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Liability Holding Companies

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ABSTRACT

An international debate continues to unfold in banking, corporate governance, and finance on whether the capital structure of the world's largest financial institutions is too heavily dependent on debt, too little on equity. Two of us, with coauthors, have argued elsewhere that there is no socially beneficial purpose for this overreliance on debt, and that such reliance increases the likelihood of taxpayer bailouts with their associated economic, financial, and social costs. Some academics and bankers continue to insist, however, that increased equity is costly for banks and for society. The arguments proffered in defense of these propositions contradict the most basic insights from corporate finance, and often neglect to distinguish private costs from social costs in explaining this preference for debt-heavy capital structures.

While excessive bank debt can impose overwhelming costs on the broader economy, some contend that there may be some benefits from debt for a firm's corporate governance. In particular, some academics have argued that debt is useful because it disciplines bank management. The idea suggests that creditors with hard claims against the firm will monitor the firm in order to prevent bank management from misusing the free cash flows that the banks' economic activities generate. If these benefits exist and are substantial, we may face a vexing tradeoff: Too much debt creates dramatic social costs, moral hazard, and systemic risk, while too little may have negative consequences for firm governance. The challenge is to find a way to optimize that tradeoff.

This Article engages that challenge and introduces a new kind of financial institution—a liability holding company (LHC)—that appropriately balances the social costs of excessive private leverage with the purported benefits for corporate governance that such leverage might create. Our proposal places an increased-liability version of the bank's equity in a conjoined but separately controlled entity, the LHC, which also owns other assets to which the banks' liabilities have recourse in the event of failure. The equity shares of the LHC—a holding company subject to a unique regulatory regime supervised by the Federal Reserve, similar to bank holding companies—are then traded in public markets. The LHC thus aims to eliminate or, at least, to greatly reduce the role of the government as the effective guarantor of the systemically important financial institutions (SIFIs), thereby reducing the distortions created by current implicit governmental guarantees. It additionally allows banks the benefits of two boards: an advising board that the bank managers may appoint and the monitoring board that is housed at the LHC and appointed by the LHC's own public shareholders. This dual-board structure resolves some important issues raised in the longstanding debate about the role that corporate boards should play. We discuss in detail how this proposal would function within the present

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legal and regulatory environment—particularly within the contexts of bank regulation, corporate governance, and the Dodd-Frank Act—and address counterarguments and alternative proposals.

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INTRODUCTION

Scholars and policymakers are still debating the origins of the 2007–2008 global financial crisis.[1] And if history is a guide,[2] historians, legal scholars, and social scientists will continue to digest the causes and consequences of the crisis for decades to come.

This much, however, is uncontroversial: In the months and years preceding the crisis, banks[3] were so heavily dependent on debt funding, with so little equity, that the substantial depreciation of mortgage-backed securities triggered a chain reaction that meant not only imminent failure for the banks themselves, but also extraordinary deployment of taxpayer funds to prevent the associated disruptions that failure would entail. Whether approved by the U.S. Congress[4] or engineered through the Federal Reserve's expansive emergency powers,[5] the promise of taxpayer guarantees of the banks' private debts—or bailouts, to invoke the familiar if analytically imprecise[6] term—persists, despite Congress's protestations to the contrary, as contained in the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act, or Dodd-Frank).[7]

1. *See generally* FIN. CRISIS INQUIRY COMM'N, THE FINANCIAL CRISIS INQUIRY REPORT, AUTHORIZED EDITION: FINAL REPORT OF THE NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES (2011).
2. The Great Depression, for example, continues to be a source of active scholarship in a variety of fields. See BEN S. BERNANKE, ESSAYS ON THE GREAT DEPRESSION (2000), for indicative scholarship.
3. We use the term "bank" in an admittedly idiosyncratic way to refer to commercial banks, investment banks, and financial institutions writ large. For general euphony, we will use the terms "bank" and "financial institution" interchangeably unless otherwise noted.
4. *See* Emergency Economic Stabilization Act of 2008, 12 U.S.C.A. § 5211 (West 2008 & Supp. 2011).
5. For a thorough review of the Federal Reserve's regulatory actions in 2008–2009, see DAVIS POLK & WARDWELL LLP, FINANCIAL CRISIS MANUAL: A GUIDE TO THE LAWS, REGULATIONS, AND CONTRACTS OF THE FINANCIAL CRISIS (2009), *available at* http://www.davispolk.com/files/Publication/d1ab7627-e45d-4d35-b6f1ef356ba686f2/Presentation/PublicationAttachment/2a31cab4-3682-420e-926f-054c72e3149d/fcm.pdf.
6. *See* Cheryl D. Block, *Overt and Covert Bailouts: Developing a Public Bailout Policy*, 67 IND. L.J. 951 (1992); Cheryl D. Block, *Measuring the True Cost of Government Bailout*, 88 WASH. U. L. REV. 149 (2010).
7. Both President Obama, in signing the law, and the preamble of the Dodd-Frank Act itself promised to end bailouts permanently. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, pmbl., 124 Stat. 1376, 1376 (2010); Press Release, White House Office of the Press Sec'y, Remarks by the President at the Signing of Dodd-Frank Wall Street Reform and Consumer Protection Act (July 21, 2010), http://www.whitehouse.gov/the-press-office/remarks-president-signing-dodd-frank-wall-street-reform-and-consumer-protection-act.

This promise of taxpayer bailouts is extremely dangerous for the functioning of the economy. When private actors can count on keeping the benefits of their risk taking while displacing the costs to the public, the resulting moral hazard wreaks havoc on the most basic incentives required for a capitalist system to function. In the often-quoted words of Lawrence Summers, "it is certain that a healthy financial system cannot be built on the expectation of bailouts."[8]

Two of us have proposed, with coauthors, dramatically increased capital adequacy requirements as the critical means of reducing the costs associated with implicit guarantees and bailouts.[9] That is, banks should be required to fund themselves using far more equity than is presently required either under current law in the United States[10] or under the Bank of International Settlements's newly proposed banking capital requirements (Basel III).[11]

After the 2007–2008 financial crisis, no one disputes that increased equity requirements are necessary; the banks and some in government simply quarrel with the necessary level.[12] Proposals to require that equity represents, for example, somewhere between 15 and 25 percent of banks' total assets (for the average risk level currently undertaken) are denounced as draconian. Opponents

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For an overall analysis of Dodd-Frank for lay readers, see DAVID SKEEL, THE NEW FINANCIAL DEAL: UNDERSTANDING THE DODD-FRANK ACT AND ITS (UNINTENDED) CONSEQUENCES 8–13 (2010). For a more technical legal analysis, see 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, 986–1057 (2011).

8. Lawrence H. Summers, *International Financial Crises: Causes, Prevention, and Cures*, 90 AM. ECON. REV. 1, 13 (2000).

9. Anat R. Admati, Peter M. DeMarzo, Martin F. Hellwig & Paul Pfleiderer, *Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity Is* Not *Expensive* 10–11 (Rock Ctr. for Corporate Governance at Stanford Univ., Working Paper No. 86, 2010), *available at* https://gsbapps.stanford.edu/researchpapers/library/BankEquityNotExpensive.pdf.

10. *See* Risk-Based Capital Standards: Advanced Capital Adequacy Framework—Basel II, 72 Fed. Reg. 69,288 (Dec. 7, 2007) (to be codified at 12 C.F.R. pts. 3, 208, 225, 325, 559–60, 563, 567) (implementing Basel II).

11. Press Release, Basel Comm. on Banking Supervision, Group of Governors and Heads of Supervision Announces Higher Global Minimum Capital Standards (Sept. 12, 2010), http://bis.org/press/p100912.pdf?noframes=1.

12. This is not to say that increased capital requirements are without complications. The current system of capital regulation is based on a system of risk weights, which introduces its own set of potential problems addressed elsewhere. As Hellwig argues, risk weights are easily manipulated and can distort banks' decisions away from traditional lending, instead preferring assets with low risk weights such as sovereign debt or synthetic AAA-rated securities. This allows banks to increase leverage under requirements specified in terms of equity relative to risk-weighted assets. *See* Martin Hellwig, *Capital Regulation After the Crisis: Business as Usual?* (Preprints of the Max Planck Inst. for Research on Collective Goods, 2010), *available at* http://www.ucl.ac.uk/economics/seminarpapers/november10/dept03nov10.pdf.

to this proposal—primarily the bankers themselves[13]—argue among other things that high capital[14] requirements will impose economic costs in the form of choked growth and restricted credit.[15] We argue that such claims are based on flawed or weak arguments, some of which violate the most foundational principles of elementary finance.[16]

There is, however, a line of argument in favor of the use of debt that is not in direct conflict with foundational principles. Some have argued that debt imposes discipline on the managers of corporations who would otherwise have free access to the cash their corporations' economic activity generates. Without some external check, such managers' incentives will be to make liberal use of such free cash in building empires,[17] overpaying themselves,[18] showering themselves with unnecessary perquisites,[19] or otherwise destroying shareholder value. These are classic agency costs, and, according to some theories, debt funding helps to reduce them. And although this argument has long been articulated in the corporate governance literature,[20] others have more recently invoked it in the context of bank capital structure.[21] Jamie Dimon, CEO of megabank JP Morgan Chase, has said that if banks have "excess capital," this would lead some bankers

13. *See* Vikram Pandit, *We Must Rethink Basel, or Growth Will Suffer*, FIN. TIMES, Nov. 10, 2010, at 11; Letter From the Clearing House to Fin. Regulators, Application of Surcharges to Systemically Important Financial Institutions in the United States (June 15, 2011), *available at* http://www.theclearinghouse.org/index.html?f=072373.

14. Among the confusion that we address in previous work is the unfortunate vocabulary of banking regulation. Capital requirements do not mandate banks to hold or set aside anything, but rather only to fund the loans with equity rather than with legal obligations to pay (that is, various debt securities that increase leverage). Admati et al., *supra* note 9, at 10.

15. See Admati et al., *supra* note 9, for counterarguments.

16. *Id.*

17. *See, e.g.*, John C. Coffee, Jr., *Regulating the Market for Corporate Control: A Critical Assessment of the Tender Offer's Role in Corporate Governance*, 84 COLUM. L. REV. 1145, 1156–57 & n.24, 1167–69, 1224–34 (1984); Michael C. Jensen, *Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers*, 76 AM. ECON. REV. 323, 323 (1986).

18. *See* LUCIAN BEBCHUK & JESSE FRIED, PAY WITHOUT PERFORMANCE: THE UNFULFILLED PROMISE OF EXECUTIVE COMPENSATION 121–74 (2004).

19. *See* Raghuram G. Rajan & Julie Wulf, *Are Perks Purely Managerial Excess?*, 79 J. FIN. ECON. 1 (2006).

20. *See* Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305 (1976).

21. *See, e.g.*, KENNETH R. FRENCH ET AL., THE SQUAM LAKE REPORT: FIXING THE FINANCIAL SYSTEM 44–53 (2010); Douglas W. Diamond & Raghuram G. Rajan, *A Theory of Bank Capital*, 55 J. FIN. 2431 (2000); Anil K. Kashyap, Raghuram G. Rajan & Jeremy C. Stein, *Rethinking Capital Regulation*, *in* FED. RESERVE BANK OF KANSAS CITY, MAINTAINING STABILITY IN A CHANGING FINANCIAL SYSTEM 431 (2009).

to do "stupid things."[22] Dimon did not clarify what he meant by "stupid," but we take his meaning to be the 2011 incarnation of Michael Jensen and William Meckling's original argument.

We find the disciplining theory of debt to be, at best, problematic in its application to banks, in part because we question whether creditors will truly monitor firm management in light of implicit governmental guarantees.[23] But this is perhaps the least implausible of the arguments against dramatically increased capital requirements offered thus far, and it provides the motivation for this Article, in which we take up the task of resolving the tradeoff between debt's purported governance benefits and the social costs associated with the problem of moral hazard. The central problem, then, is this: What is a mechanism by which the potential benefits of debt can be realized without imposing its costs onto the rest of society?

One of us has proposed a method for resolving this dilemma—called elective shareholder liability[24]—whereby banks that elect not to increase their capital adequacy to 15–25 percent would provide an exception to their limited shareholder liability in the case of taxpayer bailouts. This proposal explicitly introduces nonlimited liability securities into public financial markets, with associated problems of liability enforcement.[25] While solutions to these enforcement problems are a part of that proposal, the consequences of introducing nonlimited liability securities in public markets remain contested.

This Article takes a different approach and seeks to resolve the dilemma of free cash flows and taxpayer bailouts by using another variation on modifying the limited liability of large banks. Under our proposal, banks would, as under the elective shareholder liability model, choose to either meet higher capital adequacy requirements directly or to fund themselves through a new structure called a liability holding company (LHC). If it opts for the LHC, the bank withdraws its publicly traded, limited-liability equity from the public markets, and deposits that equity into a newly created, federally regulated financial institution—the LHC.

The liability of the LHC-owned bank equity, unlike the liability of the bank's common equity previously traded in public markets, will not be limited: In the event that the bank defaults on its debt, the LHC that holds the bank's

22. ALISTAIR BARR, *J.P. Morgan's Dimon Concerned About Too Much Capital*, MARKETWATCH (Feb 15, 2011, 5:26 PM), http://www.marketwatch.com/story/jp-morgans-dimon-worried-about-too-much-capital-2011-02-15.
23. *See* Admati et al., *supra* note 9, at 24–39.
24. Peter Conti-Brown, *Elective Shareholder Liability*, 64 STAN. L. REV. (forthcoming 2012).
25. *Id.* at 151–54.

increased-liability equity will be liable up to the total value of the LHC's assets. Unlike shareholders in the elective shareholder liability model, the public shareholders of the LHC will not be personally liable for the bank's failure beyond the value of their equity investment: The assets backing the increased liability equity are held by the LHC, not by the public. The LHC, in turn, issues its own limited-liability equity to be traded in the public markets.

This proposal has three principal virtues. First, it allows large banks to develop a capital adequacy cushion that will diminish the risk of triggering a taxpayer bailout and to reduce the incentives for excessive risk taking without sacrificing the discipline that market-determined debt levels might provide. Second, the LHC structure will provide more effective governance and oversight than exists under the current system. In the ongoing debates in corporate governance, the board is generally viewed as either a monitor of management or an advisor to management. The LHC system allows both roles to be served by establishing two boards: the advising board appointed by bank management, and the monitoring board appointed by LHC shareholders. And third, as an election, LHC will allow banks to determine how best to provide the additional equity cushion needed to significantly reduce the role the government now plays as the public guarantor of private debt.

To make these arguments, this Article proceeds as follows. In Part I, we explain in more detail issues arising in the capital adequacy debate, including the ways in which capital adequacy is not achieved by Dodd-Frank or by international banking standards.[26] In Part II, we present the basic features of the LHC structure and its benefits, and an explanation of how it compares to and contrasts with other institutions, such as bank holding companies (BHCs) and university endowments. Part II also includes explanations of how banking, corporate, and securities laws would be implicated—and in some cases, would need to be amended—to make LHCs possible.

Three features discussed more fully in Part II are worth highlighting here. First, like a BHC, the LHC would be a separate banking entity regulated by the Federal Reserve, subject to a unique statutory and regulatory framework. Second,

26. As our first two articles in this series cover this terrain in some detail, Part I is mostly a brief summary. The three Articles are thus best read together. The Admati, DeMarzo, Hellwig, and Pfleiderer piece, *see supra* note 9, covers in extensive detail the capital requirements debate. The Conti-Brown piece, *see supra* note 24 covers in more detail the legal architecture of Dodd-Frank, the absence of shareholders/equity in the current Dodd-Frank structure, and why bailouts are a persistent feature of the present regulatory regime. While all arguments relevant to the structure of the LHC are presented below, readers interested in aspects not covered should refer to the appropriate article.

the LHC board of directors and management would actively manage its funds for the benefit of its shareholders, even while simultaneously guaranteeing the liabilities of the bank through its beneficial ownership of the bank's increased-liability equity. And third, features inherent to the LHC model provide a far more persuasive example of the source of strength doctrine originally used to justify the existence of BHCs. While the source of strength doctrine has been reassessed as part of the Dodd-Frank overhaul, its promises remain somewhat illusory. The LHC would change that, providing systemically important financial institutions (SIFIs)[27] with genuine buffers on which they could rely in the midst of crisis.

Part III addresses counterarguments and alternatives, with a particular focus on contingent capital, Dodd-Frank and its resolution-based variants, an industry-funded insurance scheme, and hard caps on asset sizes. We conclude by arguing that the LHC structure is an effort to put shareholders of SIFIs back into the business of cost internalization, and does so in a way not accomplished by other proposed alternatives. A successful argument against our LHC proposal must put forth superior alternatives.

