alberto Locarno, *The Macroeconomic Impact of Basel III on the Italian Economy*, QUESTIONI DI ECONOMIA E FINANZA No. 88, (Bank of Italy), Feb. 2011, at 21 (arguing in the context of the Italian economy that although the fall of output caused by new capital requirements will impose temporary costs, “the gains [will] undoubtedly outweigh the costs to be paid to achieve a sounder banking system”).

97. See, e.g., Jean Dermine, *Bank Regulations After the Global Financial Crisis: Good Intentions and Unintended Evil*, 19 EUR. FIN. MGMT. 658, 662 (2013) (“Or, if capital is excessive, it might lead to inefficiently higher interest rates on bank loans . . . in a dynamic perspective, private costs may induce social costs as banks reduce their supply of loans or securitize assets.”).

98. See, e.g., Jacob Bikker & Haixa Hu, *Cyclical Patterns in Profits, Provisioning and Lending of Banks and Procyclicality of the New Basel Capital Requirements*, 55 BANCA NAZIONALE DEL LAVORO QUART. REV. 143, 144 (2002); Reint Gropp et al., *Bank Response to Higher Capital Requirements: Evidence from a Quasi-Natural Experiment*, (Sustainable Architecture for Fin. in Eur., Working Paper No. 156, 2016 <https://www.econstor.eu/bitstream/10419/148361/1/874406994.pdf> (finding that higher bank capital requirements cause banks to increase their capital ratios not by raising their levels of equity but by reducing their credit supply, resulting in lower firm, investment, and sales growth); *cf.* David Bholat, *Money, Bank Debt, and Business Cycles: Between Economic Development and Financial Crises*, in AVAILABILITY OF CREDIT AND SECURED TRANSACTIONS IN A TIME OF CRISIS 28 (N. Orkun Akseli ed., 2013) (discussing theory that a contraction in bank lending results in declining economic output, unemployment, and a recession or even depression).

and reducing jobs.⁹⁹ One financial economist recently claimed that higher capital requirements can create “uncertainty [that] severely undermines rather than reinforces market discipline” because “the Basel [III] system of risk weights” is “excessively complex and highly difficult to understand [and also] susceptible to gaming.”¹⁰⁰ That uncertainty, he further contends, “will lead to a near certain loss of confidence in the banking system” in the event of a crisis.¹⁰¹

Furthermore, the *misapplication* of capital requirements could have a substantial cost. Capital requirements are generally imposed on a countercyclical basis.¹⁰² This recognizes that finance, and especially banking, is by nature procyclical.¹⁰³ Lowering capital requirements can stimulate economic growth, whereas increasing capital requirements can help to discourage the buildup of imbalances during economic booms and bubbles.¹⁰⁴ There has been debate, however, about whether countercyclical regulation is actually feasible given that it is virtually

99. See Eduardo Porter, *Recession's True Cost Is Still Being Tallied*, N.Y. TIMES (Jan. 21, 2014), <http://www.nytimes.com/2014/01/22/business/economy/the-cost-of-the-financial-crisis-is-still-being-tallied.html> (discussing these criticisms of capital requirements).

100. Emiliios Avgouleas, *Bank Leverage Ratios and Financial Stability: A Micro- and Macroprudential Perspective*, 16–17 (Levy Econ. Inst. Working Paper No. 849, 2015).

101. *Id.* at 17.

102. See Kristin N. Johnson, *Macroprudential Regulation: A Sustainable Approach To Regulating Financial Markets*, 2013 U. ILL. L. REV. 881, 904, 916 (2013) (discussing flexible capital requirements as a macroprudential tool); Richard Berner, Dir. of Office of Fin. Research, Remarks at the Joint Conference of the Federal Reserve Bank of Cleveland and Office of Financial Research, *Financial Stability Analysis: Using the Tools, Finding the Data* (May 30, 2013) (identifying countercyclical capital requirements as a tool to reduce or neutralize “threats to financial stability”).

103. See Haocong Ren, *Countercyclical Financial Regulation 3* (World Bank, Working Paper No. 5823, 2011), <http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-5823> (observing that during economic booms and bubbles, credit expansion outpaces economic growth, and that during economic downturns, lending contracts further worsen economic prospects).

104. See Brett H. McDonnell, *Designing Countercyclical Capital Buffers*, 18 N.C. BANKING INST. 123, 123 (2013) (noting that the same factors that cause cycles in the financial markets cause financial regulations to reinforce the cycles); see also *id.* at 124–30 (discussing how capital requirements are procyclical when they force banks to cut back on lending due to faltering capital positions because of decreasing credit quality and increasing losses, further deteriorating economic performance and resulting in even more credit losses).

impossible to know *ex ante* whether a financial cycle is rational or merely a bubble.¹⁰⁵

Yet, accuracy is critical; the mistiming or misapplication of countercyclical regulation can be devastating, as illustrated by the savings and loan (S&L) crisis of the 1980s in the United States. S&L institutions faced a period in which rising interest rates made lending less attractive to borrowers.¹⁰⁶ To avoid having to commit government funds to bail out financially stressed institutions, regulators relieved the stress by engaging in a type of countercyclicity: they eased the capital ratios in order to “help troubled banks muddle through [that] difficult period[.]”¹⁰⁷ However, the result of that forbearance, in conjunction with other regulatory-relief steps, was the rapid expansion of the size of the S&L industry—from \$686 billion in 1982 to \$1.1 trillion in 1985.¹⁰⁸ When the S&L industry eventually collapsed, its increased size led to the largest federal bailout in history up to that time.¹⁰⁹

During the writing of this Article, the Minneapolis Fed issued a comment draft of its *Plan [T]o End Too Big [T]o Fail*.¹¹⁰ The Plan focuses on dramatically increasing capital for all large systemically important firms, and then forcing firms that are still TBTF to “restructure themselves” or issue so much capital

105. See, e.g., Patricia A. McCoy, *Countercyclical Regulation and Its Challenges* 47 ARIZ. ST. L.J. 1181, 1220 (2015) (observing that a primary prerequisite to feasible countercyclical regulation is extensive data and information); MARKUS BRUNNERMEIER ET AL., *THE FUNDAMENTAL PRINCIPLES OF FINANCIAL REGULATION* 11, 18 (2009) (criticizing countercyclical capital buffers as being difficult to implement, easy to circumvent, and subject to regulatory arbitrage). Countercyclical regulation’s effectiveness could be further undermined by regulatory arbitrage if the measures are not analogously applied to relevant shadow-banking activities. Ren, *supra* note 103, at 8.

106. Douglas J. Elliott et al., *The History of Cyclical Macroprudential Policy in the United States*, in *FINANCE AND ECONOMICS DISCUSSION SERIES NO. 2013-29*, 34 (Fed. Reserve Bd., 2013), <https://www.federalreserve.gov/pubs/feds/2013/201329/201329pap.pdf>.

107. *Id.* (observing that this countercyclicity was imprecisely implemented).

108. *Id.* at 35.

109. See Lawrence A. Cunningham & David Zaring, *The Three or Four Approaches to Financial Regulation: A Cautionary Analysis Against Exuberance in Crisis Response*, 78 GEO. WASH. L. REV. 39, 51–52 (2009).

110. FED. RESERVE BANK OF MINNEAPOLIS, *THE MINNEAPOLIS PLAN TO END TOO BIG TO FAIL* (Nov. 16, 2016), <https://www.minneapolisfed.org/~media/files/publications/studies/endingtbtf/the-minneapolis-plan-to-end-too-big-to-fail-2016.pdf>.

that they “virtually cannot fail.”¹¹¹ Annex 2 to this Article sets forth the author’s comments on that draft plan.

