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Interbank Discipline

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INTERBANK DISCIPLINE

Kathryn Judge*

ABSTRACT

As banking has evolved over the last three decades, banks have become increasingly interconnected. This Article draws attention to an effect of this development that has important policy ramifications yet remains largely unexamined—a dramatic rise in interbank discipline. The Article demonstrates that today’s large, complex banks have financial incentives to monitor risk taking at other banks, the infrastructure, competence, and information to be fairly effective monitors, and mechanisms through which they can respond when a bank changes its risk profile. This suggests that interbank discipline affects bank risk taking and merits more consideration than it has received thus far.

The rise of interbank discipline has both positive and negative ramifications from a social welfare perspective. The good news is that self-interested banks may be expected to penalize a bank when it takes excessive risks, thereby deterring such risk taking. The bad news is that the interests of banks and society are not always so well aligned. Other banks, for example, may be expected to reward a bank when it changes its risk profile in a way that increases the probability that the government would bail the bank out rather than allowing it to fail. This is because a bailout protects a bank’s creditors, even though it is socially costly. Interbank discipline may thus encourage banks to alter their activities in ways that increase systemic fragility.

In drawing attention to the powerful yet mixed effects of interbank discipline on bank activity, this Article contributes to a new generation of scholarship on market discipline. Its aim is not to question whether we need regulation, but to address the pressing issue of how we should allocate inherently finite regulatory resources. By reducing the regulatory resources devoted to activities that other banks are performing relatively well, increasing the resources devoted to activities that regulators are uniquely situated or incentivized to address, and seeking to counteract the adverse effects of interbank discipline, bank oversight could be redesigned to more effectively promote the stability of the financial system.

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INTRODUCTION

The United States and other nations are in the process of fundamentally rethinking how best to regulate banks. The 2007 to 2008 financial crisis (the Crisis) triggered a global effort to reformulate financial regulation for the twenty-first century, and most changes adopted thus far respond directly to weaknesses revealed by the Crisis. The success of efforts to design a financial regulatory regime capable of meeting the challenges ahead, however, depends on policymakers looking past the immediate causes of the Crisis to consider how the financial system has evolved in recent decades and the significance of those changes. This Article sheds new light on one such development and the lessons it holds for policymakers interested in creating a more stable financial system.

One of the most significant changes in the financial system over the last three decades has been a transformation in the nature of banks and banking.¹ Traditionally, the majority of a bank's interactions were with consumers and companies. Banks accepted deposits and made loans, facilitating maturity transformation and credit intermediation. Banks still engage in these activities, and they remain the primary activities of many community-based banks. But a new breed of banks has come to dominate the financial landscape: the large, complex financial institution (referred to here as "complex banks").² In addition to taking deposits and extending loans, complex banks engage in a wide variety of other activities, including using credit default swaps and other derivatives to reallocate risk, making markets for securities, and engaging in other trading activity.³ These activities significantly increase interbank activity and exposure. At the same time, using financial innovations like securitization, which enables banks to sell loans they originate into a secondary market rather than holding all such loans to maturity, complex banks have reduced their direct credit exposure to the consumers and firms with whom they work. As a result, the primary source of credit risk for today's complex banks is other banks.⁴

This transformation in banking has been well documented.⁵ Policymakers and others are attuned to this development, and to the potential for connections among banks to increase systemic fragility by increasing the probability that a weakness at one bank will lead to problems at others.⁶ They have also started to respond.⁷ Concerned about the safety and soundness of

1. The term bank has been construed in a range of ways, with some using it to encompass "any financial intermediary . . . whether or not . . . regulated by banking regulators." RICHARD A. POSNER, *THE CRISIS OF CAPITALIST DEMOCRACY* 9 (2010). This Article takes an intermediate approach. It uses the term only for firms that are regulated as banks or bank holding companies, but it includes financial institutions that would not have been considered banks, in the traditional sense, prior to the Crisis.

2. The analysis focuses upon the largest, most complex institutions that have come to dominate the banking landscape, *see infra* Part I.B, but much of the analysis extends to a broader swath of banking institutions.

3. *See infra* Part I.B.

4. *See infra* Part II.B.

5. *See infra* Part I.A.

6. *E.g.*, Daniel K. Tarullo, Member, Bd. of Governors of the Fed. Reserve Sys., Remarks at the Brookings Institution Conference on Structuring the Financial Industry to Enhance Economic Growth and Stability, Industry Structure and Systemic Risk Regulation 2 (Dec. 4, 2012), available at <http://www.federalreserve.gov/newsevents/speech/tarullo20121204a.htm> (noting that "large financial institutions transact with one another on a nearly continuous basis and regularly maintain contractual relationships carrying substantial future obligations," which means that "[t]he daily operations of most firms in the financial industry depend to a much greater extent on the conditions of their competitors than do such operations of firms in other industries.").

7. *E.g.*, OFFICE OF THE COMPTROLLER OF THE CURRENCY, FED. DEPOSIT INS. CORP., BD. OF GOVERNORS OF THE FED. RESERVE SYS. & OFFICE OF THRIFT SUPERVISION, INTERAGENCY SUPERVISORY GUIDANCE ON COUNTERPARTY CREDIT RISK MANAGEMENT 2 (2011) [hereinafter

Bank A, for example, regulators have sought to ensure that Bank A has a risk management system that enables it to monitor its credit exposure to Bank B and adjust its exposure in light of changes in Bank B's risk profile. The aim of this oversight is to reduce the risk that Bank A will be harmed if Bank B gets into trouble. What has gone relatively unexamined, however, is the effect of Bank A's monitoring and disciplining of Bank B on Bank B. That is the focus of this Article. It builds upon the simple insight that if Bank A penalizes Bank B for some actions, but not others, the discipline Bank A imposes on Bank B alters Bank B's incentives, and consequently, its activities.