I. BACKGROUND: BANK EQUITY, BANK LEVERAGE, AND TOO BIG TO FAIL

By its own account,[28] and according to President Obama,[29] Dodd-Frank would end the age of bailouts, "too big to fail" (TBTF), and thus the moral hazard that large banks faced—even enjoyed—in the period preceding the bailouts of 2008–2009. There is, however, wide consensus across ideological lines that Dodd-Frank fails to accomplish this goal, that the statements in the law that bailouts will not occur are not credible, and that, in fact, bailouts are more likely to occur in the future than they were prior to the Lehman Brothers bankruptcy.[30]

The resulting problem of implicit guarantees and their toxic effect on banks' incentives is the quintessential problem in banking and finance today.

27. See *infra* text accompanying notes 92–95, for more on the definition of systemically important financial institutions (SIFIs).

28. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, pmbl., 124 Stat. 1376, 1376 (2010); *id.* § 214(c).

29. *See* Press Release, White House Office of the Press Sec'y, *supra* note 7.

30. See SKEEL, *supra* note 7, and Wilmarth, *supra* note 7, for more detailed analyses to the same end. Standard & Poor's, in evaluating the debt of the largest banks, reached the same conclusion. *See* STANDARD & POOR'S, REQUEST FOR COMMENT: BANKS: RATING METHODOLOGY (2011), *available at* http://www2.standardandpoors.com/spf/pdf/media/CriteriaFinancialInstitutionsRequestforCommentBanksRatingMethodology.pdf.

Appropriate to a problem of this scope, there have been scores of proposals to resolve it. In this section, we briefly describe the virtues of high equity requirements, why requirements for prudent levels of equity capital have so far failed to win support in individual countries and within the Bank of International Settlements's Basel III proposal, and whether the arguments against capital adequacy requirements are consistent with the basic tenets of modern finance.

A. The Problem of the Implicit Government Guarantee

The problem of private finance in a world of taxpayer bailouts is a problem of negative externalities. Private parties enjoy the benefits of inefficient activity because they do not have to bear the full cost of these activities. Introductory economics texts that describe externalities use pollution as the canonical example.[31] Excessive use of debt (over equity) to finance the activities of the largest financial institutions is often described as similar to pollution. High leverage and excessive individual risk taking lead to distress and, potentially, failure. When that failure occurs, the consequences are not felt only by the firm's creditors, but also by the broader financial system in general and ultimately the rest of the economy. This occurs because the distress of one interconnected institution can spill over to other institutions, which can lead to runs, panic, and market freezes, thereby affecting the rest of the economy. Thus, like pollution, high leverage can force some of the costs of a private activity onto those who did not experience its benefits.

Generally the best regulatory response to externalities is to develop mechanisms that cause private actors to internalize these costs, which results in the private actors pursuing only those activities whose benefits exceed these fully internalized costs. Although the analogy between factories that pollute excessively and publicly guaranteed corporations that take excessive risks is frequently invoked, it is not altogether apt. Polluting companies impose the costs of their activities on a usually unwitting public. Once the public becomes aware of the externalized costs it is being forced to bear, regulations are usually invoked to force cost internalization. In the case of financial institutions and the costs that their risk-taking activities impose on the public, there has not been the same reaction. Instead, the legislative response to bailouts—the Dodd-Frank Act—attempts to prevent or, at the very least, mitigate the severity of future crises through means

31. *See* PAUL KRUGMAN, ROBIN WELLS & KATHRYN GRADDY, ESSENTIALS OF ECONOMICS (2010).

such as living wills[32] and, more fundamentally, the new resolution mechanism.[33] But because these requirements, however well intended, are unlikely to be effective enough in a systemic crisis, the fact that SIFIs remain too big to fail is widely acknowledged.[34] Thus, the problem of cost externalization remains.

B. Increased Capital Adequacy Requirements

The most effective method of imposing cost internalization of SIFI risk taking involves significantly increasing the use of equity in the funding of SIFIs' activities. A larger equity cushion means most losses will be borne by shareholders, not taxpayers. This clearly reduces the burden placed on taxpayers and changes shareholder incentives for risk taking, since shareholders will now internalize more of the downside associated with risky bank activities. The Admati et al. article argues that capital requirements are the most effective way to reduce the need for bailouts and reduce the incentives for excessive risk taking.[35] These reductions will improve the lending decisions made by banks. It also shows that most of the counterarguments against higher equity requirements reflect basic misunderstandings of corporate finance, or confusions between social and private costs.[36] Proposals to significantly raise capital adequacy requirements, even to a range of 15–25 percent of the total assets or beyond, have garnered a great deal of attention,[37] but have not led to much policy action.[38]

32. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act § 165. The living wills—blueprints prepared by the SIFIs themselves—are intended to guide SIFIs' potential resolution in the event of failure.
33. For more on the structure of Dodd-Frank's resolution authority, see Conti-Brown, *supra* note 24, at 111–15.
34. *Id.*
35. *See* Admati et al., *supra* note 9.
36. *Id.*
37. *See, e.g.*, Jesse Eisinger, *In Debate Over Bank Capital Regulation, a Trans-Atlantic Gulf*, N.Y. TIMES DEALBOOK (Mar. 30, 2011, 4:24 PM), http://dealbook.nytimes.com/2011/03/30/in-debate-over-bank-capital-regulation-a-trans-atlantic-gulf; Mark Whitehouse, *More Bank Reforms Needed, Economists Say*, WALL ST. J. ONLINE (Jan. 9, 2011), http://online.wsj.com/article/SB10001424052748704482704576071890928787936.html. Much additional related commentary on the subject is available at *Research News*, STANFORD GRADUATE SCH. BUS., http://www.gsb.stanford.edu/news/research/Admati.etal.html (last visited Feb. 22, 2012).
38. The exact range of actual capital ratio must be calibrated depending on the riskiness of the assets; however, the use of risk weights for this purpose is problematic and we advocate the development of other methods to measure the risk for the purpose of monitoring capital regulation. A rough ratio of equity to total assets is still useful as long as it is in a range that is large enough. Basel III allows this ratio to be as low as 3 percent, and a recent Capital Regulation Directive issued by the European Commission even puts this part of the regulation on hold. For a discussion of risk weights, see Hellwig, *supra* note 12, at 2–3.

While some jurisdictions in Europe have raised equity capital requirements,[39] they, like Basel III, do not go far enough. Basel III sets requirements at 4.5–7 percent of so-called "risk weighted assets," where a complex and easily manipulated system of weights is applied to the assets, making it possible for banks to use leverage at effectively the same levels as before.[40] The United States largely punts the question of capital requirements to the Basel process,[41] although the Dodd-Frank Act allows the newly established Financial Stability Oversight Council (FSOC) to examine the requirements at least for the set of financial institutions deemed to be systemically important. But even in that limited context, bankers have mounted an intensive lobbying effort against any increase in capital requirements,[42] an effort that seems to be succeeding.[43] Many of the arguments made in this debate are based on flawed claims that such requirements will freeze lending[44]

39. *See* J.R., *Bigger Buffers, Smaller Banks*, ECONOMIST NEWSBOOK BLOG (Apr. 11, 2011, 2:26 PM), http://www.economist.com/blogs/newsbook/2011/04/interim_report_vickers_commission; Elena Logutenkova, *UBS Says Swiss Capital Rules Should Be Aligned Globally*, BLOOMBERG (Mar. 23, 2011, 11:05 AM), http://www.bloomberg.com/news/2011-03-23/ubs-says-swiss-capital-rules-should-be-aligned-internationally.html.

40. *See* Press Release, Basel Comm. on Banking Supervision, *supra* note 11. The reason why a range, rather than a number, is given for the ratio is that equity should be allowed to serve as a buffer and thus drawn down. Charles Goodhart, a banking expert from London School of Economics, illustrates the point by analogy. If there were a regulation that there must be a taxi at the train station at all times, and if you arrived at the station at 3:00 AM, the taxi could not take you because if it did, there would not be a taxi at the train station. The idea of the conservation buffer between 4.5 percent and 7 percent is that in this range, equity payouts such as dividends are restricted and the bank is subject to increased supervision so as to preserve and build capital. *See* Charles Goodhart, *La Gestion du Risque de Liquidité [Liquidity Risk Management]*, REVUE DE LA STABILITÉ FINANCIÈRE, Feb. 2008, at 39, 41, *available at* http://www.banque-france.fr/fileadmin/user_upload/banque_de_france/publications/Revue_de_la_stabilite_financiere/2008/fevrier-2008/revue-stabilite-financiere-de-fevrier-2008-etude-6-la-gestion-du-risque-de-liquidite.pdf.

41. Dodd-Frank largely defers the question of capital adequacy to future regulation. In the relevant provision for SIFIs, the Act gives the Federal Reserve authority to set "risk-based capital requirements and leverage limits, *unless the Board of Governors . . . determines that such requirements are not appropriate for a company subject to more stringent prudential standards*" because of the nature of its activities. Dodd-Frank Wall Street Reform and Consumer Act, Pub L. 111-203, § 165(b)(1)(A)(i), 124 Stat. 1376, 1424 (2010) (to be codified at 12 U.S.C. § 5301) (emphasis added); *see* Felix Salmon, *Dodd-Frank v. Basel III*, REUTERS (Jan. 20, 2011, 11:38 AM), http://blogs.reuters.com/felix-salmon/2011/01/20/dodd-frank-vs-basel-iii ("When the big financial-overhaul bill was working its way through Congress, Treasury persuaded legislators to avoid passing rules on bank capital or liquidity. Leave all that to Basel, they said, so that there could be a global, unified system.").

42. *See* Tom Braithwaite, *Fed Signals Big Banks Face Significant Surcharge*, FIN. TIMES, June 4, 2011, http://www.ft.com/intl/cms/s/0/2556b342-8e32-11e0-bee5-00144feab49a.html#axzz1jCfZokaf. The actual "surcharge" this article warned of turned out to be a capital requirement between 1 percent and 2.5 percent of risk-weighted assets.

43. For example, many banks were allowed to increase their dividends in the spring of 2011 following stress tests that proved inadequate by the summer.

44. *See* Pandit, *supra* note 13.

and stunt economic growth.[45] In earlier work, we debunk these and other dubious arguments.[46] The real impact of additional equity requirements is mainly in the transition, which must be managed carefully, but such would be the case in the introduction of any transformative regulatory paradigm. In the case of the banks, the transition costs exist only because banks at present are both highly leveraged and in distress. This situation creates difficulties in raising equity and creates instead preferences for high-risk investments in the spirit of gambling for resurrection.

The historical account of capital regulation in the United States puts the present debate—including banks' threats that economic growth will suffer if capital requirements are increased—into perspective. In the years around 1840, for example, equity capital was more than 50 percent of bank assets.[47] This ratio declined fairly consistently over the subsequent 150 years, until it reached the single digit level,[48] but there is no strong theoretical reason why this increasing dependence on leverage was necessary to the development of the banking system. Indeed, much of the declining use of equity can be attributed to innovations that were designed to increase the stability of the banking system through more elaborate safety net provisions intended to prevent bank runs. To that end, the National Bank Acts of 1863 and 1864,[49] the creation of the Federal Reserve System in 1913,[50] and the establishment of the Federal Deposit Insurance Corporation (FDIC) in 1933 work together as a sort of buffer against failure—a function that capital regulation is also designed to serve.[51]

The historical safety net innovations created incentives to increase leverage. For example, if deposit insurance is underpriced or its pricing does not fully adjust for risk, bank shareholders potentially benefit from a subsidy at the expense of the taxpayer, and the size of this subsidy increases with leverage, which clearly creates incentives for economizing on equity funding.[52]

In tandem with declining equity levels over this historical period, the presence of shareholder liability decreased for both commercial and investment

45. *Id.*
46. Admati et al., *supra* note 9.
47. *See* Allen N. Berger, Richard J. Herring & Giorgio P. Szego, *The Role of Capital in Financial Institutions*, 19 J. BANKING & FIN. 393, 401 (1995).
48. *Id.*
49. National Banking Act of 1863, ch. 58, 12 Stat. 665; National Bank Act of 1864, ch. 106, 13 Stat. 99.
50. Federal Reserve Act, ch. 6, 38 Stat. 251 (1913) (codified as amended at 12 U.S.C. §§ 221–522 (2006)).
51. Banking Act of 1933, Pub. L. No. 73-66, 48 Stat. 162.
52. *See* Jonathan R. Macey & Geoffrey P. Miller, *Double Liability of Bank Shareholders: History and Implications*, 27 WAKE FOREST L. REV. 31, 39–40 (1992).

banks.[53] Unlimited shareholder liability was the rule in Britain until the middle of the nineteenth century,[54] and prior to the establishment of the FDIC, the shareholders of many U.S. commercial banks had double, triple, and unlimited liability, varying by state jurisdiction.[55] Investment banks were unlimited liability partnerships until 1970, when the New York Stock Exchange rule requiring they be organized this way was repealed.[56]

This is not to say that these changes—whether from nonlimited liability to limited liability, or from the introduction of the banking regulatory structures established by the National Bank Act, the Federal Reserve Act, and the FDIC—were harmful. Some of them allowed for improved financial stability. However, they seem to be associated with declining use of equity and shareholder liability, which increased the financial system's exposure to the very risks that such innovations were designed to mitigate, and which increased the distortions inherent to governmental safety nets. Banks did not need to fund themselves with equity to the same extent as before because, it was supposed, they were less subject to the runs and panics that occurred prior to the establishment of the FDIC and the development of various liquidity backstops and other safety net provisions.

This line of argument, though, is something of a nonsequitur. While the regulatory structure that has been put in place over the last 150 years arguably diminishes the likelihood of individual bank failure, and certainly prevents the losses from such failures from being borne by depositors, it is not at all clear that given the dramatic decline in capital ratios, incentives are appropriately aligned

53. For empirical examinations of the impact of double liability on risk taking and on ownership structure, particularly in the banking context, see Benjamin C. Esty, *The Impact of Contingent Liability on Commercial Bank Risk Taking*, 47 J. FIN. ECON. 189 (1998), Richard S. Grossman, *Double Liability and Bank Risk Taking*, 33 J. MONEY, CREDIT & BANKING 143 (2001), Jonathan R. Macey & Geoffrey P. Miller, *Double Liability of Bank Shareholders: A Look at New Data*, 28 WAKE FOREST L. REV. 933 (1993), and Macey & Miller, *supra* note 52. Winton offers a model in which shareholder liability is endogenous. *See* Andrew Winton, *Limitation of Liability and the Ownership Structure of the Firm*, 48 J. FIN. 487 (1993). For discussions of the costs, benefits, and practical issues associated with increasing the liability of equity in public markets, see Conti-Brown, *supra* note 24; Frank H. Easterbrook & Daniel R. Fischel, *Limited Liability and the Corporation*, 52 U. CHI. L. REV. 89 (1985), Joseph A. Grundfest, *The Limited Future of Unlimited Liability: A Capital Markets Perspective*, 102 YALE L.J. 387 (1992), Henry Hansmann & Reinier Kraakman, *Toward Unlimited Shareholder Liability for Corporate Torts*, 100 YALE L.J. 1879 (1991). Much of the discussion in the law literature was focused on tort liabilities and not on the liabilities associated with leverage, although Conti-Brown, *supra*, is the exception.

54. *See* Graeme G. Acheson, Charles R. Hickson & John D. Turner, *Does Limited Liability Matter?: Evidence From Nineteenth-Century British Banking*, 6 REV. L. & ECON. 1 (2010).

55. *See* Macey & Miller, *supra* note 52, at 35–37.

56. *See* Aland D. Morrison & William J. Wilhelm, Jr., *The Demise of Investment-Banking Partnerships: Theory and Evidence*, 63 J. FIN. 311 (2008).

and costs are fully internalized by banks. The recent financial crisis illustrated that, while severe banking crises are certainly less frequent than before, say, the Federal Reserve Act or FDIC, the economic and social costs can be devastating when they do occur. This, yet again, is why the unfulfilled promises of Dodd-Frank to eliminate the presence of implicit guarantees are so critical. The cost shifting between shareholders and taxpayers continues without a socially useful justification.

The kind of capital adequacy reform we have recommended is an obvious solution.[57] However, the entrenched view in banking is that equity is expensive.[58] That is, a substantive tradeoff exists between the benefits of increased safety and reduced systemic risk that would come about with more equity funding and the purported increased costs of funding this equity (which would lead to reduced or costly credit for the economy). As the Admati et al. article shows, this view is based on a combination of logically fallacious claims that are inconsistent with economic principles,[59] that depend on a failure to distinguish between what is costly to a bank and what is costly to society and the broader economy,[60] and that rely on a set of theoretical models that are themselves flawed or inadequate.[61]

57. *See* Admati et al., *supra* note 9.