C. CONVERTING DEBT TO EQUITY

This approach—which includes the total loss-absorbing capacity (TLAC) proposal¹¹²—seeks to pre-engineer a change to a systemically important firm’s capital structure that is triggered if the firm experiences financial problems. Thus the Minneapolis Fed has considered TBTF-based regulation that would convert certain debt claims into equity interests if and when a systemically important firm reaches a specified level of financial deterioration.¹¹³ The debt-to-equity conversion of the securities evidencing these debt claims (called contingent convertible securities, or “CoCos”) would not bring new cash into the firm.¹¹⁴ Instead, it would reduce the firm’s indebtedness, thereby making the firm financially viable again.¹¹⁵ The possibility that their

111. Press Release, Neel Kashkari, President, Fed. Reserve Bank of Minneapolis, Neel Kashkari Presents the Minneapolis Plan to End Too Big to Fail (Nov. 16, 2016), <https://www.minneapolisfed.org/~media/files/publications/studies/endingtbtf/the-minneapolis-plan/remarks-to-econ-club-of-ny.pdf>.

112. Erica Jeffrey, *TLAC: What You Should Know*, EUROMONEY (Aug. 10, 2016), <https://www.euromoney.com/article/b12kl97jn3mk69/tlac-what-you-should-know> (discussing how TLAC contemplates that systemically important firms issue minimum levels of debt and similar securities “that can be written down or converted into equity in case of resolution[.]”); *see also* 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, 80 Fed. Reg. 74926 (proposed Nov. 30, 2015); Press Release, Fed. Reserve Bd., Federal Reserve Board Proposes New Rule To Strengthen the Ability of Largest Domestic and Foreign Banks Operating in the United States To Be Resolved Without Extraordinary Government Support or Taxpayer Assistance (Oct. 30, 2015), <http://federalreserve.gov/newsevents/pressreleases/bcreg20151030a.htm>.

113. *See* Fed. Reserve Bank of Minneapolis, *The Fourth Symposium on Ending Too Big To Fail, September 26*, <https://www.minneapolisfed.org/publications/special-studies/endingtbtf/symposiums/ending-too-big-to-fail-symposium-iv> (last visited Nov. 6, 2017); *see also* Tom Beardsworth & John Glover, *Contingent Convertibles: High-Yield Hand Grenades*, BLOOMBERG: QUICKTAKE (July 29, 2016), <https://www.bloomberg.com/quicktake/contingent-convertible-bonds>.

114. Edward Simpson Prescott, *Contingent Capital: The Trigger Problem*, 98 ECON. Q. 33, 34 n.3 (2012).

115. Jianping Zhu et al., *From Bail-out to Bail-in: Mandatory Debt Restructuring of Systemic Financial Institutions*, IMF STAFF DISCUSSION NOTE, SDN/12/03, 14 (Apr. 24, 2012), <https://www.imf.org/external/pubs/ft/sdn/2012/sdn1203.pdf>.

debt could be converted into equity should also motivate creditors to take on more of a “monitoring” role,¹¹⁶ which could reduce the firm’s risk-taking.

CoCos have been issued in Europe, where the initial tests of their conversion have had mixed success. In early June 2017, the junior-bond CoCos of Spain’s Banco Popular converted as planned to prevent the bank’s failure.¹¹⁷ Later that month, in contrast, the senior-bond CoCos of Italy’s Veneto Banca and Banca Popolare di Vicenza were not converted, resulting in a taxpayer bailout of those banks.¹¹⁸ Although there are ways to try to distinguish these cases,¹¹⁹ some argue they reflect the inevitable failure of CoCos as a viable resolution option.¹²⁰ Thus, the effectiveness of CoCos in reducing excessive risk-taking remains uncertain. There are also questions remaining regarding the actual implementation of such a CoCo conversion in the United States, including what would trigger the debt to convert¹²¹ and how to ensure that creditors holding convertible debt are compensated without making the debt too costly.¹²²

116. Emiliios Avgouleas & Charles Goodhart, *Critical Reflections on Bank Bail-Ins*, 1 J. FIN. REG. 3, 4–5 (2015).

117. *Senior Moment: Europe’s Framework for Dealing with Troubled Banks Is Working, But Has One Big Drawback*, ECONOMIST, July 1, 2017, at 14.

118. *Id.*

119. For example, the new European agency in charge of bank resolution, the Single Resolution Board (SRB), apparently determined that the Italian banks “did not pose a threat to financial stability, and handed them to the Italian authorities to deal with under national insolvency procedures[.]” *Id.* Although there is no evidence of this, the SRB might also have been more reluctant to convert senior than junior bonds.

120. See, e.g., Neel Kashkari, *New Bailouts Prove ‘Too Big To Fail’ Is Alive and Well*, WALL ST. J., July 10, 2017, at A17 (arguing that the Italian bank bailouts prove that “bail-in debt’ doesn’t prevent bailouts”). Kashkari contends that CoCos won’t work because governments “fear financial contagion” if they “force losses on bondholders.” *Id.* Where systemic risk isn’t at issue, he maintains that CoCos won’t work because “governments may worry that bondholders are politically important constituents.” *Id.* Professor Admati likewise argues that it “is unrealistic to expect that regulators will trigger recovery and resolution processes that are complex, costly and untested so that losses can be imposed on debt-like TLAC securities, and that they would be politically able to follow up with imposing losses on creditors’ mandatory conversion to equity. This is particularly true if a potential crisis is looming, since pulling triggers and inflicting haircuts might have unpredictable consequences throughout the opaque financial system.” Admati, *supra* note 82, at R10.

121. See Emiliios Avgouleas et al., *Living Wills as a Catalyst for Action*, DUISENBERG SCH. OF FIN. POL’Y PAPER NO. 4, 4 (2010).

122. Eric S. Halperin, *CoCo Rising: Can the Emergence of Novel Hybrid Securities Protect from Future Liquidity Crises?*, 8 BYU INT’L L. & MGMT. REV. 15, 21–23 (2011) (explaining why issuing CoCos to investors may be more expensive

CoCos can also raise their own moral hazard concern. Potentially, a “bank that issues contingent capital faces a moral hazard incentive to increase its assets’ jump risks”—that is, the risk that bank assets can suffer large, sudden losses.¹²³ In other words, issuers of CoCos may be motivated to invest in risky assets because such issuers will be protected against a fall in asset value by the CoCos’ debt-to-equity conversion. Attempts to reduce this moral hazard, such as including restrictive contractual covenants, can be overly rigid and “impair[] the managers’ ability to pursue value-maximizing projects.”¹²⁴ The failure to reduce this moral hazard is likely to further increase the cost of issuing CoCos.¹²⁵ President Kashkari himself appears to be skeptical of this approach.¹²⁶ The Financial Stability Board, however, has made this approach a significant part of its plans to end TBTF.¹²⁷

D. CONTROLLING FAILURE TO REDUCE MORAL HAZARD AND THE NEED FOR A BAILOUT

The final approach focuses on controlling the failure of a systemically important firm, in order to reduce moral hazard and the need for a bailout. In the United States, for example, the Dodd-Frank Act restricts the Federal Reserve’s authority to act as a lender of last resort to provide bailouts to failing financial institutions.¹²⁸ This restriction is primarily intended to reduce

than issuing ordinary debt); Paul Melaschenko & Noel Reynolds, *A Template for Recapitalising Too-Big-To-Fail Banks*, BIS Q. REV. 25, 34–35 (June 2013).