58. *See id.*

59. For example, Mishkin and Eakins state: "Banks manage the amount of capital they hold to prevent bank failure and to meet bank capital requirements set by the regulatory authorities. However, they do not want to hold too much capital because by so doing they will lower the returns to equity holders." *See* FREDERIC S. MISHKIN & STANLEY G. EAKINS, FINANCIAL MARKETS AND INSTITUTIONS 444 (6th ed. 2009). Elliott makes the argument more explicitly: "The problem with capital is that it is expensive. If capital were cheap, banks would be extremely safe because they would hold high levels of capital, providing full protection against even extreme events. Unfortunately, the suppliers of capital ask for high returns because their role, by definition, is to bear the bulk of the risk from a bank's loan book, investments and operations." DOUGLAS J. ELLIOTT, BANK CAPITAL AND THE STRESS TESTS 12 (2009). Many papers correctly emphasize that the results from the study in Franco Modigliani & Merton H. Miller, *The Cost of Capital, Corporation Finance, and the Theory of Investment*, 48 AM. ECON. REV. 261 (1958), must be the starting point of any discussion of capital regulation. *See* Berger, Herring & Szego, *supra* note 47; Martin F. Hellwig, *Systemic Risk in the Financial Sector: An Analysis of the Subprime-Mortgage Financial Crisis*, 157 DE ECONOMIST 129 (2009); Mervyn King, *International Harmonisation of the Regulation of Capital Markets: An Introduction*, 34 EUR. ECON. REV. 569 (1990); Stephen M. Schaefer, *The Regulation of Bank and Securities Firms*, 34 EUR. ECON. REV. 587 (1990); *infra* Part I.C.

60. Specifically, these arguments ignore the fact that a change in policy affecting taxes or public subsidies may indeed represent costs to private actors that correspond to social benefits.

61. In the year since Admati et al., *supra* note 9, has been in circulation, there has been little substantive argument from any scholar to counter the analysis. A letter to *Financial Times* signed by twenty leading financial economists from diverse methodological and ideological backgrounds fully supports the paper's conclusions. *See* Anat R. Admati et al., Letter to the Editor, *Healthy Banking System Is the Goal, Not Profitable Banks*, FIN. TIMES, Nov. 9, 2010, *available at* http://www.gsb.stanford.edu/news/research/admatiopen.html. Despite support from policymakers, especially in the UK, Switzerland,

However argued, banks' lobbying against capital requirements seems to represent an expected, wholly rational, self-interested effort to maintain the public subsidies that they have come to enjoy.

C. Inherent and Policy Frictions in the Modigliani-Miller Model

The starting point of any discussion of the underlying economic issues associated with funding is the fundamental insight that Franco Modigliani and Merton Miller put forward in a seminal article in 1958.[62] A firm's cost of funding will depend on the risk of the firm's assets. The risk of those assets should be borne by those who own claims to these assets, namely the shareholders and creditors of the firm. Changing the way the firm is funded, that is, changing its leverage, changes how this risk is allocated among claimholders, but as long as the same set of investors is collectively bearing these risks, it does not change the *total* amount of risk that investors must bear. This means that a firm's overall cost of funding is not affected by changes in the firm's funding structure that only rearrange how risk is allocated. However, this does not mean that the way a firm funds itself is completely irrelevant.[63] Various frictions such as taxes, bankruptcy costs, and various agency problems have the potential to affect funding costs and depend on the firm's funding or capital structure.[64]

In discussing the ways in which the funding mix affects banks' overall funding costs, and the potential impact of bank capital regulation, it is useful to distinguish between frictions that can be considered inherent (arising from differences in information or from conflicts of interests between different participants), and those that are a result of public policy (in a sense being policy-made frictions). For example, agency problems—the governance problem of free cash, or the fact that equity holders may choose excessively risky projects when they stand to gain from the upside but inflict the downside risk on others—are inherent, while the tax code's subsidization of debt relative to equity, through the tax deductibility of interest expenses, is a result of public policy. Since our interest

and Sweden, political forces in the Basel Committee have produced only moderate increases in capital requirements.

62. Modigliani & Miller, *supra* note 59.

63. *Id.* at 288–93.

64. Many claim that the Modigliani and Miller result does not apply to banks. On this topic, see the whimsical but instructive article of Merton H. Miller, *Do the M&M Propositions Apply to Banks?*, 19 J. BANKING & FIN. 483 (1995). *See also* Paul Pfleiderer, *On the Relevance of Modigliani and Miller to Banking: A Parable and Some Observations* (Rock Ctr. for Corporate Governance at Stanford Univ., Working Paper No. 93, 2010), *available at* http://www.gsb.stanford.edu/news/packages/pdf/Relevancy.pdf.

is in the socially optimal capital structure of financial institutions, we view inherent frictions as those that must be taken as given and considered a constraint, and frictions due to public policy as, at least in principle, subject to change.

1. Inherent Frictions: How Debt Funding Detracts From the Value of the Firm

Two kinds of inherent frictions give rise to some costs that increase with leverage.[65] First, high levels of debt create incentives for what economists have called risk shifting.[66] Since equity holders in a leveraged firm have limited liability, they have the option to default, which means they lose at most the value of their equity investment. All else equal, an increase in the riskiness of the firm's assets increases the value of this option to default. Intuitively, equity holders will have a higher appetite for risk, as they realize benefits on the upside, while debt holders bear the costs on the downside.[67] The problem can be particularly severe if the debt is insured through either deposit insurance or implicit government guarantees. This is because the government, rather than private investors, becomes the vulnerable party, and the government may be less efficient than private creditors at monitoring and controlling firm risk.

Another distortion associated with high leverage is the so-called debt overhang problem. This occurs when equity holders of a distressed firm do not choose to raise equity to undertake worthwhile projects because the payoffs from these projects mainly benefit existing debt holders.[68] It is widely believed that debt overhang significantly contributed to the credit freeze experienced in the recent financial crisis.[69]

From a public policy perspective, one of the most significant costs of high leverage of financial institutions is associated with systemic risk and the TBTF

65. In the appendix to this Article, we present some numerical examples that illustrate these frictions and show how our proposal mitigates these.

66. For a thorough summary of the economic literature of risk shifting in the banking context, see Armen Hovakimian, Edward J. Kane & Luc Laeven, *How Country and Safety-Net Characteristics Affect Bank Risk-Shifting* (NBER Working Paper No. 9322, 2002), *available at* http://www.nber.org/papers/w9322.pdf.

67. There is empirical evidence that documents this phenomenon. *See, e.g.*, Assaf Eisdorfer, *Empirical Evidence of Risk-Shifting in Financially Distressed Firms*, 63 J. FIN. 609 (2008).

68. *See* Stewart C. Myers, *Determinants of Corporate Borrowing*, 5 J. FIN. ECON. 147 (1977).

69. For evidence that is consistent with debt overhang potentially being a problem during the crisis, see Victoria Ivashina & David Scharfstein, *Bank Lending During the Financial Crisis of 2008*, 97 J. FIN. ECON. 319 (2010).

subsidy that the government extends to large financial institutions.[70] Systemic risk can be difficult to identify and measure before the fact, but is easy to see once it precipitates a crisis.[71] In general, it is the result of the interconnectedness of financial institutions and the high societal and economic costs associated with the failure of a large financial institution. When the cost of avoiding such failure is deemed less than the cost of the failure itself, governments step in to prevent the failure. Whatever one's view may be on the necessity of the unprecedented governmental market interventions in the fall of 2008 and beyond, it is unquestionably true that such interventions are costly, distort market participants' incentives, and create expectations of future governmental support that only increase the risks that such firms are willing to take.

2. How Debt Might Increase the Value of the Firm

a. Subsidization of Debt Funding in Public Policy

Despite the costs and negative externalities associated with the high leverage of financial institutions, public policy actually *subsidizes* leverage and thus makes equity financing relatively more expensive when viewed from the perspective of the banks themselves. First, the standard tax shield associated with the deductibility of interest payments means that, all else being equal, debt financing is favored, because it reduces the firm's tax bill.[72] Second, a substantial portion of the

70. Adam Levitin discusses the political, rather than purely economic, considerations that underpin the too-big-to-fail (TBTF) problem. Adam J. Levitin, *In Defense of Bailouts*, 99 GEO. L.J. 435, 439 (2011).

71. For a more precise structural analysis of systemic risk, see Steven L. Schwarcz, *Systemic Risk*, 97 GEO. L.J. 193 (2008). *See also* Levitin, *supra* note 70 (discussing systemic risk generally).

72. *See* 26 U.S.C. § 163(a) (2006) ("General Rule—There shall be allowed as a deduction all interest paid or accrued within the taxable year on indebtedness."). While bringing about a major change in the tax code may be politically difficult, it seems important to at least consider ways to reduce the extent to which the tax code encourages the leverage of financial institutions beyond a socially desirable level. This point was recently made by Poole, who estimates that reducing the corporate tax rate to 15 percent and not allowing financial institutions to deduct interest would result in the same total corporate tax expense as was actually incurred by these institutions. *See* William Poole, *Moral Hazard: The Long-Lasting Legacy of Bailouts*, 65 FIN. ANALYSTS J., Nov. /Dec. 2009, at 17. Another possibility is to limit the deductibility of interest beyond a certain level of debt. *See* Kimberly A. Clausing & Reuven S. Avi-Yonah, *Reforming Corporate Taxation in a Global Economy: A Proposal to Adopt Formulary Apportionment* (Brookings Inst., Hamilton Project Discussion Paper, 2007), *available at* http://www.brookings.edu/papers/2007/06corporatetaxes_clausing.aspx. For more recent contributions, see Ruud A. de Mooij, *Tax Biases to Debt Finance: Assessing the Problem, Finding Solutions* (Int'l Monetary Fund, Staff Discussion Note, 2011), *available at* http://www.imf.org/external/pubs/ft/sdn/2011/sdn1111.pdf; Narayana Kocherlakota, President,

liabilities of financial institutions fall under the so-called safety net, which includes explicit deposit insurance, which may not be fully priced, and various provisions such as the availability of the discount window for borrowing. And, as made clear by the most recent crisis, financial institutions deemed too big or too interconnected to fail receive debt-funding subsidies through the implicit guarantees associated with government bailouts. To the extent that the implicit guarantees are not properly priced (for example, if the FDIC insurance premium is too low relative to the value of the insurance provided) and because the implicit guarantees are effectively free, these guarantees subsidize funding with debt by effectively lowering the payments that must be made to creditors to amounts below what would have to be paid in the absence of the guarantees. This is not merely theoretical. There is significant empirical evidence that, prior to the bailouts of 2008, large banks did enjoy such subsidies;[73] and evidence that these firms continue to enjoy such subsidies.[74]

Subsidizing an activity that leads to significant negative externalities is not generally considered sensible public policy. There has been much discussion of the undesirability of implicit guarantees and bailouts, and proposals for changing regulations are focused on trying to reduce these subsidies. Even if it wants to do so, however, the government will find it difficult, if not impossible, to credibly commit to letting large, systemic financial institutions go into bankruptcy if bailing them out seems to be the better course of action at a time of a financial crisis.[75] In other words, the government might choose to bail out a financial institution when for the public the bailout is better than the consequences of allowing it to fail. The current perception that a number of institutions are too big to fail is

Fed. Reserve Bank, Speech at Tri-State Bankers Summit: Re-Thinking Leverage Subsidies (June 27, 2011) (transcript available at http://www.bis.org/review/r110704h.pdf).

73. For a general description of the components of the safety net and its magnitude, see Nadezhda Malysheva & John R. Walter, *How Large Has the Financial Safety Net Become?*, 3 ECON. Q. 273–90 (2010), *available at* http://www.richmondfed.org/publications/research/economic_quarterly/2010/q3/walter.cfm. Various scholars have estimated the value of TBTF subsidies. One scholar estimates that TBTF subsidies that translate into just fifty basis points on debt yields a subsidy of $34 billion for the eighteen largest bank holding companies. *See* DEAN BAKER & TRAVIS MCARTHUR, CTR. FOR ECON. & POLICY RESEARCH, THE VALUE OF THE "TOO BIG TO FAIL" BIG BANK SUBSIDY (2009), *available at* http://www.cepr.net/documents/publications/too-big-to-fail-2009-09.pdf.

74. Standard & Poor's has explicitly incorporated the promise of governmental support in computing the credit worthiness of the largest banks. *See* STANDARD & POOR'S, *supra* note 30.

75. *See* Levitin, *supra* note 70, at 439.

fueled by the widely held belief that allowing Lehman Brothers to fail—that is, to go into bankruptcy—in September 2008 was a mistake.[76]

In light of all of the above, the question is whether there are inherent frictions that justify allowing financial institutions to be extremely highly leveraged. If such reasons cannot be found, then it would seem appropriate to significantly increase capital requirements for financial institutions.[77]

D. The Problem of Free Cash Flow and the Potential Disciplining Role of Debt

Academics have suggested that debt may play a role in resolving agency problems between managers and those who provide funding. Specifically, it has been argued that in the presence of significant debt commitments, managers are prevented from diverting free cash flow to wasteful and inefficient investments. This argument was initially made by Jensen,[78] who applied it generally to all firms with a potential free-cash-flow problem. Several types of mechanisms have been used to explain this disciplinary role of debt. One, originally suggested by Jensen,[79] is based on the notion that the hard contractual commitments associated with debt force managers to use the firm's cash flows to pay creditors. Since dividend payments are discretionary, managers are not compelled in the same way to make payments to equity holders, and might otherwise misuse the cash flow. Another class of models makes arguments that are more specialized to banks. Models such as those found in the work of Charles Calomiris and Charles Kahn[80] and Douglas Diamond and Raghuram Rajan,[81] are based on the notion that the fragility of short term and demandable debt and the fact that such debt is subject to runs, or the threat by short-term creditors to withhold refinancing, create better incentives for managers or prevent them from extracting more surplus from

76. *See* Joe Nocera, *Lehman Had to Die, It Seems, So Global Finance Could Live*, N.Y. TIMES, Sept. 12, 2009, at A1 (summarizing the views of the French Finance Minister, the head of the European Central Bank, and the author himself in criticizing the decision to allow Lehman to fail). Dodd-Frank allows the FDIC to resolve systemically important financial institutions outside of the bankruptcy process. However, this remains a problematic alternative, especially for global institutions.

77. It is interesting to note that Mehran and Thakor document that the amount of bank capital is positively correlated with bank value in the cross section. Hamid Mehran & Anjan Thakor, *Bank Capital and Value in the Cross Section* (Fed. Reserve Bank of N.Y. Staff Reports, No. 390, 2009).

78. Michael C. Jensen, *Eclipse of the Public Corporation*, HARV. BUS. REV., Sept.–Oct. 1989, at 61.

79. *Id.*

80. Charles W. Calomiris & Charles M. Kahn, *The Role of Demandable Debt in Structuring Optimal Banking Arrangements*, 81 AM. ECON. REV. 497 (1991).

81. Diamond & Rajan, *supra* note 21.

investors.[82] Calomiris even argues[83] that subordinated debt can help protect insured deposits against excessive risk taking by managers. In other words, managers will want to prevent runs, and the only way to do so is to manage their cash flows with diligence and competence.[84]

Anil Kashyap, Raghuram Rajan, and Jeremy Stein[85] have summarized this view in the banking context in this way:

> Banks perceive equity to be an expensive form of financing, and take steps to use as little of it as possible . . . . One reason for this cost-of-capital premium is the high level of discretion that an equity-rich balance sheet grants to bank management. Equity investors in a bank must constantly worry that bad decisions by management will dissipate the value of their shareholdings. By contrast, secured short-term creditors are better protected against the action of wayward bank management. *Thus the tendency for banks to finance themselves largely with short-term debt may reflect a privately optimal response to governance problems.*[86]

This view of debt as a disciplining device seems to identify governance gains from high leverage that, if true, could be considered socially beneficial. Furthermore, these appear to be the only arguments based on inherent frictions that are advanced against proposals for dramatically increased capital requirements. As such, an effort to allow debt to play a disciplining role without imposing the cost of fragility and systemic risk, as well as the other distortions associated with high leverage, is a worthwhile theoretical and policy undertaking. The rest of this Article outlines one such proposal.

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82. Debt also arises in costly state verification models, such as that introduced in Douglas Gale & Martin Hellwig, *Incentive-Compatible Debt Contracts: The One-Period Problem*, 52 REV. ECON. STUD. 647 (1985), and in recent dynamic agency models such as that in Peter M. DeMarzo & Yuliy Sannikov, *Optimal Security Design and Dynamic Capital Structure in a Continuous-Time Agency Model*, 61 J. FIN. 2681 (2006). DeMarzo and Sannikov focus on the interaction between an entrepreneur and a capital provider. The situation in which the state is verified by the financier is effectively the process of bankruptcy. These models do not seem appropriate for describing the interaction between managers and dispersed equity holders of large financial institutions. In Stulz's model, debt helps prevent managers from taking projects that reduce the value of the firm, but also prevents them from taking some desirable projects. *See* René M. Stulz, *Managerial Discretion and Optimal Financing Policies*, 26 J. FIN. ECON. 3 (1990).

83. *See* Charles W. Calomiris, *Building an Incentive Compatible Safety Net*, 23 J. BANKING & FIN., 1499 (1999).

84. Of course, these models presume the absence of implicit or explicit guarantees, and thus that creditors will be more likely to monitor managers or more likely to engage in a run if managers misbehave. In light of the promise of taxpayer bailouts previously discussed, these assumptions seem misplaced.

85. *See* Kashyap et al., *supra* note 21, and accompanying text.

86. *See id.*, at 2–3 (emphasis added).

II. THE PROPOSAL: LIABILITY HOLDING COMPANIES

To obtain debt's purported disciplinary benefits without at the same time subjecting the financial system to excessive fragility and creating all the distortions associated with it, we propose creating institutions called liability holding companies (LHCs). LHCs would allow financial institutions to maintain relatively high degrees of leverage on their own balance sheets, while at the same time maintaining sufficient equity in a separately controlled entity in order to reduce many of the costs and distortions associated with high leverage. Our proposal also allows the LHC structure to reduce the likelihood of the bank either bringing about the large cost of bankruptcy or the moral hazard and cost of government bailouts. In this Part, we explain the basic features of these liability holding companies. Part II.A provides the context of limited liability; Part II.B presents the mechanics of LHCs; Part II.C discusses the analogous institutions of bank holding companies and university endowments; and Part II.D discusses the benefits of LHCs.

A. The Context of Liability Holding Companies—Limited Shareholder Liability and the Corporate Form

Limited liability, that is, the notion that investors cannot lose more than the value of their investment, is "a distinguishing feature of corporate law—perhaps *the* distinguishing feature of corporate law."[87] The LHC proposal is based on the observation that, while important for allowing investors to achieve diversification and for the liquidity of financial markets, limited liability—and not excessive debt per se—is in fact the source of many of the problems associated with leverage. The structure we propose increases the liability of equity in financial institutions in order to lower the social costs normally associated with limited liability in highly leveraged institutions, but without changing the limited liability nature of any publicly held security. If constructed appropriately, this structure should not increase, and indeed will likely decrease, the overall cost of capital for financial institutions relative to a situation in which they would be required to reduce their leverage dramatically, because it would allow them to capture

87. *See* FRANK H. EASTERBROOK & DANIEL R. FISCHEL, THE ECONOMIC STRUCTURE OF CORPORATE LAW 40 (1996).

any benefits of the disciplining role of debt if those are deemed important, but not otherwise.[88]

To understand the connection between limited liability and the problems usually attributed to excessive leverage, imagine a world where the equity issued by financial institutions carries with it unlimited liability, and where equity holders have sufficient personal resources to fully cover the liabilities under the worst case scenario. In this case, whenever the firm's debt obligations could not be met from the cash flows generated by the assets, the owners of the firm's equity would be required to cover those obligations from their other assets. Under these conditions, debt would be riskless, and the default option that is associated with limited liability equity would disappear. Moreover, the various agency problems associated with debt would also disappear. Equity holders with unlimited liability would not have incentives to take excessive risk, because they would bear the full cost of unfavorable outcomes. In addition, debt overhang issues would not arise, because the full net present value of any project would accrue to equity. In other words, since the debt becomes riskless when equity has unlimited liability and sufficient assets to cover all the obligations, there would be no conflicts of interest between debt and equity holders. With the incentives to take excessive risk removed and no good investment opportunities being lost to debt overhang, investment decisions would maximize firm value. Moreover, because there would be no bankruptcy and no debt overhang, outside entities such as the government would not be needed to inject capital upon distress, so the costs and distortions associated with bailouts would also be avoided.

Historically it was possible, at least to a limited extent, to impose increased liability on bank shareholders. Today it would be exceedingly difficult to increase the liability of publicly traded bank shares, especially if we want to keep the benefits of anonymous trading in liquid markets and the benefits of risk sharing obtained through diverse shareholdings. Our proposal is therefore designed to obtain the benefits of increased liability without removing the limited liability feature of any publicly traded security.

88. To the extent that our structure eliminates TBTF subsidies, this would increase the cost of capital of the financial institutions, but in a way most in society would view as wholly appropriate. These subsidies have no justification from a public policy perspective, as they create significant moral hazard distortions. If the structure further reduces the agency costs of debt, including debt overhang, the overall cost of capital might actually decrease relative to a situation in which financial institutions are fully charged, up front, for the costs of the implicit guarantees the government provides.

B. The Mechanics of Liability Holding Companies

1. The LHC Model

To explain how LHCs work and how they effectively increase shareholder liability, it is best to start with a simple example involving a highly leveraged SIFI. Assume that this SIFI has assets whose total value is $1000.[89] Assume further that the SIFI's liabilities have a total value of $970. Taken together these values mean that the SIFI's equity is valued at $30, i.e., $1000–970, or 3 percent of its asset value. The situation is shown below in a simple representation of the bank's balance sheet:

SIFI

Assets		Liabilities	
	1000		970
		Equity	
			30

Consider what would happen if the bank suffered a 5 percent loss on its assets. The balance sheet would become:

SIFI

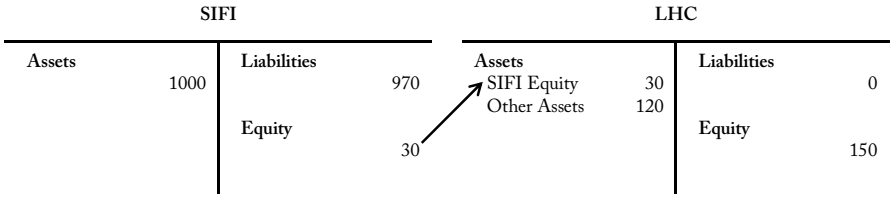
Assets		Liabilities	
	950		970
		Equity	
			–20

The negative value assigned to equity means that the bank is insolvent. If the bank equity had unlimited liability, the shareholders would be required to contribute $20 of their own funds to make up the shortfall between the liabilities and the assets. In practice, of course, bank equity has limited liability, meaning that SIFI shareholders will not be required to put up any of their own funds when losses

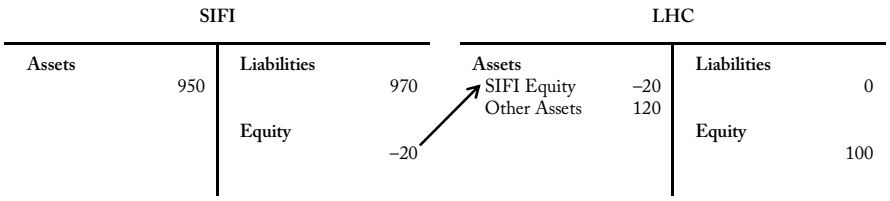
89. While SIFIs have assets in the many billions of dollars (some definitions, for example, set a threshold of $50 billion), to keep the illustration simple we will use small numbers.

occur, and either the creditors will be forced to take a loss or taxpayers will be forced to inject funds into the bank to keep it afloat.

Now consider what happens if an LHC is established to support increased liability. In our proposed structure the LHC will hold *all* of the SIFI equity, which will no longer have limited liability. The LHC will also hold some other assets. These additional assets can be thought of as assets held in escrow to ensure that the increased liability demands of the SIFI equity will be met. The LHC itself will be funded entirely by standard limited-liability equity (which is likely to be publicly traded for a large SIFI). It is important that the LHC is funded completely with equity and thus has no debt obligations. The overall structure (before any losses in asset value by the SIFI) is captured by placing the balance sheets of the SIFI and the LHC side by side:

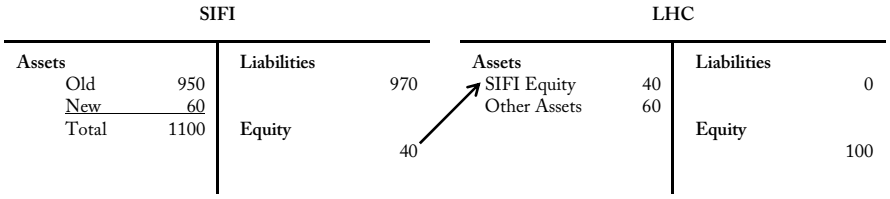


If the SIFI suffers a 5 percent loss on its assets, the situation with the LHC in place is very different from what we had before. As shown below, the losses suffered by the SIFI will ultimately be borne in full by the shareholders of the LHC:



The loss of $50 in asset value by the SIFI means that the LHC now holds SIFI equity that has a value of negative $20 rather than positive $30. The loss of $50 means that the equity holders of the LHC see the total value of their LHC shares drop by $50, the same as the fall in the value of the SIFI's assets. Because of the increased liability of the SIFI equity, the LHC will be required to pay the SIFI at least $20 to make up the shortfall between the SIFI's liabilities and its assets. The LHC can easily pay this amount because it holds additional assets (the ones held in escrow) worth $120. Assume that the LHC pays the $20 required to make up the difference between SIFI liabilities and assets and in addition injects

$40 in new capital into the SIFI. This will require the LHC to sell $60 of its other assets. The result is given below:



One of the most important effects of the LHC, which is shown in our example, is that the government and its taxpayers are no longer called upon to shore up the SIFI. This burden falls upon the LHC shareholders. Of course, an alternative to the LHC would be to simply have the SIFI initially funded with much more equity and less debt. If this would cause the SIFI to suffer the governance problems that arise from free cash flow, then an LHC structure can be used to satisfy the capital requirements within the LHC that is attached to the SIFI. The advantage of the LHC structure is that it preserves the disciplinary benefits associated with high leverage at the SIFI level, but does so in a way that greatly reduces the need for government support.

The LHC model just described could be given as an option to all SIFIs, as currently defined by Dodd-Frank[90] and more fully developed by the FSOC.[91] But it could also apply to any set of institutions that policymakers or the institutions themselves deem appropriate.

2. Practical Implementation of LHCs

There are four practical issues of implementation relevant to the LHC structure: the scope of its application, the nature of formation, the regulatory framework, and corporate governance considerations. First, although it is a general structure that can apply to any firm, we conceive of the LHC structure as applying primarily to regulated SIFIs,[92] as an option for satisfying capital requirements. Second,

90. *See* Dodd-Frank Wall Street Reform and Consumer Act, Pub. L. No. 111-203, § 121(a), 124 Stat. 1376, 1410 (2010) (to be codified at 12 U.S.C. § 5331).

91. *See* Financial Stability Oversight Council, 76 Fed. Reg. 64,264 (Oct. 18, 2011) (to be codified at 12 C.F.R. pt. 1310).

92. Obviously there is no impediment to any corporation writing its charter to create an LHC structure as it sees fit. The question is whether regulation should be used to force the structure, or, as we propose, to force the selection of either the LHC structure or increased capital adequacy requirements. We aim our more coercive proposal at banks given banks' special role in the func-

LHCs are formed through a shareholder election: shareholders of the relevant institution elect either to comply with capital adequacy requirements of, for example, 15–25 percent of the total assets (or a range to be determined based on risk measurements as appropriate), or to opt for the LHC structure.[93] If the shareholders choose an LHC, shareholders will exchange their shares for those of a new financial entity.

From a regulatory perspective, as a holding company, the LHC would be regulated by the Federal Reserve, as are BHCs, though with special differences. Finally, the financial institutions would then be subject to the advice and oversight of two separate boards of directors: the advising board of the bank itself, and the monitoring board of the LHC.

3. SIFIs

We take as a given the definition of SIFIs as presently provided by the Dodd-Frank Act, and as contemplated by the FSOC in its recent notice of proposed rulemaking. Under that definition, SIFIs fit into one of two definitional categories: (1) those financial institutions with assets greater than or equal to $50 billion;[94] and (2) any other financial institution so designated by two-thirds of the voting members of the FSOC.[95] The criteria used to guide the FSOC in the latter category are the extent of involvement with financial activity, and the threats that such institutions pose for the financial system overall.

4. The Election

The SIFI shareholders will face an election at some specified period after the statute creates the LHC structure. At that juncture, the SIFI shareholders will elect

tioning of the broader economy. *See* E. GERALD CORRIGAN, FED. RESERVE BANK OF MINNEAPOLIS, ARE BANKS SPECIAL? (1983), *available at* http://www.minneapolisfed.org/pubs/ar/ar1982a.cfm. For the practical purposes of limiting the scope of this Article, we further limit the proposal to the context of SIFIs described above. Even so, we remain agnostic as to the application of the LHC structure to other banking—or even nonbanking—entities.

93. To harmonize our other efforts completely, we might insert Conti-Brown's elective shareholder liability option here, too. For purposes of simplicity and focus, we instead make the election binary. Note also that the range given in the capital requirements is meant to be a conservation buffer. When capital levels fall in this range, the institution is expected to withhold equity payouts and find ways to capitalize back to the 25 percent level.

94. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act § 121(a).

95. *Id.* § 113(a)(1).

either to satisfy a high capital adequacy requirement directly on the balance sheet, or to satisfy the requirement through the LHC structure.

The use of an election in this structure is central to the proposal. The LHC proposal is not a confiscatory proposal, and will not force bank shareholders to participate in this kind of change without their willing participation, or at best, their compensation in the form of their retained appraisal rights. Of course, most of corporate law is elective in some sense, as the Delaware General Corporate Law consists largely of default rules. The kind of election we envision here is different, and more analogous to elections in the tax code, in which there are two competing regulatory frameworks; corporations may choose how they will be regulated, but are not allowed to avoid regulation altogether.[96]

5. Liability Holding Company

As explained in the numerical example above, if the LHC option is elected, the corporation will create and spin off a separate structure that will hold both the bank's increased-liability equity and a specified minimum of assets used to offset the bank's own liabilities.[97] The former shareholders will in turn receive shares in the LHC, which would retain its own limited-liability status. Thus, the LHC holds increased-liability equity of the original financial institution, but the LHC shareholders are still protected by limited liability.

Similar to the effect of increased equity requirements, the LHC would need additional funding, in the form of equity, to purchase the additional assets it must hold. This could be done through a rights offering, by raising new equity, or through earnings retention until enough equity capital is accumulated. To the extent that subsidies from government guarantees are removed, there might be some dilution of existing equity holders, but this is essential to the process and would only occur during a transition. The SIFI can accumulate additional equity through retained earnings, in which case it will be able to create the LHC and then raise more debt on its own balance sheet once the LHC is created.

96. Victor Fleischer, in a recent article, highlights the section 83(b) election that founders make to allow them to treat their stock awards as income either at the time of granting, or at the time of vesting. *See* Victor Fleischer, *Taxing Founders' Stock*, 59 UCLA L. REV. 60 (2011). For a fuller discussion of the use of elections in tax law, see Heather M. Field, *Choosing Tax: Explicit Elections as an Element of Design in the Federal Income Tax System*, 47 HARV. J. ON LEGIS. 21 (2010).

97. We are assuming here that the liabilities of the financial institution are bounded. This clearly holds for debt securities issued by the bank, but at this point we do not consider positions that create potentially unbounded liabilities.

6. Regulation by the Federal Reserve

The LHC so designated would be a financial institution regulated by the Federal Reserve under a unique statutory and regulatory framework. In this sense, the LHC would look something like the bank holding companies that the Fed already regulates.[98]

The regulatory framework we envision would focus on two questions: (1) the LHC's ability to meet the increased liability requirements of the bank equity it holds, and (2) the relationships between LHC officers and directors, and the bank officers and directors. In the first case, the ability to meet the increased liability requirements is determined by the quantity and nature of additional assets the LHC holds. The Federal Reserve would determine, through rulemaking over time and with additional experience, any appropriate restrictions on the types of investments appropriate for an LHC. We imagine, for example, that the LHC—unlike university endowments, which are explained more fully below—could not invest in assets whose payout horizons were counter cyclical (such as hedge funds with side pockets),[99] illiquid assets (such as long-term private equity or timber), or other such assets that comprise what has been called the Yale Model of university endowments.[100] Additionally, the Fed would regulate the amount of assets—effectively, the capital requirement that would be necessary to ensure that the increased liability requirements can be met. The main function of the LHC is to greatly reduce the implicit taxpayer guarantees currently present in the market. The Fed would ensure that LHCs were managing their assets in a way sufficient to honor that charge.

Our designation of an LHC as a holding company is intentional.[101] The Bank Holding Company Act, passed originally in 1956,[102] was originally designed

98. *See* RICHARD SCOTT CARNELL, JONATHAN R. MACEY & GEOFFREY P. MILLER, THE LAW OF BANKING AND FINANCIAL INSTITUTIONS (4th ed. 2009).

99. A side pocket is a device by which a hedge fund will deposit illiquid investments that are thereafter no longer immediately redeemable, and do not participate in the fund's general valuations. *See* SCOTT J. LEDERMAN, HEDGE FUND REGULATION § 2:3.3[E][1] (2008).

100. For a review of the Yale Model, see Peter Conti-Brown, *Scarcity Amidst Wealth: The Law, Finance, and Culture of Elite University Endowments in Financial Crisis*, 63 STAN. L. REV. 699, 730–36 (2011).

101. The concept of holding companies enjoys a prominent position in the history of banking regulation. For a theoretical, policy, and empirical overview of holding companies in this context, see Howell E. Jackson, *The Expanding Obligations of Financial Holding Companies*, 107 HARV. L. REV. 507 (1994) (policy and theoretical), and Howell E. Jackson, *The Superior Performance of Savings and Loan Associations With Substantial Holding Companies*, 22 J. LEGAL STUD. 405 (1993).