123. George Pennacchi, *A Structural Model of Contingent Bank Capital* 28 (Fed. Reserve Bank of Cleveland, Working Paper No. 10-04, 2010), https://www.moodys.com/microsites/crc2010/papers/pennacchi_concap.pdf

124. Simone M. Sepe, *Corporate Agency Problems and ‘Dequity’ Contracts*, 36 J. CORP. L. 113, 145 (2010). Another concern over this moral hazard is that it will increase the cost of CoCos.

125. *Cf.* Pennacchi, *supra* note 123, at 22 (arguing that investors in CoCos that are subject to “downward jumps in value” will “demand higher new issue yields to compensate for these potential losses”).

126. Kashkari, *supra* note 4.

127. *See* FIN. STABILITY BD., *supra* note 15, at 8 (“Much has now been done to achieve what is necessary to make too-big-to-fail banks resolvable. A particular milestone was the FSB’s publication in November 2015 of the finalised standard for Total Loss-Absorbing Capacity (TLAC). This policy taken together with the other policy measures to enhance the resolvability of systemic banks will, if implemented at firm level and underpinned by robust legal or regulatory measures, contribute to greater resilience of the financial system.”) (internal citation omitted).

128. The Dodd-Frank Act limits the authority of the Federal Reserve to make emergency loans under section 13(3) of the Federal Reserve Act. Dodd-Frank amended that subsection to require the Federal Reserve to consult with

the moral hazard of systemically important firms by removing their expectation of a financial safety net should risky behavior put such a firm at risk of failing.¹²⁹

Again, however, if moral hazard does not cause those firms to engage in excessively risky behavior,¹³⁰ then this restriction cannot, by itself, prevent such behavior. Also, this restriction is dangerous,¹³¹ making it much more likely that the government will be unable to prevent systemically important firms from failing, with (predictably) systemically devastating consequences.¹³²

Planning ahead may also be ineffective to control failure. The Dodd-Frank Act also requires certain systemically important firms to file so-called living wills, which are resolution plans setting forth how they could liquidate with minimal systemic impact.¹³³ This is intended to reduce the need for a

and receive approval from the Secretary of the Treasury to ensure that any emergency lending is designed to provide liquidity to the markets and not to aid a financially failing firm. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 1101(a)(6), 124 Stat. 2113, 2113–15 (2010).

129. See, e.g., Norbert J. Michel, *Title XI Does Not End Federal Reserve Bailouts*, in *THE CASE AGAINST DODD-FRANK: HOW THE “CONSUMER PROTECTION” LAW ENDANGERS AMERICANS* 169, 170 (Norbert J. Michel ed., 2016) (“One concern with central banks providing direct loans is a basic moral hazard problem. Namely, if central banks provide liberal credit to private banks (or other private firms) on a regular basis, the knowledge of having easy access to these loans would likely encourage private companies to take on additional risk.”).

130. See *supra* notes 22–31 and accompanying text.

131. Indeed, the restriction is counter to the European Union’s efforts to expand central bank authority to act as a lender of last resort to failing financial institutions. Carlos Garcia-de-Andoain et al., *Lending-of-Last-Resort Is as Lending-of-Last-Resort Does: Central Bank Liquidity Provision and Interbank Market Functioning in the Euro Area*, 1 J. FIN. INTERMEDIATION 32 (2016).

132. See, e.g., Iman Anabtawi & Steven L. Schwarcz, *Regulating Systemic Risk: Towards an Analytical Framework*, 86 NOTRE DAME L. REV. 1349, 1376–80 (2011); Coffee, *supra* note 9, at 825 (observing that the Dodd-Frank Act prevents federal government lender-of-last-resort assistance to nonbank financial firms that are solvent but illiquid, thereby forcing “some firms into an arguably unnecessary liquidation”); Michael Fleming & Asani Sarkar, *The Failure Resolution of Lehman Brothers*, 20 FED. RESERVE BD. N.Y. ECON. POL’Y REV. 175, 178 (2014) (observing that the Dodd-Frank Act’s “circumscrib[ing] the ability of the Fed[eral Reserve] to act as lender of last resort to the same extent that it did during the financial crisis” will virtually assure that the future bankruptcy of a systemically important firm will result in high creditor losses).

133. See, e.g., Jennifer Meyerowitz & Joseph N. Wharton, *A Dodd-Frank Living Wills Primer: What You Need To Know Now*, 31 AM. BANKR. INST. J. 34, 34 (Aug. 2012) (“As part of the goal to remove the risks to the financial system posed by ‘too big to fail’ institutions, § 165(d) of the Dodd-Frank Act requires ‘systemically important financial institutions’ to create ‘living wills’ to facilitate ‘rapid and orderly resolution,[sic] in the event of material financial distress or

bailout.¹³⁴ The living-will requirement might not, however, eliminate that need.¹³⁵ In my many years as a workout and bankruptcy lawyer, I rarely saw a firm's failure that accurately reflected, much less closely resembled, expectations about the firm when it was profitable. Furthermore, living wills do not prevent the concurrent failure of multiple otherwise-systemically important firms from collectively having a systemic impact.¹³⁶ The financial crisis demonstrated that a concurrence of failures is likely when the causes of the failures are interconnected, such as an industry-wide overreliance on credit ratings.¹³⁷

The so-called single-point-of-entry (SPOE) strategy represents another way to attempt to control the failure of a systemically important firm in order to reduce the need for a public bailout.¹³⁸ This strategy is artificially dependent on systemically important firms having a parent-subsidary organizational structure in which the parent holds the stock of the operating-company subsidiary.¹³⁹ At the start, therefore, it faces unique legal challenges for cross-border systemically important firms, which may not have the parent-subsidary structure needed for the strategy's execution.

failure.” (quoting 12 U.S.C. § 5365(d) (2012))).

134. See Clay R. Costner, Comment, *Living Wills: Can a Flexible Approach to Rulemaking Address Key Concerns Surrounding Dodd-Frank's Resolution Plans?*, 16 N.C. BANKING INST. 133, 138–40 (2012) (summarizing arguments for how living wills might help address TBTF).

135. Although it is questionable, as discussed, whether the U.S. government could satisfy such a need if it arises. See *supra* note 132 and accompanying text.

136. Cf. Victoria McGrane, *FDIC Chief: Big Failure Won't Harm the System*, WALL ST. J., May 12, 2015, at C1 (observing that some in Congress “doubt regulators could handle the failure of multiple major firms at the same time”).

137. Steven L. Schwarcz, *Protecting Financial Markets: Lessons from the Subprime Mortgage Meltdown*, 93 MINN. L. REV. 373, 379–83 (2008); *id.* at 404–05. Cf. Janet L. Yellen, Vice-Chair of Bd. of Governors, Fed. Reserve Sys., Speech at the Annual Meeting of the National Association for Business Economics, Denver, Col. (Oct. 11, 2010), <https://www.federalreserve.gov/newsevents/speech/yellen20101011a.pdf> (attributing the financial crisis to concurrences of interrelated failures).