102. Bank Holding Company Act of 1956, Pub. L. No. 511, 70 Stat. 133.

to restrict the extent to which nonbanks could engage in banking activity.[103] It created the institution of a bank holding company, which owned both banks and nonbanks, and placed restrictions on the extent to which the BHC's nonbank and bank subsidiaries could interact. Many of the original restrictions created by the Bank Holding Company Act were subsequently repealed, including restrictions on interstate branching[104] and on the ownership limitations on bank holding companies themselves.

Indeed, in one basic sense, the LHC is the realization of one of the (until now) elusive goals behind BHC regulation, the source of strength doctrine. Originally codified into law by the Federal Reserve in 1987,[105] the source of strength doctrine requires BHCs to "stand ready to use available resources to provide adequate capital funds to its subsidiary banks during periods of financial stress or adversity" and that a BHC "should maintain the financial flexibility and capital-raising capacity to obtain additional resources for assisting its subsidiary banks."[106] At the time it was issued, this "clarification" was legally and politically controversial,[107] eventually resulting in a U.S. Supreme Court decision upholding its legality and largely putting the issue to rest.[108]

The doctrine has received added authority under the Dodd-Frank Act, which in two places, has codified the doctrine providing that "[a] company that directly or indirectly controls an intermediate holding company established under this section shall serve as a source of strength to its subsidiary intermediate holding company.[109] The problem with the doctrine is not, as its critics argue, that it abrogates the parent BHC's fundamental tenet of corporate separateness and limited liability. The problem is that, in the presence of implicit governmental guarantees,

103. For a historical overview of bank holding companies, see Saule T. Omarova & Margaret E. Tayhar, *That Which We Call a Bank: Revisiting the History of Bank Holding Company Regulation in the United States*, 31 REV. BANKING & FIN. L. (forthcoming 2012), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1969522.

104. Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994, Pub. L. No. 103-328, §§ 101–115, 108 Stat. 2338, 2338–68 (codified as amended in scattered sections of 12 U.S.C.).

105. Of course, the Fed viewed its regulation as the clarification of a "fundamental and long-standing principle." *See* Policy Statement; Responsibility of Bank Holding Companies to Act as Sources of Strength to their Subsidiary Banks, 52 Fed. Reg. 15,707 (Apr. 30, 1987) (to be codified at 12 C.F.R. pt. 261).

106. *Id.*

107. Leonard Bierman & Donald R. Fraser, *The "Source of Strength Doctrine": Formulating the Future of America's Financial Markets*, 12 ANN. REV. BANKING L. 269 (1993).

108. *See* Bd. of Governors of the Fed. Reserve Sys. v. MCorp Fin., Inc., 502 U.S. 32 (1991).

109. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 167(b)(3), 124 Stat. 1376, 1433 (2010); *see also id.* § 616(d) (assigning the source of strength doctrine to all banking organizations insured under the FDIC).

the source of strength doctrine is something of a shell game. Recall that in the financial crisis of 2009, Goldman Sachs and Morgan Stanley converted into bank holding companies precisely because they sought the government's financial protection, not because their insolvent subsidiaries required the support that the source of strength doctrine envisioned.[110] Thus, the continued invocation of the doctrine in the Dodd-Frank Act—which does not define "source of strength" anywhere in the Act—is of little assurance that the government has left the business of guaranteeing these institutions' liabilities.

The LHC model is different. Under the LHC model, the BHC itself—and its comparable institutions—becomes the guaranteed entity, not the guaranteeing entity. And unlike the BHC, the LHC is subject to severe limitations on the financial activities in which it can participate. Even more to the point, because the LHC is funded exclusively by equity, it cannot fail. The same is emphatically not true for leverage-heavy BHCs. Indeed, the LHC model is itself simply a realization of the otherwise abstract doctrine.

7. Governance Changes

Under standard doctrines of corporate law, the corporation is governed by its board of directors.[111] Over the last thirty years there has been a debate about what the board is supposed to do. On one side, scholars and policymakers have described the board as an advisor to the corporation's management, giving the management the benefit of the board members' individual and collective expertise, but largely deferring to the ultimate decisionmaking processes and outcomes of the management.[112] On the other side is the view that the board's main role is to monitor management, enforcing the will of shareholders when management fails to maximize shareholder value.[113] Of course, most scholars and policymakers view boards as playing both roles, simultaneously if awkwardly.[114] It is clear that

110. *See* Andrew Ross Sorkin & Vikas Bajaj, *Democrats Set Conditions on Bailout as 2 Firms End Investment Banking Era: Radical Shift for Goldman and Morgan*, N.Y. TIMES, Sept. 22, 2008, at A1 (citing the "access to the full array of the Federal Reserve's lending facilities" that come as part of the BHC model).

111. *See, e.g.*, DEL. CODE ANN. tit. 8, § 141 (2011).

112. See Ronald J. Gilson & Reinier Kraakman, *Reinventing the Outside Director: An Agenda for Institutional Investors*, 43 STAN. L. REV. 863, 872–76 (1991), for a nuanced example of this literature.

113. See Eric J. Phan, *Rethinking the Board's Duty to Monitor: A Critical Assessment of the Delaware Doctrine*, 38 FLA. ST. U. L. REV. 209 (2011), for a summary of this perspective.

114. *See* Michael C. Jensen, *The Modern Industrial Revolution, Exit, and the Failure or Internal Control Systems*, 48 J. FIN. 831 (1993); The Business Roundtable, *Corporate Governance and American Competitiveness: A Statement of the Business Roundtable*, 46 BUS. LAW. 241 (1990).

these two roles can come into conflict, especially since the best board for advising management may not be a board that performs well in a monitoring role, and a board designed to monitor management may not function well as an advisory board.

Following the adoption of an LHC, we envision a dual-board structure that potentially provides the full benefits of monitoring and advising, though not necessarily by the same set of individuals. Specifically, the shareholders of a SIFI potentially gain from having a dual-board structure. First, the SIFI management will continue to be advised by a board, which would be composed of individuals well suited to this role. The majority of the members of this board may be appointed and could be removed by the SIFI management. The second board is the LHC board, which will own outright the SIFI's equity, and thus have full control over the SIFI through this ownership. This second board would be the monitoring board, accountable for ensuring that the SIFI's activities and risk exposures are in the interest of the LHC shareholders and are appropriate for the guarantee the LHC shareholders provide to the SIFI. While the LHC structure involves a hierarchy between the two boards in favor of the monitoring board, both boards create value for the LHC shareholders and operating together, the boards potentially provide the best of both options highlighted in the debate about board governance.

Since the entire structure is put in place to preserve the potential disciplining benefits of debt, it is important to go over how we envision this process working within the LHC structure. The idea here is that the debt put in place at the SIFI level would serve to alert the SIFI and LHC boards to examine the manager's performance appropriately. If the debt obligations cannot be paid from normal operations and would require either inefficient asset sales or access to LHC funds, then LHC funds can be potentially accessed to prevent inefficient asset sales. But if it is judged that the distress is caused by managerial misbehavior, then the manager can face consequences, including dismissal. This is discussed in more detail below.

8. The Management and Varieties of LHC Assets

The LHC's own incentives are not necessarily complicated. Like other publicly traded corporations, it would seek to maximize returns for its shareholders. But because its primary purpose is to guarantee the liabilities of the SIFI associated with it, the LHC would be restricted in the assets it can hold and the actions it can take. In particular, its assets must be such that in the case of an emergency, they are available to support the SIFI's liabilities in a timely way. This

means that the assets must have the risk and liquidity characteristics appropriate for the role they are playing.

Risk and liquidity characteristics for different assets lie on a spectrum. At one end are so-called risk-free liquid assets, such as short-term U.S. Treasury securities. On the other are illiquid assets with volatile and uncertain values. Determining the appropriate permitted range in this spectrum is not an easy exercise, but since the LHC will be a holding company regulated by the Federal Reserve, we think a reasonable solution to consider can be found in the Fed's own previous regulations on the kinds of assets that qualify for collateral in case of lending.[115] That is, if the LHC finds itself in a distressed situation and must provide liquidity to the SIFI in adverse markets, its assets must be of the type that can be redeemed by the Fed for cash.

C. Comparable Institutions: University Endowments

The function of the LHC is analogous in various ways to other institutions that guarantee payments to third parties. We have already mentioned bank holding companies. University endowments also function as useful analogues, both in their similarities and in their important differences. As such, endowments should also be helpful in understanding the incentives and structure of LHCs, and in particular how regulators might conceive of this new institution.[116] This is useful as an academic exercise in this Article, but in the event that LHCs actually become policy, the comparison will be useful for those regulators and market participants who look for other institutions engaged in practices that are relevant to LHCs.

While the theory of why university endowments exist at all has been contested,[117] the best justification is that they exist to provide their universities with a source of income to augment other sources.[118] As such, they exist largely to support universities' operating budgets, sometimes contributing as much as 50 percent of those budgets.[119] This is not to say that university endowments exist inde-

115. *See* FED. RESERVE DISC. WINDOW, FEDERAL RESERVE COLLATERAL GUIDELINES (2011), *available at* http://www.frbdiscountwindow.org/frcollguidelines.pdf.

116. Similarly, other institutions (whether monoline insurance companies or private equity portfolio companies) might offer insight into how LHCs might be governed internally and regulated externally.

117. *See* Henry Hansmann, *Why Do Universities Have Endowments?*, 19 J. LEGAL STUD. 3 (1990).

118. See Conti-Brown, *supra* note 100, for a more thorough exploration of the theory and practice of elite university endowments.

119. *See FAQs: Institutional Planning and Budget Planning: How Can You Tell Me That We're in a Tight Budget Environment When We Have a Billion Dollar Endowment? Why Can't We Just Use More of the Endowment or Endowment Income in the Base Budget?*, GRINNELL C., http://www.grinnell.edu/offices/institutionalplanning/increasedendowmentuse (last visited Fed. 23, 2012).

pendent of outside market sources. The universities' experiences in 2008–09 illustrate otherwise. It is to say, though, that the very practice of endowing a university with capital that is invested for future use—including when that future use is simply future investment—means that the university engages in a practice of active capital management today for active, sometimes contingent consumption tomorrow.

The function of an LHC is obviously quite different. If all goes well, the LHC will pay cash flows to its shareholders, rather than to the SIFI it sponsors. But the endowment model is helpful, especially for thinking about the kinds of investments that the LHC might pursue with the assets it will use to support the SIFI equity. Endowments have been largely a success story, post-1985, in their ability to generate returns for their universities. While the basis for that success has been debated, elements of the university endowment model are instructive for the LHC context. For example, certain kinds of asset allocations may be instructive by analogy. More technically, the equations used to determine endowment payouts, called "smoothing functions," could also be helpful.[120] Of course, as mentioned above, to the extent that the past success of endowments relied in part on their ability to capture illiquidity premiums, their investment policies are less applicable to LHCs, since large allocations to illiquid assets are not consistent with the role of the LHC. Nevertheless, the analogy may be helpful to the Federal Reserve as it makes determinations on how much and what kinds of assets the LHC might hold.

D. The Benefits

The LHC structure produces a number of benefits, some of which have already been discussed—including the dual-board structure. Below, we discuss several others: the elimination of fire sale externalities; the reduction of debt overhang and risk shifting; potential improvements for banker compensation; and importantly, preserving the discipline that debt might provide.

1. Fire Sale Externalities

The LHC structure can alleviate the fire sale externality and credit freeze phenomena that can occur with the conventional leverage structure of financial institutions. This is a function of the assets the LHC holds: Instead of having to sell

120. For a summary of these kinds of smoothing functions, see Jeffrey Brown et al., *Why I Lost My Secretary: The Effect of Endowment Shocks on University Operations* (NBER Working Paper No. 15861, 2010), *available at* http://www.nber.org/papers/w15861.

risky, illiquid assets in order to pay down debt in a crisis, as a SIFI would do, the LHC can sell some of its less risky and more liquid assets. Indeed, in a flight to quality that frequently accompanies a financial crisis, this repository of less-risky assets available to the SIFI may even trade at a premium. Thus, the LHC's balance sheet should be at its highest peak at the very moment that its conjoined SIFI would require its explicit guarantees.

2. Reducing the Incentives for Excessive Risk Taking

As we explain in Appendix A, the shareholders in a highly leveraged entity can increase the value of their claim by increasing the risk of the assets held by that entity. This is because shareholders, as residual claimants, generally capture the full benefits from the upside of that risk, but do not suffer the full costs of the downside. By increasing risk, the shareholders are essentially playing a "heads we win, tails you lose" game with other creditors.[121] The increase in risk shifts value away from creditors (or the government if it provides a safety net) toward shareholders. Shareholders can gain even if they reduce the value of the assets by increasing the risk of the assets. Put differently, it is possible that shareholders make the total pie smaller through risk shifting, but still gain by grabbing an even larger piece. The result is self-evidently inefficient.

As we pointed out, shareholders cannot gain through risk shifting if they have unlimited liability, since with unlimited liability shareholders are fully exposed to all loses as well as the gains created by any shift in risk. If the assets held by the LHC are sufficient to fully insure the SIFI's debt, then effectively the shareholders of the LHC have an equity claim on the SIFI that functions as though it had unlimited liability. Any increase in risk taking at the SIFI level will not create value for the shareholders unless it increases the total value of the SIFI's assets, that is, makes the total pie bigger. This means that when the LHC is structured so that it fully insures the liabilities of the SIFI, all incentives for the shareholders to engage in inefficient risk taking are removed. This does not immediately mean that the SIFI managers will not have perverse incentives, since their incentives will depend on how they are compensated. It does, however, mean that the shareholders will have incentives to see that managers are not compensated in ways that encourage inefficient risk taking. This is in contrast to the current system under which shareholders do have those perverse incentives.

121. Note that in the case of SIFIs, which are likely to be bailed out by the government, it is the taxpayers who lose when the coin turns tails.

If the assets held by the LHC are not sufficient to fully guarantee the SIFI's liabilities, then the liability of the shareholders' equity claim on the SIFI is not truly unlimited—hence our reference throughout this Article to increased liability equity, or nonlimited liability equity. However, to the extent that the LHC holds assets sufficient to provide substantial insurance for the SIFI's liabilities, the liability of the shareholders' equity claim on the SIFI is significantly increased, thereby significantly reducing the incentives for risk shifting. Indeed, as more of the liability for losses at the SIFI level is placed on the shareholders through the LHC structure, the incentives for the shareholders to increase risk in inefficient ways are diminished. For the purpose of reducing the incentives to take excessive risk, the LHC structure works just like increased equity requirements.

3. Reducing Problems Caused by Debt Overhang

As we also explain in detail in Appendix A, the LHC structure that we propose, or the alternative that the SIFI itself use much more equity funding, greatly reduces the debt overhang problem. Under this structure, almost the entire portion of any increase in the value of the SIFI's assets will be captured by the shareholders. This means that shareholders will not pass up valuable investment opportunities because of high debt commitments.

Similarly, increased use of equity and, likewise, the LHC structure, make it easier to raise equity when required. Consider the situation banks were in during late 2008, when raising equity by issuing shares was generally viewed as dilutive.[122] This view was most likely correct given the situation banks were in at that time, since each dollar of equity that banks might have raised in that distressed period would have significantly benefited the banks' creditors and, for those banks then benefitting from potential or actual government bailouts, the government. This potential shareholder dilution problem is a manifestation of the debt overhang problem. In these extreme situations, bank managers and shareholders will find the value of their shares decline if more equity is issued. This is not to say that with a debt overhang problem it is impossible to raise equity or that banks cannot be forced to do so. For example, as long as a bank's equity has some value, that bank can raise equity capital through a forced-rights offering, even if the offering dilutes the shareholders' interests.[123] The advantage of the structure we propose is

122. For more discussion of shareholder dilution, see Appendix, *infra*.

123. In a rights offering, shareholders receive, for each share they own, a right to buy a specified number of shares at a price substantially below the current share price. These rights are essentially in-the-money call options and it is rational to exercise them. A rational shareholder will therefore either

that by reducing the debt overhang problem, it reduces shareholder and manager resistance to any required equity issue. Under the LHC structure, mandatory equity issues will generally result in significantly less dilution of shareholders' claims than occurs under the current, highly leveraged system.

4. Improved Banker Compensation

The LHC structure has the potential to improve incentives through the way compensation is structured. We envision, for example, that part of the managerial compensation at the financial institution could be given in the form of LHC equity. This would provide managers with incentives that are more aligned with maximizing the total value of the financial institution. Among other things, this would reduce managerial incentives to take excessive risk. Bebchuk and Spamann have made similar arguments in favor of reforming banker's pay within the present regulatory environment, arguing that equity compensation, in the face of implicit governmental guarantees, will exacerbate risk taking.[124]

5. Governance Improvements

We indicated at the outset that the effort here is to create a structure that can deliver the benefits of debt without creating the systemic risk and other costs associated with a highly leveraged and fragile financial structure. The LHC structure accomplishes both tasks.

In our proposal, the LHC exists to provide private insurance for meeting the required payments on the financial institution's liabilities and to monitor the financial institution to ensure that its operations and risk exposures are consistent with maximizing the shareholder value of the LHC, taking into account the insurance it is providing. To provide useful governance and maintain the intended function of the LHC, it is important that it is a separate entity from the financial institution and that the managers of the financial institution do not have direct access to LHC funds. In the bridge that connects the two entities, control goes only one way. Thus, the SIFI effectively becomes a privately held bank of a publicly held corporation. The exact relationship between the two will be determined minimally by the Federal Reserve and maximally by the LHC's board.

exercise his or her rights and, in doing so, contributes to the bank's capital, or will sell his or her rights to someone else who will realize value by exercising them.

124. *See* Lucian A. Bebchuk & Holger Spamann, *Regulating Bankers' Pay*, 98 GEO. L.J. 247, 274–86 (2010).

In terms of the ability of the financial institution's debt to provide discipline on the management, note that in our structure the debt issued by the financial institution still represents hard, contractual obligations. However, whereas in a conventional structure debt obligations must be paid directly from the operational assets of the financial institution, in our structure it is possible for these obligations to be paid by selling assets in the LHC.

Given that the LHC's assets back up the financial institution's debt, it would seem that LHC debt does not discipline managers as well as under the status quo since the threat of bankruptcy and the hardness of the obligations may not be as great here as it is with liabilities under the traditional structure. That may well be the case. Note, however, that the discipline of debt under our structure will come not from the creditors who fear haircuts under a bankruptcy option, but from the guarantors. Since the LHC becomes the SIFI's guarantor, the discipline from the LHC to the SIFI is of precisely the nature that Jensen and others anticipated from a firm's creditors.

To understand how discipline works in this context, consider the LHC structure. The managers of the SIFI will want to avoid situations in which they must call on the LHC to use its assets to cover the contractual obligations of the financial institution. Such a request, which is in many ways equivalent to asking for new equity to be issued, would trigger a process akin to the so-called "costly state verification,"[125] whereby the LHC examines the source of the distress and determines whether the request is legitimate and not due to excessive risk taking or any misappropriation by the manager. Additional information generated in this process could lead to appropriately significant consequences for a manager making suboptimal decisions. This process has the potential to discipline managers more effectively than standard debt contracts for conventional SIFIs, as the structure leads to more direct oversight than occurs in more conventional settings. And regardless, the LHC disciplining mechanism would be far more meaningful a disciplining force than the present governmental guarantors: Government bailouts do not seem to be associated with negative consequences for managers.[126]

Another way that the LHC structure has the potential to reduce agency costs is by creating incentives for the discipline to come from equity itself. In conventional firms, monitoring incentives are distributed between debt holders

125. The original models of this type are found in Gale & Hellwig, *supra* note 82, and Robert Townsend, *Optimal Contracts and Competitive Markets With Costly State Verification*, 21 J. ECON. THEORY, 265 (1979).

126. Of the large bailed out firms, only the American International Group, Inc. was required to change its executive membership. *See* ANDREW ROSS SORKIN, TOO BIG TO FAIL (2009).

and equity holders. Equity is obviously most vulnerable to managerial actions, because its claim bears the residual risk. For example, if asset value is reduced by $100, equity value might fall by $80, while the value of (risky) debt would fall by $20. Under our structure, since the debt bears less risk, the incentives to monitor are more concentrated with equity. This would be the case even if the LHC did not bear unlimited liability for the actions of the SIFI. When we effectively increase the liability of equity through the LHC structure, however, the monitoring incentives for equity increase.

Placing monitoring incentives with equity, rather than with debt, might actually be more efficient, even without adjusting the extent of equity liability. There is no reason to believe that dispersed debt holders have an advantage in monitoring over equity holders represented by a board. Moreover, reductions in the conflicts of interest between claimholders achieved through the reduction of the risk of debt under the LHC structure means that most monitoring will focus on increasing the total value of the financial institution, not on making sure that one class of claimholders is not taking advantage of another. Such discipline can be achieved using a combination of appropriate incentive contracts, monitoring by the board, and large shareholder activism.

Some models of the disciplinary role of debt in the context of financial institutions are based on the idea that demandable debt and short-term debt that must be rolled over frequently create fragility, and this is the main mechanism by which debt disciplines managers. For example, Calomiris and Kahn claim that a bank's depositors have incentives to monitor managers to know when to withdraw their funds.[127] Their model is predicated on the assumption that the bank's managers can abscond with funds and are more likely to do so in bad states of the economy. Calomiris and Kahn assume that when the information gathered by depositors indicates that such a bad economic state has been realized, the depositors are able to force liquidation before the managers can abscond.[128] In another model, Diamond and Rajan assume that short-term debt holders, because they may credibly threaten to liquidate the bank, are in better bargaining positions in negotiating with managers than are equity holders, and thus are less subject to a hold-up problem in which managers extract surplus generated by their unique expertise.[129]

Since our approach is designed in part to significantly reduce the fragility of financial institutions, we cannot rely on our structure to deliver discipline in the

127. *See* Calomiris & Kahn, *supra* note 80.
128. *See id.*
129. *See* Diamond & Rajan, *supra* note 21.

manner proposed in the models mentioned above. There are, however, many reasons to doubt that fragility imposes discipline on SIFIs in the way these models envision. In particular, we have seen no convincing argument or evidence that fragility disciplined managers in useful ways immediately before or during the recent crisis. Indeed, fragility was the essence of the problem, not the solution. We should also observe that virtually all the alternative approaches to reducing systemic risk in the financial system, including increased capital requirements, contingent capital, capital insurance, and capital calls based on CDS prices, also reduce the fragility of financial institutions. Thus, discipline that is based on fragility would potentially be weakened by all such proposals.

Another significant benefit produced by our proposal and related to governance stems from the special board structure that we envision for the SIFIs under an LHC system. As discussed in Part II.B, under our system, the SIFI benefits from both an advisory board and a monitoring board. This dual-board structure gives the SIFI the benefit of outsider advice in the form of the SIFI's own board, while still retaining the accountability associated with an LHC board interested in ensuring that its assets will not be compromised through the SIFI management's excessive risk taking.

E. Implementation Issues

To transition into the proposed structure, several steps are involved. First, an LHC should be formed for each participating SIFI that has chosen to satisfy its capital requirements through an LHC. At a certain date, shares in the SIFI, which become increased-liability securities, are exchanged for limited liability shares of the LHC. The LHC must then raise equity to purchase enough assets to provide the required level of guarantee for the SIFI's liabilities. This can be done, for example, through a rights offering. Note that since the financial institution's debt becomes less risky, this transition involves a possible wealth transfer from the shareholders of the financial institution to its preexisting debt holders.[130] Such wealth transfers occur to varying degrees whenever capital requirements or other regulations are changed, so this problem is not unique to our approach. To reduce the magnitude of these wealth transfers to incumbent creditors, the transition could be phased in as new debt is issued and structured so that most of the guarantee from the LHC benefits the new debt holders, who will pay for these

130. Note, however, that to the extent that the previous debt has benefited from an implicit government guarantee, a significant portion of the wealth transfer would not be from shareholders to preexisting debt holders, but rather from shareholders to the government (and taxpayers).

benefits in the pricing of new debt. If done correctly, the holders of preexisting debt will not receive much of a windfall. While the details are certainly not trivial, they should not be insurmountable. As is clear from our discussion, the proposed structure does not eliminate the need for regulation and monitoring by regulators. In addition to regulating the LHC and its connection with the financial institution, there is also a need to monitor and control off-balance-sheet and other contingent or unbounded liabilities of the SIFI. This is true under any effective capital regulation plan. In particular, all liabilities should be considered when designing and regulating the amount of safe assets held in the LHC.

III. ALTERNATIVES AND COUNTERARGUMENTS

A. Alternatives

1. Contingent Capital

We are not the first to propose alternative SIFI funding structures to address the problems of bailouts. One leading family of proposals can be broadly summarized as contingent capital.[131] Mark J. Flannery, the Squam Lake Group, and others suggest replacing straight debt with contingent capital or reverse convertibles. These so-called "co-cos" are essentially debt that converts to equity when certain triggers are hit. The triggers can depend on the solvency of the financial institution, such as various capital ratios or the stock price, and they could also or alternatively depend on system-wide conditions related to systemic risk as determined by regulators.

As explained below, there are a number of problems associated with the design of contingent capital, and it is not clear that it will work as advertised. The question is why these complex securities should be used in bank funding when simple equity can be used instead. Supporters of contingent capital often make their case on the basis of a false comparison. They claim that bank safety is increased and systemic risk is reduced if *prior* to distressed circumstances, banks replace some of their straight debt funding with contingent capital. These supporters claim that this contingent capital (if it can be converted to equity in distressed

131. *See* FRENCH ET AL., *supra* note 21; John C. Coffee, Jr., *Bail-Ins Versus Bail-Outs: Using Contingent Capital to Mitigate Systemic Risk* (Columbia Law & Econ. Working Paper No. 380, 2010), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1675015; Charles W. Calomiris & Richard J. Herring, Why and How to Design a Contingent Convertible Debt Requirement (Apr. 19, 2011) (unpublished manuscript), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1815406.

circumstances) can absorb losses better than subordinated straight debt. This may be true, but the situation is even better and loss absorption more reliably available if *prior* to distressed circumstances the banks replace straight debt with *common equity* (instead of with contingent capital). The false comparison, in other words, is based on assuming that the choice is restricted to contingent capital and straight debt, when in fact the choice includes equity as well. If equity is used instead of contingent capital, there is no need for specifying conversion triggers and no need to worry about whether and how conversion would work in time to absorb losses. In effect, equity can be thought of as contingent capital that is already converted when it is issued. Advocates of contingent capital seem to be assuming that contingent capital will be a cheaper source of funding than equity. As discussed in Admati et al., this may be true in terms of *private* costs if contingent capital produces tax benefits not produced by equity, but this is not true when viewed in terms of social costs. Therefore, from a policy perspective, the argument for the use of contingent capital is very weak.

Many of the problems associated with contingent capital are due to the complexities involved in its conversion features. In order for contingent capital to convert to equity at the appropriate time, several parameters must be specified. These include the conversion ratio, which determines the degree of dilution of preexisting shareholders, and various terms determining the way the trigger event is defined.[132] The complexity introduces many problems in designing the security and challenges in valuing it. For example, since different stakeholders (holders of contingent capital, existing equity holders and creditors, and bank managers) are likely to have different preferences regarding conversion, a serious concern is that manipulation and instability would occur if the triggers seem to be within reach, with different parties trying to affect accounting measures or stock prices to create their desired outcomes.

The use of accounting triggers is further problematic because accounting numbers are often based on historical values and thus may not provide the proper trigger for recapitalization near a crisis. As for price triggers, Sundaresan and Wang show that using them can create significant instabilities.[133] Depending on the exact

132. Robert McDonald discusses some design issues associated with contingent capital, and proposes a "double trigger" that requires for conversion both a bank-specific trigger and a declaration by regulators of a "systemic event." *See* Robert L. McDonald, Contingent Capital With a Dual Price Trigger (Apr. 11, 2011) (unpublished manuscript), *available at* http://www.nber.org/confer/2011/CFs11/McDonald.pdf.

133. For more discussion, see Admati et al., *supra* note 9. *See also* Suresh Sundaresan & Zhenyu Wang, *On the Design of Contingent Capital With Market Trigger* (Fed. Reserve Bank N.Y. Staff Reports, No. 448, 2010), *available at* http://www.newyorkfed.org/research/staff_reports/sr448.pdf.

specification, there may be multiple equilibria (situations where if it is assumed that contingent capital is converted, then the price is such that it triggers conversion, but if it is assumed that no conversion occurs, then the price is such that indeed no conversion occurs), or there may be no equilibrium at all (because if it is assumed that the contingent capital is not converted, then the price is such that it is converted, and vice versa).

It is important to note that contingent-capital securities, many of which any firm is free to issue instead of debt or equity, are rarely used. If contingent capital does in fact save significantly on bankruptcy costs, it seems that it should be used more extensively than it is in place of equity or debt.[134] The ability of contingent capital to create genuinely loss-absorbing debt that would prevent bailouts is untested and as yet poorly understood.

The fact that some co-cos have recently been successfully issued by banks[135] does not in any way show that these instruments will be effective in reducing TBTF subsidies or are efficient ways to solve the various problems we have highlighted above. Priced attractively, just about any security can be sold. The banks that issued co-cos were primarily responding to regulatory demands such as those in Switzerland, which allow 9 percent out of the total of 19 percent in capital requirements to be satisfied by co-cos. Banks may prefer co-cos over equity for their own reasons, including: (1) the focus on measures such as return on equity, which is not affected by using co-cos but would be mechanically reduced by more equity; (2) the tax deductibility of interest payments on co-cos in some countries; and (3) suspicion by the banks and co-co investors that, at a time of systemic crisis, governments would step in to prevent destabilizing trades made in anticipation of the trigger being reached. None of these reasons are related to any social benefits for co-cos over equity.

If co-co bonds were to be used more extensively in place of equity to provide loss absorption, then it is also important to consider what types of investors would be inclined to purchase such securities. The issue is whether the investors who

134. Interestingly, there seems to be a difference between the U.S. tax code and that of countries in Europe. In the United States, contingent capital is not considered debt for tax purposes, because holders of contingent capital do not have creditor's rights. It seems that in Europe there is a tax deduction for interest while the security makes debt payment. *See* JOINT COMM. ON TAXATION, PRESENT LAW AND BACKGROUND RELATING TO TAX TREATMENT OF BUSINESS DEBT (2011), *available at* http://www.jct.gov/publications.html?func=download&id=3803&chk=3803&no_html=1.

135. Credit Suisse has done so in response to Swiss capital requirements, which allow 9 percent out of the required 19 percent of capital to be issued as contingent capital. *See* Jennifer Hughes, *Credit Suisse Cocos Issue Deluged*, FIN. TIMES, Feb. 17, 2011, *available at* http://www.ft.com/intl/cms/s/0/31da02a0-3ac6-11e0-9c1a-00144feabdc0.html.

hold contingent capital securities are likely to have the capacity to absorb loss at a time when they will be forced to do so, or whether, as happened in the crisis and as we see now in the context of Greek debt, bailouts arise when the holders of nonequity securities are not in a good position to deal with the losses. Specifically, since contingent capital securities are primarily debt claims, it is likely that investors who buy them would be primarily looking at them as debt instruments. These investors may not be able to absorb losses should a systemic event that affects them directly occur at the same time their contingent capital securities are subject to a forced conversion.

2. Bail-ins and Resolution Mechanisms

A bail-in is a mechanism designed to impose losses on debt holders before any public support of banks in a crisis situation. Bail-in and resolution mechanisms are conceptually similar. Both require regulators to determine when resolution or bail-in should be initiated, and both involve converting debt into equity or inflicting losses on debt holders at the discretion of regulators.[136]

These proposals place extremely difficult and unrealistic demands on regulators, putting them in a position of having to assess the viability or solvency of complex global banks with illiquid assets and complex liabilities across the globe, and, moreover, being able, technically and politically, to pull triggers and force losses on debt holders or force their securities to convert to equity claims. It is unrealistic to expect that regulators will be able to recognize the exact time at which a resolution or bail in mechanism should begin, and be politically able to follow up with haircuts or mandatory conversion. This is particularly true if a potential crisis is looming, since pulling triggers and inflicting haircuts might have unpredictable consequences throughout the financial system.

Better resolution mechanisms developed in the United States and recently in the United Kingdom will make it easier to resolve, or bail-in, banks that get into trouble. However, they cannot be relied on to work well for large, complex, and interconnected global banks. Moreover, there is no basis for the coordination across countries, especially those with different legal systems that would be required to avoid even the worst disruptions from such proceedings. In a systemic

136. Of course, bail-ins and co-co bonds are also conceptually similar. We use the term bail-in to mean the process by which regulators force the SIFI's losses on its unsecured creditors. For an explanation of the Danish law on bail-ins, see Adam Ewing, *Danish Banks Face Funding Relief as Bail-In Isolation Ends*, BLOOMBERG (Nov 9, 2011, 3:37 AM), http://www.bloomberg.com/news/2011-11-08/danish-banks-face-funding-relief-as-bail-in-isolation-set-to-end.html.

crisis, moreover, multiple banks, and possibly the entire financial system, would be distressed. Even relatively strong banks are then likely to suffer from debt overhang and to have impaired ability to function. Such surviving banks are not likely to be in a good position to provide funds to cover the costs of resolutions. Nor is it clear that other parts of the financial system, such as insurance companies, will be able and willing to fill the gap. As mentioned above, therefore, prevention is the best approach. Reducing the likelihood that resolution or bail-in mechanisms are needed is of utmost importance, especially if this can be accomplished at a relatively low social cost.