138. See, e.g., Daniel K. Tarullo, Governor, Board of Governors of the U.S. Fed. Reserve Board, *Toward Building a More Effective Resolution Regime: Progress and Challenges*, Remarks at the Federal Reserve Board and Federal Reserve Bank of Richmond Conference (Oct. 18, 2013), <http://www.federalreserve.gov/newsevents/speech/tarullo20131018a.pdf> (“The aim of the single-point-of-entry approach is to stabilize the failed firm quickly, in order to mitigate the negative impact on the U.S. financial system, and to do so without supporting the firm's equity holders and other capital liabilities holders or exposing U.S. taxpayers to losses.”).

139. John Crawford, “*Single Point of Entry*”: *The Promise and Limits of the Latest Cure for Bailouts*, 109 NW. U. L. REV. ONLINE 103, 107 (2014).

Under the SPOE strategy, if the subsidiary begins to fail, a government agency (in the United States, the Federal Deposit Insurance Corporation) becomes the receiver of the parent,¹⁴⁰ wiping out the parent-company's shareholders (and potentially writing down some of its debt).¹⁴¹ The receiver then may provide temporary liquidity to the parent to keep the subsidiary operating (and thereby avoiding the instability that rocked the financial markets after Lehman Brothers collapsed¹⁴²), while it seeks to sell its receivership interest to equity investors to bring in more permanent capital.¹⁴³ Although proponents of the SPOE strategy are optimistic it can work once implementation challenges are resolved,¹⁴⁴ others—including Kashkari¹⁴⁵—believe the strategy is unlikely to be practical.¹⁴⁶

Part III has shown that the TBTF-based approaches to regulating excessive risk-taking are inadequate. As next explained, such risk-taking should be more directly regulated.

140. Mechanically, the steps described above might take place through a bridge company. The above-simplified description nonetheless would still accurately depict the economics of the SPOE strategy.

141. See, e.g., Jerome H. Powell, Governor, Fed. Reserve Board of Governors, Ending “Too Big To Fail”, Remarks at the Institute of International Bankers 2013 Washington Conference, Washington, D.C. (Mar. 14, 2013), <https://www.federalreserve.gov/newsevents/speech/powell20130304a.pdf>.

142. Kwon-Yong Jin, *How To Eat an Elephant: Corporate Group Structure of Systemically Important Financial Institutions, Orderly Liquidation Authority, and Single Point of Entry Resolution*, 124 YALE L.J. 1746, 1764 (2015).

143. Powell, *supra* note 141.

144. Jeremy C. Stein, *Regulating Large Financial Institutions*, in WHAT HAVE WE LEARNED?: MACROECONOMIC POLICY AFTER THE CRISIS 135 (George Akerlof et al. eds., 2014).

145. Kashkari, *supra* note 4 (observing that there is no way to test this strategy's effectiveness until it is actually in use, and doubting it will be useful in a stressed economic climate).

146. See, e.g., Stephen J. Lubben & Arthur E. Wilmarth, Jr., *Too Big and Unable To Fail*, (George Washington Law Sch. Pub. Law & Legal Theory Paper No. 2016-44, 2016) (describing single point of entry as “a resolution tool designed for a very stylized, even hypothetical sort of failure”); cf. Emiliós Avgouleas & Charles Goodhart, *A Critical Evaluation of Bail-ins as a Bank Recapitalisation Mechanism*, Centre for Economic Policy Research Discussion Paper 10065, 18 (2014) (arguing that “[r]eputational contagion” may cause investor flight once the holding company is liquidated, regardless of how many subsidiaries are still operating); Paul H. Kupiec & Peter J. Wallison, *Can the “Single Point of Entry” Strategy Be Used To Recapitalize a Failing Bank?*, (Am. Enterprise Inst. Econ., Working Paper No. 2014-08, 2014) (discussing the possibility that the FDIC may have to borrow from the U.S. Treasury to recapitalize subsidiaries, and expressing concern that Title II of the Dodd-Frank Act prohibits bank-subsidary recapitalization using such funds; also observing that if the use of the funds are challenged, the losses are likely to fall on taxpayers).

IV. EXCESSIVE RISK-TAKING SHOULD BE MORE DIRECTLY REGULATED

If this Article is correct that systemically important firms are more likely to engage in excessive risk-taking because much of the systemic harm from their failure would be externalized onto the public,¹⁴⁷ regulation should require those firms to internalize systemic externalities. Section A shows how corporate governance law could accomplish that, without unduly weakening corporate wealth-producing capacity, by mandating a public governance duty to help realign private and public interests.¹⁴⁸ Section B thereafter addresses the problem that, notwithstanding a perfect realignment of private and public interests, a systemically important firm could still be subject to failure. An exogenous shock, for example, might cause the failure.¹⁴⁹ Avoiding that failure could impose bailout costs on the public. Section B argues for the creation of a privatized fund to minimize those bailout costs.

This proposed realignment of private and public interests under a public governance duty is fundamentally different from, and should not be confused with, the regulatory responses to the financial crisis that attempt to mitigate excessive risk-taking by aligning managerial and investor interests.¹⁵⁰ Those types of responses are necessary but insufficient: even if managerial and

147. *See supra* Part II. Recall that corporate governance law requires managers to view the consequences of their firm's actions, and thus to view the expected value of corporate risk-taking, from the standpoint of the firm and its investors. This ignores public externalities caused by the actions. Although that generally makes sense, it does not make sense for risk-taking by systemically important firms that can cause systemic externalities that damage the economy and harm the public.

148. The Basel Committee on Banking Supervision also advocates revising corporate governance for banks, but so far its principles merely require managers to "look after the interests of the bank as a whole" and do not require them to take into account the possibility of systemic externalities. *See* BASEL COMM. ON BANKING SUPERVISION, GUIDELINES: CORPORATE GOVERNANCE PRINCIPLES FOR BANKS (2015), <http://www.bis.org/bcbs/publ/d328.pdf>.

149. *Cf.* Dam & Koetter, *supra* note 24, at 2344 ("Even a prudently managed bank might be distressed because of an exogenous shock.").

150. For example, requiring a systemically important firm to tie management compensation to the firm's long-term performance is intended to better align managerial and investor interests by penalizing managers who engage such firms in risky ventures that, notwithstanding short-term appeal, ultimately jeopardize investors. *See, e.g.,* Lucian A. Bebchuk & Jesse M. Fried, *Paying for Long-Term Performance*, 158 U. PA. L. REV. 1915 (2010); *cf.* Steven L. Schwarcz, *Conflicts and Financial Collapse: The Problem of Secondary-Management Agency Costs*, 26 YALE J. ON REG. 457 (2009) (arguing that aligning sec-

investor interests to engage in risk-taking could be perfectly aligned, that would not control the systemic externalities that result from a misalignment of interests between the private sector—the firm and its managers and investors—and the public sector.¹⁵¹

A. REGULATING GOVERNANCE

As explained in Part II, excessive corporate risk-taking is essentially a corporate governance problem. Much of the harm from a systemically important firm's failure would be externalized onto the public, but corporate governance law does not require managers to consider those externalities. As a result, systemically important firms "lack sufficient incentives to take precautions against their own failures."¹⁵²

Requiring managers of systemically important firms to account for systemic externalities in their governance decisions would help to correct this misalignment between private and public interests. That, in turn, would help to reduce excessive risk-taking. To this end, I have separately argued that managers of systemically important firms should have a duty to society (a "public governance duty") not to engage their firms in excessive risk-taking that leads to systemic externalities.¹⁵³ I also have analyzed in detail how to create a public governance duty without unduly weakening corporate wealth-producing capacity.¹⁵⁴ The remaining discussion in this Section A draws from, and is more fully informed by, that analysis.¹⁵⁵

ondary and senior managerial interests can help to mitigate excessive risk-taking).