3. Size Caps and Other Break Up Proposals

Another set of proposals comes from Simon Johnson, former IMF chief economist, and law professor James Kwak; Herb Allison, former banker and Assistant Treasury Secretary for Financial Stability during the crisis; and Thomas Hoenig, recent president of the Kansas Fed and his colleagues.[137] These proposals are based on the idea that the TBTF institutions are simply too big, and this has become particularly true following the massive, government-sponsored consolidation of the banking industry that occurred in 2008. These authors suggest that ways are found to break up banks by placing constraints on their total size as measured as a percentage of GDP, or by placing constraints on the type of activities in which they engage.[138] There is much to be said for these proposals. It should,` however, be noted that those commentators who have argued in favor of asset or liability caps generally have done so at levels far above the SIFI definition presented in Dodd-Frank. Thus, asset caps at, say, $500 billion may protect against the creation of some of the financial juggernauts that currently prevail in the system. But that still leaves a collection of institutions that are a tenth the size and would still qualify for SIFI status. The LHC proposal addresses the problems of leverage for these somewhat smaller entities in a way that asset size caps do not.

We should also note that large or even moderate institutional size is not always the contributing factor to the need for bailouts. The last large-scale gov-

137. *See* HERB ALLISON, THE MEGABANKS MESS (2011); THOMAS M. HOENIG & CHARLES H. MORRIS, FED. RESERVE BANK OF KANSAS CITY, RESTRUCTURING THE BANKING SYSTEM TO IMPROVE SAFETY AND SOUNDNESS (2011), *available at* http://www.kansascityfed.org/publicat/speeches/Restructuring-the-Banking-System-05-24-11.pdf; SIMON JOHNSON & JAMES KWAK, 13 BANKERS: THE WALL STREET TAKEOVER AND THE NEXT FINANCIAL MELTDOWN (2010).

138. *See supra* note 137.

ernment bailout was legislated as the Financial Institutions Reform, Recovery, and Enforcement Act of 1989,[139] which funded the bailout of the savings and loan industry. In that case, which may prove to have been the more expensive of the last two banking sector bailouts,[140] no single institution posed the systemic threat, as transpired in the recent financial crisis. Instead, it was an entire industry that collectively engaged in cost-externalization. Size was not the issue, but bailouts nevertheless were the response. Thus even with much smaller institutions, leverage can still be a problem if their distress and failure occur simultaneously, across the entire financial system, because of their correlated investments and interconnectedness. All of this means that it would be very difficult to break up banks to a size for which high leverage would not continue to be a problem and this supports the argument for higher capital requirements across the board. We should also note that while the LHC structure may not be ideally suited for smaller institutions, it could still be offered to them as an alternative way to meet higher capital requirements.

4. Industry Insurance Funds

Another attractive proposal is a significantly expanded version of the FDIC fund, with financing not from taxpayers, as required under Dodd-Frank, but through private funding. The particulars of this proposal vary, but its main features are described separately by Kashyap, Rajan, and Stein;[141] Jeffrey Gordon and Christopher Muller;[142] and Arthur Wilmarth.[143]

139. Pub. L. No. 101-73, 103 Stat. 183 (codified as amended in scattered sections of 12 U.S.C.).

140. It looks like 2008, besides Fannie Mae and Freddie Mac, will be net positive for the government. *See* Lori Montgomery, *TARP Expected to Cost U.S. Only $25 Billion, CBO Says*, WASH. POST, Nov. 30, 2010, http://www.washingtonpost.com/wp-dyn/content/article/2010/11/29/AR2010112905453.html. The Financial Institutions Reform, Recovery, and Enforcement Act ended up costing taxpayers roughly $150 billion. *See* Timothy Curry & Lynn Shibut, *The Cost of the Savings and Loan Crisis: Truth and Consequences*, 13 FDIC BANKING REV., no. 2, 2000, at 26, *available at* http://www.fdic.gov/bank/analytical/banking/2000dec/brv13n2_2.pdf. Of course, while the direct costs to the taxpayer in the savings and loan crisis may turn out to be higher than in the 2008 crisis, this may have more to do with good luck and even the continuation of the problem at hand. For example, Bank of America borrowed money to repay the government. If Bank of America were not considered too big to fail, it is unlikely that it would have been successful in making these payments at the rates it received. Furthermore, the costs to the economy (through lost output, unemployment, lost tax revenues, and so forth) are higher in the more recent crisis. Thus, any argument that equates the fact that the banks have repaid their governmental debts with the idea that the recent crisis was costless is specious.

141. Kashyap et al., *supra* note 21.

142. 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 (2011).

143. Wilmarth, *supra* note 7.

Kashyap, Rajan, and Stein propose forcing large financial institutions to purchase default insurance, which will be triggered by systemic events, and which will be guaranteed to deliver capital during a crisis. The payout on this insurance will be made secure by requiring that the provider set aside a large quantity of safe liquid assets in a lock box. Gordon and Muller envision something distinct, more along the lines of a conventional—but significantly expanded—version of the FDIC fund.[144] Wilmarth also laments the absence of an industry-funded insurance fund, and has described some of the features that such a fund would have.[145]

The proposal in Kashyap, Rajan, and Stein shares with our approach the notion of escrowing relatively safe assets to back up the liabilities of financial institutions. Providing insurance through the private sector rather than through implicit, TBTF government guarantees is quite desirable. However, since the insurance is provided by a distinct entity that is not directly owned by the shareholders owning the financial institution, the moral hazard problems and agency costs associated with insurance remain. The proposed LHC structure essentially requires that shareholders self-insure and requires that the shareholders put their money in escrow (in the form of safe assets held by the LHC) to ensure that the self-insurance will be effective. This greatly reduces the moral hazard problems associated with insurance, which are related to the incentives for the shareholders to increase risk.

B. Counterarguments

1. The Too Big to Fail LHC

One potential problem with the LHC structure is that it merely creates a new TBTF structure, replacing the TBTF SIFI with a TBTF LHC. Thus, if an LHC, through poor investing, loses the assets needed to guarantee the SIFI's debts, then the government would have to either prevent the LHC's failure or, more likely, insure the original SIFI, as it does presently.

Note that the LHC fails to prevent a bailout only when (1) the assets of both the SIFI and the LHC fall so far in value that collectively they are insufficient to cover the SIFI's liabilities and (2) the government determines that it needs to provide support to keep the SIFI afloat to reduce systemic risk to the rest of the economy. One can imagine extreme scenarios in which this could happen,

144. *See* Gordon & Muller, *supra* note 142.
145. *See* Wilmarth, *supra* note 7.

but if the LHC initially has significant assets to meet the increased liability of the SIFI equity, these will be unlikely. One important point to note is that for the LHC to fail, the fall in asset values must not only be significant, they must be very precipitous, occurring so quickly that there is not time to recapitalize the LHC. If asset values fall to the point at which the LHC is undercapitalized, the LHC could be recapitalized by raising additional funds through equity issuance. Regulatory authorities would require this recapitalization and it could be accomplished in many ways, including the LHC making a rights offering designed to raise the required amount of new funding. The new funds, of course, would be used to acquire marketable assets at the LHC level or would be moved to the SIFI, where they would be used to pay down debt or to acquire additional assets at the SIFI level.

Despite the fact that the LHCs associated with large SIFIs will themselves be large, the LHCs themselves do not pose a too-big-to-fail problem. Since the LHC is required to be funded entirely by equity and is thus unable to take on debt, it is never in danger of failure. It is true that a sudden depreciation of the LHC's assets would bring into question the LHC's ability to back its SIFI's debt and prevent its SIFI from being in distress or failing. Regulations concerning the riskiness and the mix of assets held by the LHC can keep the chance of this low, but no regulation is perfect, and it is possible that in some extreme financial crises the LHC system will not prevent the need for some government support. However, the LHC structure, similar to equivalent high equity requirements, does make these bailouts far less likely to occur in general and less costly to taxpayers in the event that they occur at all. Such should be a central purpose behind any post-crisis banking regulatory reform.

2. Problems of International Coordination

Any proposed system for addressing the problems created by systemic risk must recognize that the largest financial institutions are global enterprises, which operate in many jurisdictions with different approaches to banking regulation. The main purpose of the Basel Committee on Banking Regulation is to resolve this problem through coordinated international effort. Thus, for the election envisioned in this Article to work, it must be structured so that it cannot be undermined through international regulatory arbitrage. This challenge, of course, is not a problem unique to our proposal, but one all banking proposals face. The best regulatory approach is thus an internationally coordinated one.

It is often argued that capital regulation must be the same in all countries so as to create a level playing field, and banks often plead with regulators to avoid tougher regulation so they can maintain their global competitiveness. However, as

argued in Admati et al.[146] and in Admati and Hellwig,[147] these arguments are invalid. If banks in a given country inflict risks and costs on taxpayers who are providing the safety net, it is better to regulate to control the externality, cost, and resulting distortions even if others are not doing the same. Externalities and subsidies to an industry to allow it to compete globally may distort the competition for inputs, including human talent, and thus hurt the economy.

3. Contingent Liabilities

The LHC structure is designed to increase the liability of the SIFI's equity and by doing so to help guarantee the SIFI's liabilities. But it was contingent liabilities—whether in the form of off-balance-sheet liabilities, as in the case of Citigroup, or collateral calls in the case of AIG—that were at the heart of the crisis. The LHC structure, as presently described, would be explicitly less effective at preventing the implicit guarantee of contingent debt.

Contingent liabilities are indeed a problem. For purposes of simplicity, in defining the LHC structure we have focused on the SIFI's bounded liabilities. However, the LHC structure could be designed to cover the full scope of the SIFI's liabilities, bounded or unbounded, realized or contingent. Note also that the LHC structure is not meant to replace existing prudential regulation, including much of Dodd-Frank. Title VII of Dodd-Frank, the widely praised section changing the way that over-the-counter derivatives are regulated, would go unchanged. Thus, the regulations used to monitor bank activities would continue in place. The LHC structure would exist as a complement.

4. Increasing Complexity

An obvious objection to creating another financial institution and an expanded regulatory framework is that doing so adds to the complexity of the financial system. One might fear that players within the financial markets would be able to exploit this increased complexity to their benefit.[148] Of course, one must also be concerned that changes made to existing regulation might have unintended consequences.

146. *See* Admati et al., *supra* note 9.

147. *See* Anat Admati & Martin Hellwig, *Global "Level Playing Field" Arguments Are Invalid*, FIN. TIMES ECONOMISTS' F. (June 6, 2011, 11:29 AM), http://www.gsb.stanford.edu/news/packages/PDF/MartinWolfFT060611.pdf.

148. See RICHARD BOOKSTABER, A DEMON OF OUR OWN DESIGN: MARKETS, HEDGE FUNDS, AND THE PERILS OF FINANCIAL INNOVATION (2007), for the most thoughtful of these arguments.

These arguments deserve careful consideration whenever proposals are made to modify a regulatory regime. Here, though, the regulatory effort is motivated by one of the most broadly accepted justifications for government regulation: the presence of market failure. The externalization of risk from private actors to the broader public, with the associated consequences beyond that cost imposition, is sufficient to justify regulatory intervention. If any unintended consequences are revealed, reevaluation would be warranted and important. But the argument against LHCs on the basis of a generic argument against regulation fails to grapple with the present economic realities of the existing regulatory regime. Better counterarguments are those that reckon with the specific substance of the proposal, or argue that alternative mechanisms to reduce these externalities are more effective.

5. Governance Problems for LHCs

It might seem that the fact that the LHC has no ability to fund itself with disciplining debt introduces identical agency problems on the LHC level to those that it tries to resolve for the SIFIs. By design, any governance problems of LHCs will be subject to the discipline of the equity markets, which finance theorists have long questioned. Note, however, that the scope of potential agency problems at the LHC level is limited. The LHC management and directors have less opportunity to take actions that advance their interests at the expense of shareholders than is the case at comparable institutions, since the assets in which they can invest are severely restricted. The LHC management's main task is to comply with the Federal Reserve's regulatory requirements, and otherwise pass dividends on to LHC shareholders. The agency problems are thus mitigated by the very nature of the LHC's restricted activities.

CONCLUSION

We have presented an option that SIFIs would be able to elect to meet the significantly higher capital adequacy requirements needed to remove government subsidies and the significant distortions and costs associated with them. Our proposal is designed to preserve a potentially socially beneficial value of debt: the diminution of agency costs between managers and bank shareholders.

At the bottom line, the only reasonable argument put forward against dramatically increasing capital requirements for systemically important financial institutions is the possible governance advantages associated with high levels of debt. The LHC structure we propose delivers those benefits without simultaneously creating unnecessary fragility and major distortions associated with high leverage, particularly for those institutions deemed too big to fail. Such institutions

create immense negative externalities, and so far there has been no alternative proposed that would remove these externalities. We remain open to any such proposals and believe increased equity requirements, implemented either directly or through an LHC structure, can be combined with other measures, such as reduction of size and complexity, effective resolution mechanisms, and improved supervision of managerial compensation and governance, to regulate large financial institutions.

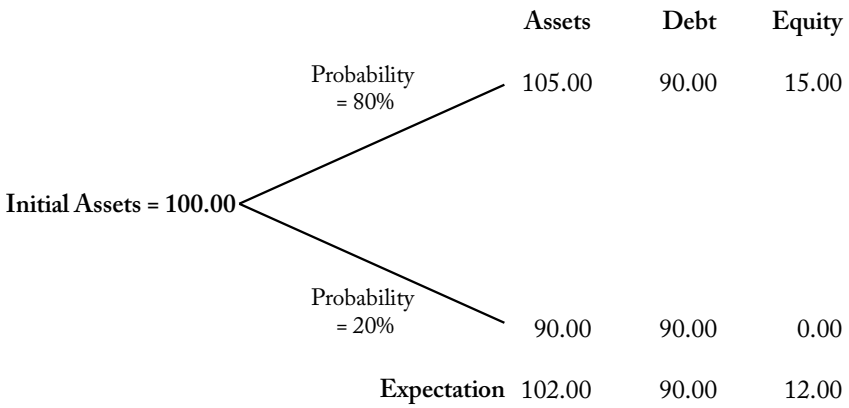
APPENDIX

In this appendix we present some very simple numerical examples that illustrate some of the problems and perverse incentives that exist in highly leveraged SIFIs—problems that are directly traceable to the limited liability status of equity. We first illustrate why a financial institution's equity holders, if they enjoy the benefits of limited liability, have incentives to increase the riskiness of the institution's assets, even if that causes a loss in overall value. We then illustrate why the limited-liability shareholders of a highly leveraged financial institution may not want that institution to issue additional shares, even if the proceeds of that equity issuance can be used in very profitable ways. The first incentive problem is called the risk-shifting problem, and the second is called the debt overhang problem. We show (in the context of our examples) that both of these problems disappear when the liability of shareholders becomes unlimited and that both problems are much attenuated when shareholder liability is significantly increased.

A. Risk Shifting

SIFIs are very complex entities, holding many different types of assets and having very complicated liability structures. Fortunately, it is not necessary to model this complexity in any detail in order to illustrate the risk shifting and debt overhang problems. To demonstrate the source of these problems, all we need is for the assets of the SIFI to be risky, that the SIFI's creditors be promised a fixed amount, and that shareholders be residual claimants with limited liability. We will begin by assuming that a financial institution has assets in place that are currently valued at 100. Throughout our discussion we will assume that this institution owes its creditors the fixed amount of 90 and that this is due in one year. To make the assets risky we first will assume that there is an 80 percent chance that the assets will increase in value over the year to 105 (a 5 percent return) and a 20 percent chance that the assets will over the year fall to 90 (a 10 percent loss). The expected return on assets is $80\% \times 5\% + 20\% \times (-10\%) = 2\%$. The situation is shown in figure 1 below.

FIGURE 1

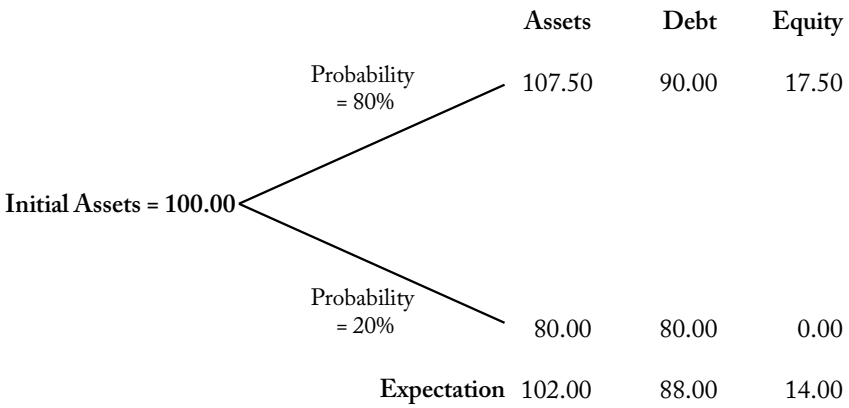


If it is a good year, the assets will grow to 105. From this amount the debt can be paid in full and the shareholders, as residual claimants, will be entitled to the 15 that is left over. If the assets decline in value to 90, the debt holders can still be paid in full, but there will be nothing left for the shareholders. In this very simple setting the debt is riskless (it is always paid in full) and the expected amount received by the shareholders is 12 (80% × 15).[149]

Now consider how the shareholders would view an increase in the riskiness of the financial institution's assets. Assume that the institution changes the composition of its assets so that if things go well the assets will be worth 107.5 (a 7.5 percent return) and if things go poorly, the assets will fall to 80.0, a 20 percent loss. Note that this change increases the risk of the assets but does not change the expected return on assets. The expected return on assets is still 2 percent (80% × 7.5% + 20% × (–20%) = 2%), but it can be shown that the risk (as measured by the standard deviation or volatility of the asset return) has increased from 6 percent to 11 percent. The effects of this change are shown in figure 2.

149. To keep the story simple we will focus on the expected amount that shareholders and debt holders receive at the end of the year. The value of debt and the value of equity at the start of the year will depend on the time value of money and the appropriate discounting for risk as well as the expected amount these claims will receive at year end. Accounting for these additional considerations would make our discussion a bit more complicated, but would not introduce any additional insights.

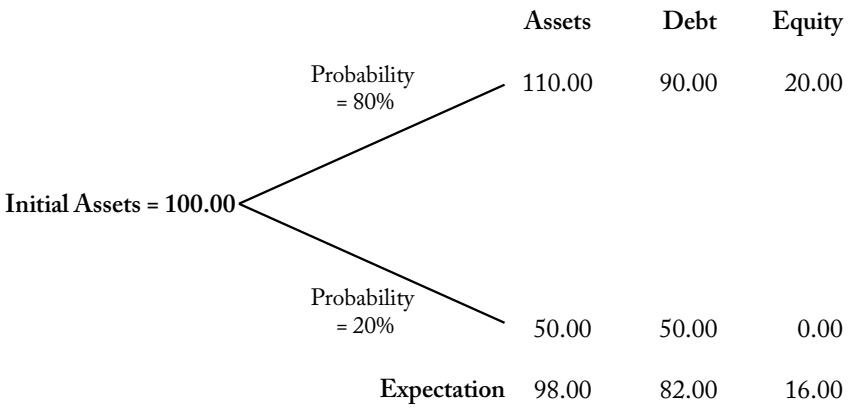
FIGURE 2



The change in risk has increased the expected payoff to the equity holders from 12 to 14. A comparison between figures 1 and 2 shows that the shareholders do better on the upside when risk is increased, receiving 17.5 rather than 15, but are no worse off on the downside. The debt holders are the ones who suffer on the downside, receiving 80 rather than the 90 they were promised. In very simple terms the shareholders, by increasing risk, can transfer value to themselves from the debt holders.

One might be tempted to argue that although the shareholders' opportunistic risk shifting results in a transfer of wealth to them from debt holders, ultimately no value is lost, since in both 1 and 2 the expected value of the assets is 102. In other words, the effect is just one that results in a redistribution of wealth, not a loss of wealth. Risk shifting can, however, cause a true loss in value. Consider another scenario. In this scenario risk is increased so that in the good outcome the assets increase by 10 percent in value, but the bad outcome is very bad indeed, with the assets falling in value by 50 percent. The expected return on assets is now *minus* 2 percent ($80\% \times 10\% + 20\% \times (-50\%) = -2\%$). The results of this shift in risk are shown in figure 3.

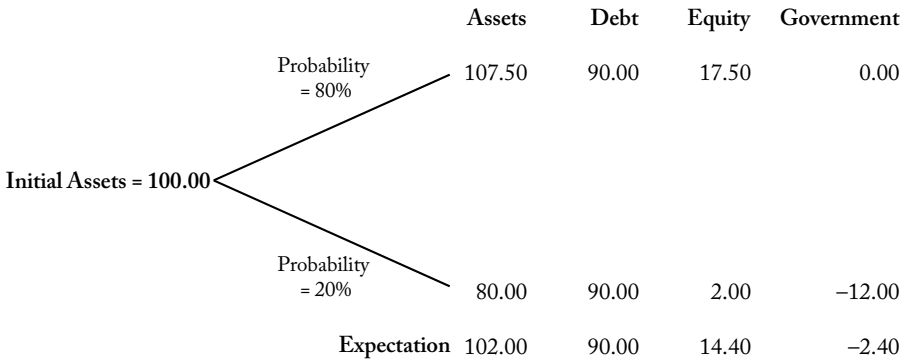
FIGURE 3



The equity holders would clearly prefer 3 to 2, which they prefer to 1. The risk shifting in 3 is truly destructive since it results in the expected value of the assets being less (98 versus 100).

Debt holders of nonfinancial firms are well aware of their vulnerability to increases in asset risk, especially in highly leveraged situations, and debt contracts typically have covenants that restrict the ability of managers and shareholders to engage in risk shifting. Because of implicit and explicit government guarantees, the debt holders of financial firms, especially SIFIs, are not as vulnerable to increases in asset risk and are therefore less concerned about opportunistic risk shifting. In fact, figure 2G, which is a variation on figure 2, is a better illustration of the incentives in a SIFI context.

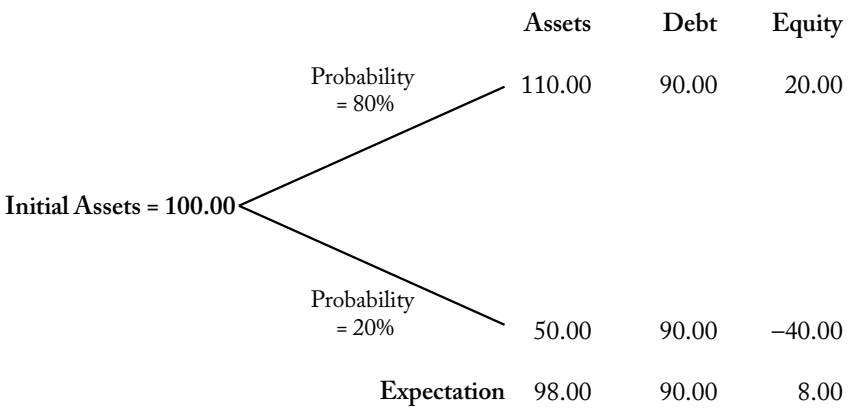
FIGURE 2G



In figure 2G we have included the possibility of a government bailout. In the bad outcome where the assets fall in value to 80, the government steps in to support the SIFI. By one means or another (buying assets at inflated values, providing loans at below market rates, etc.) the government effectively covers the liabilities of the bank (this costs 10) and adds to the value of equity (this costs 2). The debt holders are no worse off in 2G than they were in 1 and the equity holders are clearly better off. It is now the government and its taxpayers who pay the cost of opportunistic risk shifting.

The incentives for risk shifting exist only when the shareholders have limited liability. In figure 3UL, we modify figure 3 to show what happens when shareholders have *unlimited* liability.

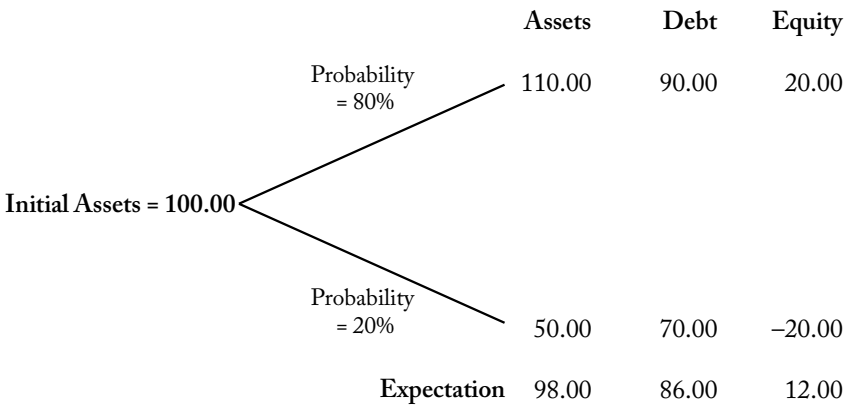
FIGURE 3UL



Recall that, in figure 3, the shareholder with limited liability profited by increasing risk even though that increased risk lowered the expected value of assets. As shown in figure 3UL, shareholders with unlimited liability suffer the full consequences of risk shifting. They must make up the shortfall of 40 that occurs in the bad state of the world when the assets are only worth 50 and the debt holders are owed 90. The expected payoff to equity is only 8, whereas it was 12 in figure 1. Risk shifting causes the expected asset value to fall by 4 (102 versus 98) and shareholders completely bear this loss.

In 3UL we consider the extreme case of shareholders having unlimited liability. The LHC structure that we are proposing is designed to increase the liability of shareholders, but it does not necessarily make that liability unlimited. The important point to note is that even if shareholders are not fully liable to make up all losses, increases in their liability significantly diminish their incentives to increase risk. For example, assume that shareholders' total liability is capped at X, that is, they will be responsible for losses up to X but no more than X. This means in the context of our proposal that the LHC will be required to hold assets that are valued at X to back up the increased liability associated with the SIFI's equity. Now assume that X is set equal to 20 and consider the incentives that shareholders would have to increase risk in the way they did in 3. The situation now becomes that depicted in 3IL.

FIGURE 3IL

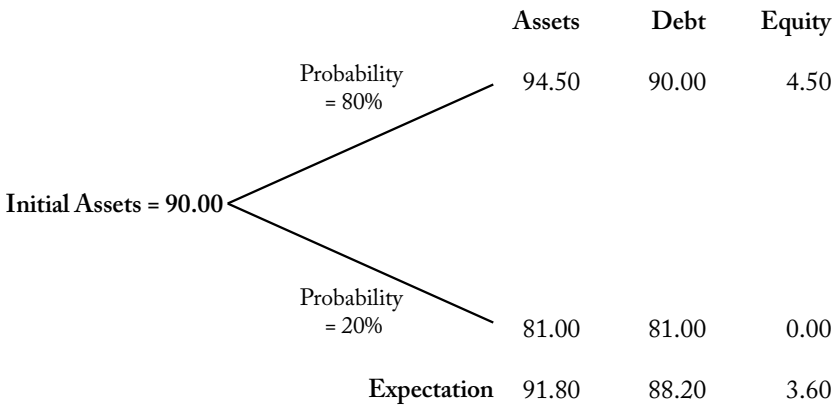


In 3 the shareholders, whom we assumed had strictly limited liability (i.e., X = 0), gained by shifting risk since this increased their payoff from 12 to 16. In 3IL we are assuming that through our LHC structure the shareholders' liability is increased so that they are responsible for the first 20 in losses. As can be readily seen, with this increased liability the shareholders do not gain by shifting risk, since even after the risk shift they still have an expected payoff of 12. In general, the more liability is increased, the more difficult it becomes for the shareholders to transfer value from the debt holders to themselves through increases in asset risk. As shareholder liability is increased, the shifts that must be made in risk to transfer value become larger and easier to both detect and prevent.

B. Debt Overhang

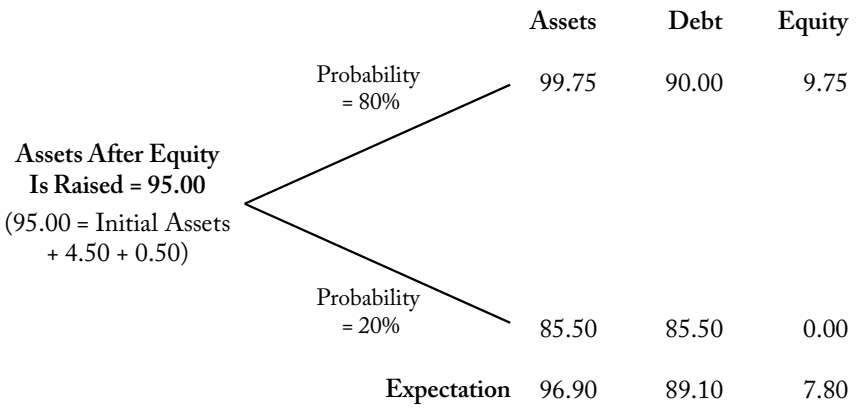
To illustrate the problem of debt overhang we will assume that the financial institution we have been considering suffers a loss at the *beginning* of the year, and its asset value declines to 90. Figure 4 shows the situation.

FIGURE 4



We are assuming that the asset risk remains the same as what it was in figure 1, i.e., an 80 percent chance of a 5 percent increase and a 20 percent chance of a 10 percent decrease, which results in an expected return on assets of 2 percent. The only change is that initial assets are 90, not 100. With only 90 in initial assets this is a financial institution in serious trouble and close to being insolvent. Now assume that the financial institution has access to a great opportunity: It can buy additional assets that are worth 5.0 and only pay 4.5. All it needs to do to take advantage of this discount is raise 4.5 of new capital by issuing additional equity. Assume it does so. The situation is now that depicted in figure 5. (Note that the initial assets are now valued at 95, which is equal to 90, the value of the assets after losses are suffered, plus the 4.5 raised by issuing new equity plus the 0.5 in extra value created by being able to buy the assets at a discount.)

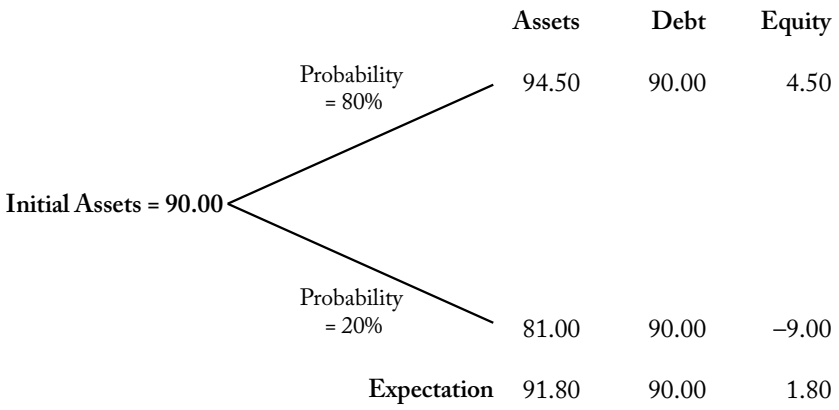
FIGURE 5



The debt holders clearly prefer the situation depicted in figure 5 to that depicted in figure 4, since their expected payoff is 89.10 rather than 88.20. The expected amount that equity holders receive in figure 5 is 7.80, but unfortunately this turns out to be not enough. The problem is that the expected payout to equity has only increased by 4.2 (i.e., 7.8 – 3.6). Since the equity holders need to invest 4.5 to take advantage of the profitable opportunity, this is clearly a losing proposition. Although value is created when 5.0 in assets can be bought for only 4.5, too much of this additional value ends up benefiting the debt holders and not enough is left to reward the equity holders who are making the investment. The increase in the value of the financial institution's assets helps secure the overhanging debt obligations. The shareholders, if they raise new equity, end up having their interests diluted. This is the essence of the debt overhang problem.

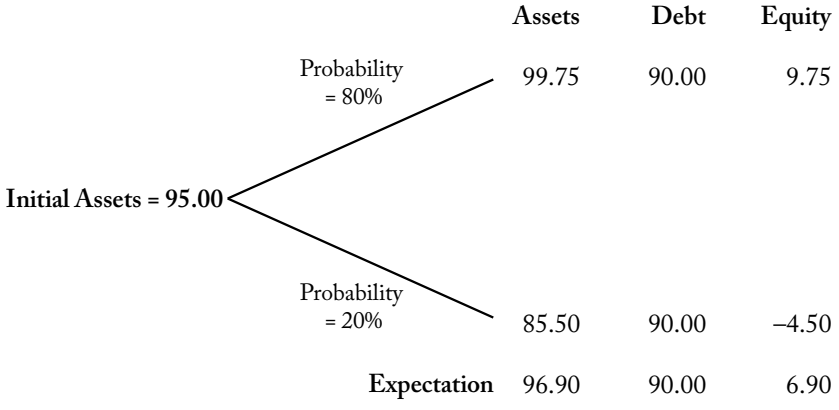
Like the risk shifting problem, the debt overhang problem goes away if the shareholders have *unlimited* liability. Figure 4UL shows the initial situation in which shareholders have unlimited liability.

FIGURE 4UL



With unlimited liability, the shareholders need to make up the shortfall of 9 when the asset value falls to 81. This means that the expected payoff to equity holders is only 1.8, rather than the 3.6 they had with limited liability. If new equity is issued to raise 4.5 to buy the additional 5.0 in assets, the situation with unlimited liability becomes that shown in figure 5UL.

FIGURE 5UL



When 4.5 in new equity is raised, the expected payout to equity increases by 5.1 (6.9 versus 1.8). The equity holders capture the full benefits of the opportunity. When the shareholders have unlimited liability, debt holders have a riskless claim. This means that any changes in asset value have no effect on the debt

holders' position and only affect the value of the shareholders' claims. Thus the shareholders fully benefit from any value added.

As mentioned above, the LHC structure is designed to increase liability, not necessarily to make it unlimited. But just as was the case when we considered risk shifting, a simple increase in shareholder liability is sufficient to make the situation better. In the context of debt overhang, an increase in shareholder liability reduces the potential for debtholders to capture some of the value created when shareholders invest. If liability is capped at some $X > 0$, the debt overhang problem is less severe than it is when $X = 0$. In the case just considered, as long as the cap on liability is no less than 6 (shareholders are responsible for at least making up a loss of 6), shareholders will not be diluted and will want to raise new equity.