151. For a detailed analysis of why attempts to mitigate excessive risk-taking by aligning managerial and investor interests are insufficient, see *Misalignment*, *supra* note 50, at 7–8.

152. BD. OF GOVERNORS OF THE FED. RESERVE SYS., CALIBRATING THE GSIB SURCHARGE 1 (July 20, 2015).

153. See *Misalignment*, *supra* note 50. Although a public governance duty could be judicially created, I have argued that it should be enacted legislatively because it broadly impacts public policy. In the United States, for example, this would mean that a public governance duty should be imposed either by state legislatures (especially the Delaware legislature, because most domestic firms are incorporated under Delaware law) or by the U.S. Congress. *Id.* at 29–31.

154. See *id.* at 28–50.

155. To add some real-world perspective, it should be recognized that there is precedent for altering corporate governance in light of public concerns. It is done all the time, for example, to address national security concerns. Cf. Andrew Verstein, *The Corporate Governance of National Security*, 95 WASH. U. L. REV. (forthcoming 2018) (discussing the "hundreds of companies" at which the federal

Two critical questions arise in designing a corporate governance plan to reduce excessive risk-taking: how should a systemically important firm's managers assess and balance the public costs and private benefits of a risk-taking activity; and how should the business judgment rule apply to their decisionmaking?

1. Assessing and Balancing Costs and Benefits

How should managers of a systemically important firm, or members of its risk committee,¹⁵⁶ assess and balance the public costs and private benefits of a risk-taking activity? Compare two approaches, one subjective and the other more objective and ministerial. To minimize the burden on managers, these approaches would be needed only when deciding on a risky project whose failure might, either itself or in combination with other factors, cause the firm to fail.¹⁵⁷ That limitation on using the approaches recognizes that systemic externalities would most likely result from such a failure.¹⁵⁸

Under the subjective approach, managers would simply consider and balance the public costs and private benefits of engaging in the project the same way they would consider and balance any other relevant costs and benefits when making a corporate governance decision.¹⁵⁹ Although managers might favor this approach, it would have several drawbacks. Most significantly, such a decision-making process should be more publicly transparent because the consequences of a systemic collapse can be

government installs designees "to run the business without shareholder oversight, putting [national] security before profits").

156. For example, section 165(h) of the Dodd-Frank Act directs the Federal Reserve Board to require each publicly traded nonbank financial company supervised by the Board and each publicly traded bank holding company with total consolidated assets of ten billion dollars or more to establish a risk committee, which will be responsible for overseeing the company's risk-management practices. 12 U.S.C. § 5365(h) (2012). However, the Board's implementing regulations currently only require risk committees to focus on risks to the firm, not to the public. 12 C.F.R. § 252.20–35 (2017); cf. BASEL COMM. ON BANKING SUPERVISION, *supra* note 148 (observing that the Basel Committee on Banking Supervision's governance principles do not require bank managers to consider systemic externalities).

157. In making these decisions, I have suggested that managers should be able to choose on a case-by-case basis whether to follow the subjective or objective approach. *Misalignment*, *supra* note 50, at 32.

158. See *supra* note 53 and accompanying text.

159. *Misalignment*, *supra* note 50, at 32.

devastating to the public. Managers following a subjective approach may also be subject to peer pressure to favor investor profitability over avoiding public harm.¹⁶⁰

The objective approach would be much more transparent about how the public costs and private benefits are assessed and balanced. Managers considering engaging in the project would measure the public costs by the expected value of the project's systemic costs and would measure the private benefits by the expected value of the project to the firm's shareholders.¹⁶¹ With one exception—valuing the systemic costs if the firm fails—those managers should have sufficient information, or at least much more information than third parties, about these values.¹⁶²

Valuing the systemic costs if the firm fails should be a public policy choice. It might be based, for example, on the estimated cost of a government bailout to avoid a systemic failure. Such an estimate could be made by the government as part of the process of designating a firm as systemically important, and thereafter periodically updated by the government.¹⁶³

Under the objective and more ministerial approach, managers could simply use the expected value calculations to balance the public costs and private benefits of engaging in the project. From a Kaldor-Hicks economic efficiency standpoint,¹⁶⁴ the project's justification would turn on the higher expected value. But strict economic efficiency may be insufficient as a public policy matter because the magnitude and harmful consequences of a systemic collapse, if it occurs, could be devastating. It therefore may be appropriate to apply a precautionary principle, requiring a margin of safety in the balancing.¹⁶⁵ Even if this margin-of-safety requirement reduces a firm's wealth production from a given project that is not undertaken, the net wealth production

160. *Id.*

161. *Id.* at 33.

162. *Id.*

163. *See id.* at 33–34.

164. The Kaldor-Hicks criterion, under which the aggregate benefits exceed the aggregate costs (even if those who benefit are not required to compensate those who are harmed), sets the operating standard of efficiency. *See, e.g.*, RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW § 1.2, at 13–14 (4th ed. 1992); Louis Kaplow & Steven Shavell, *Fairness Versus Welfare*, 114 HARV. L. REV. 961, 1015 (2001).

165. *Misalignment*, *supra* note 50, at 35–36; *cf.* Cass R. Sunstein, *Beyond the Precautionary Principle*, 151 U. PA. L. REV. 1003, 1014 (2003) (discussing a precautionary principle under which “[r]egulation should include a margin of safety, limiting activities below the level at which adverse effects have not been found or predicted”).

to society, after subtracting systemic costs, should be increased.¹⁶⁶

2. Applying the Business Judgment Rule

How should the business judgment rule apply to a public governance duty? In the traditional corporate governance context, managers are protected by this rule, which presumes that they should not be personally liable for harm caused by negligent decisions made in good faith and without conflicts of interest—and in some articulations of the business judgment rule, also without gross negligence.¹⁶⁷ The rule attempts to balance the goal of protecting investors against losses with the goals of encouraging the best managers to serve¹⁶⁸ and avoiding the exercise of inappropriate judicial second-guessing.¹⁶⁹

Arguably, the business judgment rule should apply differently to a public governance duty because one of the rule's basic assumptions—that there be no conflict of interest—may be breached. The interest of a manager who holds significant shares or interests in shares, or whose compensation or retention is dependent on share price, is aligned with the firm's shareholders, not with that of the public. To that extent, the manager would have a conflict of interest.¹⁷⁰ To address that conflict, conflicted managers who are grossly negligent—that is, who fail to use even slight care in assessing systemic harm to the public—could be barred from using the rule as a defense. Even with that bar, managers who follow a reasonable procedure¹⁷¹ to balance public

166. *Misalignment*, *supra* note 50, at 37.

167. Hurt, *supra* note 46, at 258–59.

168. See, e.g., Ryan Scarborough & Richard Olderman, *Why Does the FDIC Sue Bank Officers? Exploring the Boundaries of the Business Judgment Rule in the Wake of the Great Recession*, 20 *FORDHAM J. CORP. & FIN. L.* 367, 376–77 (2015).

169. Robert T. Miller, *Oversight Liability for Risk-Management Failures at Financial Firms*, 84 *S. CAL. L. REV.* 47, 120–21 (2010); see also Hurt, *supra* note 46, at 259–60.

170. *Misalignment*, *supra* note 50, at 42.

171. The business judgment rule generally respects a duty of process or care, which is the standard commonly used in the United States. See, e.g., *Brehm v. Eisner*, 746 A.2d 244, 264 (Del. 2000) (stating that due care in the corporate decision-making context is process due care only, not substantive due care); *In re Caremark Int'l Inc. Derivative Litig.*, 698 A.2d 959, 967–68 (Del. Ch. 1996) (“[T]he business judgment rule is process oriented and informed by a deep respect for all *good faith* board decisions.”).

costs and private benefits would be using (at least) slight care and therefore should be protected.¹⁷²

B. MINIMIZING BAILOUT COSTS

Section A has shown how regulating the governance of systemically important firms could control excessive risk-taking. Nonetheless, such a firm could still fail because that control was imperfect or for exogenous reasons. Avoiding that failure could impose bailout costs on the public.¹⁷³ This Section discusses how to minimize those bailout costs.

Government central banks traditionally are tasked with helping to bail out critical banks, to prevent them from defaulting. They appear to perform this task well,¹⁷⁴ subject only to concerns over whether such measures impose bailout costs on taxpayers and whether bailouts create moral hazard.¹⁷⁵ Both of those concerns could be addressed by privatizing the bailout cost.

Privatization could be implemented, for example, by taxing systemically important firms to create a bailout fund.¹⁷⁶ In the United States, there are analogous precedents for requiring the private sector to contribute funds to help internalize externalities.¹⁷⁷ The Federal Deposit Insurance Corporation requires

172. *Misalignment*, *supra* note 50, at 42–43.

173. *See supra* notes 3 and 6. In the United States, however, the experience of the financial crisis is that the net cost of bailing out systemically important firms has been relatively minimal, with the government recouping much of its investment. *See, e.g.*, Jonathan Weisman, *U.S. Declares Bank and Auto Bailouts Over, and Profitable*, N.Y. TIMES, Dec. 20, 2014, at B1.

174. *See* Gary Gorton & Lixin Huang, *Liquidity, Efficiency, and Bank Bailouts*, 94 AM. ECON. REV. 455, 473–74 (2004).

175. *Cf. supra* Part III.D (discussing those concerns).

176. *See Systemic Risk*, *supra* note 53, at 226 (proposing this approach to privatize bailout costs of systemically important firms); *cf.* Jeffrey N. Gordon & Christopher Muller, *Confronting Financial Crisis: Dodd-Frank's Dangers and the Case for a Systemic Emergency Insurance Fund*, 28 YALE J. ON REG. 151, 156 (2011) (calling for a systemic emergency insurance fund that is funded by the financial industry); Wilmarth, *supra* note 6, at 1015–22 (arguing that systemically important firms should be required to pay risk-based insurance premiums which would be used to fund liquidation of failed firms and thus reduce potential bailout costs).

177. The externalities in our case would, of course, be bailout costs. Ironically, an earlier version of the Dodd-Frank Act included a provision for a privatized bailout fund sourced by large banks and other systemically important financial institutions. *See* Restoring American Financial Stability Act of 2010, S. 3217, 111th Cong. § 210(n) (2010). This provision was dropped, however, after certain politicians alleged it would institutionalize bailouts. *See* Greg Hitt & Damian Paletta, *Senate Ends Financial Bill Standoff*, WALL ST. J., Apr. 29, 2010, at A2. The plan by eleven European Union countries to impose a Financial

member banks to contribute to a Deposit Insurance Fund to ensure that depositors of failed banks are repaid.¹⁷⁸ Similarly, U.S. law requires each owner of a nuclear reactor to contribute monies to a fund to compensate for possible reactor accidents.¹⁷⁹

Taxing systemically important firms in this way, to create a bailout fund, should reduce the public cost of providing bailouts. By internalizing costs, it should also reduce moral hazard. Indeed, the likelihood that systemically important firms will have to make additional contributions to the fund to replenish bailout monies should motivate those firms to cross monitor each other and thereby help control each other's risky behavior.¹⁸⁰

Privatizing bailout costs raises at least two practical concerns. First, we have insufficient experience to precisely determine these costs and thus to assess the exact amount each systemically important firm should be taxed. If taxes are too low, taxpayer funding may be needed to cover shortfalls.¹⁸¹ If taxes are too high, economic efficiency may decrease because financial firms have less capital to invest.¹⁸² Regulators should be able to at least roughly estimate these costs, however, by attempting to match the firm in question to the most "comparable company"

Transactions Tax (FTT) provides another possible precedent for a privatized bailout fund. See European Commission Press Release IP/13/115, Financial Transaction Tax Under Enhanced Cooperation: Commission Sets out the Details (Feb. 14, 2013), http://www.europa.eu/rapid/press-release_IP-13-115_en.htm.

178. 12 U.S.C. § 1815(d) (2012).

179. OFFICE OF PUB. AFFAIRS, U.S. NUCLEAR REG. COMM'N, NUCLEAR INSURANCE AND DISASTER RELIEF (2014), <https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/nuclear-insurance.html>.

180. *Regulating Financial Change*, *supra* note 59, at 1490.

181. Cf. Iman Anabtawi & Steven L. Schwarcz, *Regulating Ex Post: How Law Can Address the Inevitability of Financial Failure*, 92 TEX. L. REV. 75, 125–26 (2013) (cautioning that some amount of taxpayer funding will likely be needed to cover bailout fund shortfalls); Adam Geršl & Petr Jakubík, *How Important Is the Adverse Feedback Loop for the Banking Sector?*, 60 EKONOMICKÝ ČASOPIS 32, 34 (2012) (arguing that too small of a bailout fund could prove to be procyclical by letting banks have too much capital and not enough of an insurance cushion).

182. Cf. European Cmm'n, *Bail-In Tool: A Comparative Analysis of the Institutions' Approaches* 4 (Oct. 18, 2013) (unpublished working paper) (on file with *Minnesota Law Review*) ("[M]ost banks today appear to have enough capital and bail-in-able liabilities to withstand losses in non-extreme cases without resorting to resolution funds or state support. . . . It is also important to . . . avoid unintended consequences such as spurring moral hazard by creating [an] excessively large resolution fund.").

that has received bailout money in the past,¹⁸³ based on the tracking of data for bailout recipients in connection with the financial crisis.¹⁸⁴ Furthermore, the bailout fund is contemplated merely as a fallback to the primary remedy of imposing a public governance duty. If that remedy works, relatively few systemically important firms would need a bailout. This Article's proposal for a bailout fund should therefore be much more practical than previously advanced conceptions for bailout funds as a primary remedy.¹⁸⁵

Another practical concern¹⁸⁶ is the need for international cooperation, so as not to drive systemically important firms in high-tax jurisdictions to low-tax jurisdictions. This type of concern, though, has been addressed extensively by the international community in implementing the various Basel Capital Accords¹⁸⁷ as well as so-called soft law initiatives.¹⁸⁸

The foregoing discussion assumes that central banks will have authority to use monies in the bailout fund to provide the

183. I say roughly estimate because a comparable company's approach is never based on exactly comparable companies. ASWATH DAMODARAN, APPLIED CORPORATE FINANCE 565 (4th ed. 2015). Comparability might be assessed based on factors that relate to systemic riskiness, such as size, interconnectedness, substitutability, and leverage. See, e.g., IMF et al., *Guidance To Assess the Systemic Importance of Financial Institutions, Markets and Instruments: Initial Considerations*, Report to the G-20 Finance Ministers and Central Bank Governors (Oct. 2009), <https://www.imf.org/external/np/g20/pdf/100109.pdf>. The actual mechanics of the sizing could potentially raise other questions, such as the following: how should the aggregate need for funding be estimated? How should funding be allocated among contributing firms, initially and over time?

184. See *Bailout Recipients*, PROPUBLICA, <http://projects.propublica.org/bailout/list/index> (last updated Sept. 12, 2017) (providing a bailout list, which tracks every dollar and every recipient of U.S. government bailout money).

185. See Gorden & Muller, *supra* note 176; cf. John C. Coffee, Jr., *Systemic Risk After Dodd-Frank: Contingent Capital and the Need for Regulatory Strategies Beyond Oversight*, 111 COLUM. L. REV. 795, 801–02 (2011) (“Given high correlation, the failure of one institution implies that all institutions facing correlated risks will face a similar crisis. Insurance cannot solve such an industry-wide problem because no industry-funded insurance fund could ever be sufficient to insure against much of the industry’s failure.”).

186. Privatizing bailout costs may also raise political concerns. Cf. *supra* note 177 (observing that although an earlier version of the Dodd-Frank Act included a provision for a privatized bailout fund, the provision was dropped after certain politicians alleged it would institutionalize bailouts); Wilmarth, *supra* note 6, at 954 (discussing political opposition to taxpayer-funded bailouts).

187. See *supra* notes 84–88 and accompanying text.

188. Cf. Andrew P. Morriss & Lotta Moberg, *Cartelizing Taxes: Understanding the OECD’s Campaign Against “Harmful Tax Competition”*, 4 COLUM. J. TAX L. 1, 21 (2012) (discussing soft law initiatives by international organizations such as the Organisation for Economic Co-operation and Development).

necessary bailouts. The central bank's authority to provide bailouts should therefore be restored in jurisdictions, such as the United States,¹⁸⁹ where it has been limited. Furthermore, the central bank's authority to provide bailouts should be expanded in all jurisdictions, as needed, to cover not only banks but also nonbank systemically important financial firms.

Finally, in sizing a bailout fund, regulators will need to consider whether the fund should be sufficient to bail out not only illiquid but also insolvent systemically important firms. For an insolvent firm, liquidity would provide only temporary relief from default.¹⁹⁰ Regulators might consider, for example, whether it would be sensible to combine a privatized liquidity bailout fund with a resolution mechanism, such as the conversion of debt to equity discussed in Part III.C,¹⁹¹ in order to make the firm solvent again. Even if a resolution mechanism is insufficient and too costly as a primary tool to control excessive risk-taking, it might be more effective as a supplemental remedy to help reduce potential bailout costs.¹⁹² Additionally, whether or not higher capital requirements would discourage excessive risk-taking, they would certainly make a systemically important firm's insolvency less likely¹⁹³ and therefore should be considered for this purpose.

CONCLUSION

Why do systemically important financial firms engage in excessive risk-taking? Most attribute it to moral hazard: the idea that such a firm will take risks assuming it will profit from success and, being "too big to fail," be bailed out to prevent its failure. This Article begins by showing that attributing excessive risk-taking to moral hazard is unsupported by evidence and inconsistent with management incentives. That calls into question

189. See *supra* notes 128–32 and accompanying text.

190. Liquidity would only temporarily enable an insolvent firm to pay its debts; because its assets are less than its liabilities, an insolvent firm is likely to ultimately default.

191. See *supra* notes 112–27 and accompanying text.

192. A resolution mechanism that takes into account a statistical spreading of insolvency risk among multiple systemically important firms would be especially cost-effective as a supplemental remedy.

193. See, e.g., Admati, *supra* note 82, at R10; *but cf.* Òscar Jordà, Björn Richter, Moritz Schularick, & Alan M. Taylor, *Bank Capital Redux: Solvency, Liquidity, and Crisis* 36–37 (Fed. Reserve Bank of S.F., Working Paper No. 2017-06, 2017) (concluding, based on empirical data, that higher bank capital ratios are unlikely to prevent a financial crisis, though they may facilitate much quicker recoveries from financial crisis recessions).

the efficacy of regulation designed to reduce that risk-taking by reducing moral hazard.¹⁹⁴

Traditional corporate governance law, this Article argues, is more likely to cause systemically important firms to engage in excessive risk-taking. Such law requires managers to consider risk-taking from the standpoint of the firm and its investors. Much of the harm from a systemically important firm's failure, however, would be externalized onto the public. As a result, risk-taking that is excessive from a public perspective might actually benefit the firm and its investors (and therefore comply with corporate governance law).¹⁹⁵

The Article shows that requiring managers of systemically important firms to account for systemic externalities in their governance decisions would help to align private and public interests. That, in turn, should reduce excessive risk-taking. The Article also analyzes how to align these interests and reduce that risk-taking without unduly weakening corporate wealth-producing capacity.

Reducing excessive risk-taking would make systemically important firms less likely to fail.¹⁹⁶ It could not, however, completely eliminate the chance of failure. Even firms that take prudent risks could fail due to exogenous shocks.¹⁹⁷ That leaves the problem, albeit attenuated, that systemically important firms will occasionally need to be bailed out. To minimize taxpayer cost, the Article finally proposes requiring systemically important firms to contribute to a privatized bailout fund.

194. More technically, as this Article explains, systemically important firms do not engage in excessive risk-taking because of bailout-induced moral hazard; such risk-taking is instead caused by a form of moral hazard that results from externalizing systemic harm onto the public.

195. In this sense—viewing externalities as a market failure—corporate governance law can cause market failures when applied to systemically important firms.

196. See *supra* note 6 and accompanying text (observing that a systemically important firm's failure would most likely result from excessive risk-taking). Although this Article argues for a public governance "duty," other more incremental, though less effective, steps are also possible to try to align private and public interests. One would be to expand on the idea of certain "constituency" statutes that permit, but do not require, managers to take into account potential systemic harm—effectively, a public governance right. Another such step might be to harness bondholders, who are more risk averse than shareholders, in the governance of systemically important firms. See Steven L. Schwarcz, *Rethinking Corporate Governance for a Bondholder Financed, Systemically Risky World*, 58 WM. & MARY L. REV. 1335, 1349 (2017).

197. See *supra* text accompanying note 24.

ANNEX 1

CALCULATING EXPECTED VALUE DISPARITY

As discussed, systemically important firms can engage in risk-taking ventures that have a positive expected value to their investors but a negative expected value to the public.¹⁹⁸

Consider managers of a systemically important firm deciding whether to engage in a risky project that could be profitable. The expected value of the project to the firm's investors (usually the shareholders), which I'll call α , can be calculated as follows:

$$\alpha \text{ (expected value of project to investors)} = \\ [X\% \text{ chance of project succeeding} \times \$Y \text{ value to investors} \\ \text{from that success}^{199}] - [(1 - X\% \text{ chance of project failing}) \\ \times \$W \text{ loss from that failure}].$$

Compare that to the expected value of the project to the public, which I'll call β :

$$\beta \text{ (expected value of project to public)} = \\ [X\% \text{ chance of project succeeding} \times N \text{ value to public from} \\ \text{that success}] - [(1 - X\% \text{ chance of project failing}) \times F\% \\ \text{chance of firm failing as a result of the project's failure} \times \\ \$Z \text{ resulting systemic costs}].^{200}$$

Most of these values would be pure business judgments about which the firm's managers should have sufficient information, or at least much more information than third parties. For example, those managers should have much more information than third parties about valuing $X\%$, the chance of the project being successful; $\$Y$, the value to investors from that success; $\$W$, the loss from the project's failure; and $F\%$, the chance of the firm failing as a result of the project's failure (that is, effectively as a result of the $\$W$ loss). The exceptions, however, are the values for $\$Z$, the systemic costs if the firm fails, and the values for N , the value to the public from the project's success.

Government financial regulators are likely to know much more about valuing $\$Z$ than the firm's managers. That valuation should therefore be a public policy choice. Although there are several possible ways of valuing $\$Z$, for illustrative purposes I

198. See *supra* notes 53–54 and accompanying text.

199. $\$Y$, the value to investors from the project's success, could be measured by profit or whatever other metric the firm normally uses.

200. For illustrative purposes, this equation has been simplified in several ways, including that it assumes the only way a risky project could cause systemic costs is if the project's failure causes the firm's failure. That approach may miss other triggers of systemic risk, such as the negative effects of correlated portfolios.

will base its value on the estimated cost of a government bailout to avoid a systemic failure. Such an estimate could be required to be made by the government, for example, as part of the process of designating a firm as a systemically important financial institution²⁰¹ and thereafter periodically updated by the government.

Valuing N should also be a public policy choice. Certainly the success of an individual firm's project has at least indirect value to the public, such as increasing job creation and economic growth. Quantifying that value is difficult, however, because it is so diffuse. For illustrative purposes, I will assume it is relatively de minimis for any given project and thus can be treated as zero.

Subject to the caution that the values chosen below rely on no hard empirical data and are solely illustrative (a quantitative analysis being no better than its assumptions), assume that the government has estimated the firm's bailout cost ($\$Z$) as \$500 million²⁰² and that the firm's managers estimate the other values as follows:

$X\%$ (the chance of the project succeeding) = 80%.

$\$Y$ (the value to investors from that success) = \$50 million.

$\$W$ (the loss from the project's failure) = \$20 million.

$F\%$ (the chance of the firm failing as a result of the project's failure) = 10%.

Applying these values yields the following:

α (expected value of the project to the firm's investors) =
 [(80% chance of project succeeding) \times \$50 million value
 to investors from that success] - [(20% chance of project
 failing) \times \$20 million loss from that failure]
 = \$36 million.

β (expected value of project to public) =
 [(80% chance of project succeeding) \times \$0 value to public
 from that success] - [(20% chance of project failing) \times
 10% chance of firm failing as a result of the project's fail-
 ure \times \$500 million resulting systemic costs]
 = - \$10 million.

201. Such an estimate should, ideally, take into account both domestic and foreign bailout costs. If Country X is designating a global firm as systemically important, the bailout cost would include not only the Country X bailout cost but also the costs of any necessary foreign bailouts.

202. Much will depend on the government's valuation of $\$Z$, the systemic costs if the firm fails. If $\$Z$ were estimated as \$1.5 billion, rather than \$500 million, the expected value of the project's systemically harmful costs would equal \$30 million in the above illustration instead of the \$10 million cost shown in the current example.

This project thus has a positive expected value to the firm's investors but a negative expected value (that is, a cost) to the public.

ANNEX 2

COMMENTS ON THE MINNEAPOLIS PLAN TO END TOO BIG TO FAIL

Set forth below are the author's comments, delivered to the Minneapolis Fed. on December 9, 2016, on its proposed *Plan To End Too Big To Fail*.²⁰³

The Minneapolis Plan's focus on the too-big-to-fail (TBTF) problem appears to conflate, or at least ignore, cause and effect. The TBTF problem is widely viewed as comprising two evils: that systemically important banks might engage in excessive risk-taking because they would profit by a success and expect to be bailed out by the government to avoid a failure; and that government will have little choice but to bail out failing systemically important banks, lest their losses be imposed on other banks. The Minneapolis Plan focuses only on the latter evil—the effect, not the cause.

Indeed, the Plan specifically defines the “TBTF problem” as having that narrow focus: merely being the possibility that “the largest and most systemically important banks fail and impose their losses onto other banks.” Plan p. 2. This ignores how systemically important banks contributed to the 2007–08 financial crisis and could touch off future crises. A comprehensive plan to solve the TBTF problem should also examine the fundamental question of why systemically important banks might fail.

The Financial Crisis Inquiry Commission has begun that examination, identifying excessive risk-taking by systemically important banks as a primary cause of the financial crisis. FIN. CRISIS INQUIRY COMM'N, THE FINANCIAL CRISIS INQUIRY REPORT: FINAL REPORT OF THE NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES xviii–xix (2011). Others concur with that view. *See, e.g.*, Jacob J. Lew, Opinion, *Let's Leave Wall Street's Risky Practices in the Past*, WASH. POST (Jan. 9, 2015), https://www.washingtonpost.com/opinions/bacob-lew-lets-leave-wall-streets-risky-practices-in-the-past/2015/01/09/cf25b5f6-95d8-11e4-aabd-d0b93ff613d5_story.html (repeatedly attributing the financial

203. *See supra* notes 110–11 and accompanying text.

crisis to “excessive risks taken by financial” firms); *The Origins of the Financial Crisis: Crash Course*, *ECONOMIST* (Sept. 7, 2013), <http://www.economist.com/news/schoolsbrief/21584534-effects-financial-crisis-are-still-being-felt-five-years-article> (identifying excessive risk-taking as one of three causes of the financial crisis, the other causes being irresponsible lending and regulators being “asleep at the wheel”).

If excessive risk-taking causes systemically important banks to fail (requiring them to be bailed out before they “impose their losses onto other banks”), any plan to address the TBTF problem should also address that risk-taking. Some have already examined excessive risk-taking and its causes. *See, e.g.*, “Too Big to Fool: Moral Hazard, Bailouts, and Corporate Responsibility,” available at <http://ssrn.com/abstract=2847026> (arguing that excessive risk-taking may result less from moral hazard and more from a legally embedded conflict between corporate governance and the public interest that allows managers of systemically important firms to ignore systemic externalities). The Minneapolis Plan does not, however, take the cause of failure into account.

Ignoring causation can undermine the Plan’s recommendations. Because the Plan implicitly assumes that systemically important banks fail, its recommendations center on requiring high levels of common-equity capital to prevent such failures. Some economists (such as Professors Admati and Hellwig, whom I greatly respect) argue that high capital requirements have little associated public costs, but others argue to the contrary. Without attempting to resolve that debate, I merely observe that if high capital requirements are costly, it would be worth examining whether other more targeted remedies (such as trying to mitigate the corporate governance conflict) could be more efficient.

Here is a simple way to think about this last point. The Dodd-Frank Act’s limiting the Fed’s bailout powers under § 13(3) of the Federal Reserve Act has been analogized to shutting down fire departments in order to make homeowners more careful about starting fires. If requiring high levels of common-equity capital to prevent a bank failure is in fact very costly, then the Plan’s requirement that systemically important banks hold that capital is like making houses completely fireproof instead of improving the effectiveness of fire departments. That may well prevent the houses from burning down, but it is likely to be extremely expensive.

Ignoring causation raises other problems in the Plan, though less serious. For example, the Plan states that as a result

of the TBTF problem—which, as indicated, it defines as the possibility that systemically important banks fail and impose their losses onto other banks—“trillions of dollars in American wealth was destroyed.” Plan p. 2. But that wealth destruction resulted from the financial crisis itself. The net cost of bailing out systemically important banks may actually be relatively minimal because the government has been recouping much of that investment.