Shifting the focus in this manner provides two important insights into the significance of the rise in interbank activity. First, the Article reveals that banks today are subject to much more robust market discipline than is commonly appreciated. Policymakers and academics have long advocated using the market to discipline banks.⁸ Advocates of market discipline, however, have tended to approach the topic by focusing on an identifiable class of stakeholders, such as depositors or subordinated debtholders, and examining that constituency's incentives to monitor and discipline a bank's activities.⁹ Some commentators have recognized that banks may be uniquely well suited to discipline other banks, but they have tended to suggest that some regulatory change must be made for banks to have adequate incentives to monitor and discipline one another.¹⁰ This Article challenges that assumption. It shows that banks often have myriad relationships with other banks. When the credit exposures arising from these various relationships are aggregated, as banks increasingly (and soon must) do, it becomes apparent that

INTERAGENCY GUIDANCE] ("set[ting] forth sound practices and supervisory expectations," with respect to managing "the risk that the counterparty to a transaction could default or deteriorate in creditworthiness," including monitoring and aggregating individual counterparty exposures, regularly evaluating the creditworthiness of counterparties, and adjusting limits with respect to counterparties based upon those assessments); Lending Limits, 77 Fed. Reg. 37,265 (proposed June 21, 2012) (to be codified at 12 C.F.R. pts. 32, 159 & 160) [hereinafter Lending Limits] (proposing to expand the definition of credit exposure and imposing more stringent limitations on a bank's maximum credit exposure to another entity for banks under OCC's jurisdiction); Enhanced Prudential Standards and Early Remediation Requirements for Covered Companies, 79 Fed. Reg. 594, 600 (proposed Jan. 5, 2012) (to be codified at 12 C.F.R. pt. 252) [hereinafter Enhanced Prudential Standards] (making similar proposals applicable to banks under the Federal Reserve's jurisdiction and proposing other rules designed to improve banks' risk management practices).

8. See *infra* Part I.B.

9. See *infra* Part I.B.

10. See, e.g., Mark J. Roe, *The Derivatives Market's Payment Priorities as Financial Crisis Accelerator*, 63 STAN. L. REV. 539, 555–56 (2011) (recognizing that derivatives counterparties (largely banks) are more likely to have the skills necessary to discipline other banks while assuming that banks lack adequate incentives to do so because of protections afforded to derivative counterparties under the Bankruptcy Code). See also *infra* sources cited in notes 65–66 and accompanying text.

banks have massive economic exposure to one another.¹¹ Far more often than not, financial companies top the list of industry exposures for complex banks like Citigroup, J.P. Morgan, and Goldman Sachs, surpassing categories like real estate, healthcare, and central banks.¹² Moreover, a recent study reveals that the largest complex banks often have credit exposure to other *individual* banks and counterparties at levels approaching 25 percent of the bank's regulatory capital.¹³ Banks thus have strong economic incentives to monitor and discipline other banks, in addition to being relatively well suited to these tasks. This does not mean that banks are perfect disciplinarians; they are not. But it does suggest that interbank discipline is a sufficiently powerful market force to merit much more attention than it has received thus far.¹⁴

Second, this Article highlights the mixed effects of market discipline. Some effects are clearly positive. If a bank starts taking excessive risks, other banks should notice and respond accordingly. Banks do this for self-interested reasons—a bank does not want to assume excess credit risk unless it is compensated accordingly. Nonetheless, this self-interested activity by banks promotes social welfare by discouraging other banks from taking excessive risks and penalizing them when they do. The challenge is that the interests of banks and society are not always so well aligned. In situations where they deviate, interbank discipline may incentivize banks to alter their activities in ways that increase their well-being while making the financial system as a whole less stable.

Many of the gaps between the interests of banks and the interests of society become manifest in connection with periods of financial distress, as the interbank market tends to contract more than is socially optimal. Such discrepancies have received significant attention from academics and policymakers, and serve as a primary rationale for having the Federal Reserve serve as a lender of last resort when banks are facing liquidity shortfalls.¹⁵ Yet, the shadow of possible government intervention also gives rise to discrepancies even outside of these exceptional periods. The perception that a bank is too-big-to-fail, for example, changes

11. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 165(e)(3), 124 Stat. 1376, 1428 (2010) (codified at 12 U.S.C. § 5365) (expanding the definition of credit exposure to include repurchase agreements (“repos”), reverse repos, other securities financing transactions and derivative transactions in addition to loans and traditional sources of credit risk); Lending Limits, *supra* note 7, at 37,272; Enhanced Prudential Standards, *supra* note 7, at 600.

12. *See infra* Part II.A.

13. Letter from The Clearing House et al., to Jennifer J. Johnson, Sec’y, Bd. of Governors of the Fed. Reserve Sys., at app. C (Apr. 27, 2012) [hereinafter Clearing House Letter to Fed].

14. *See infra* Part II.D.

15. *See infra* Part III.B.

the willingness of a bank's counterparties and other creditors to work with the bank, and terms they will offer.¹⁶ The greater the expected probability that the government will bail out an institution—to avert the social costs of allowing it to fail—the less reason a bank's creditors have to be concerned about its financial health. Moreover, the Crisis revealed that the social costs of a bank's demise may also dwarf the losses incurred by the bank and its stakeholders, creating a good chance of a government bailout, when a bank is “too interconnected” or “too correlated.” A bank is too correlated when it has a risk profile that is very similar to the risk profiles of other banks, making it likely that the correlated banks would face financial distress at the same time and policymakers would need to consider the social cost of their collective failure in deciding whether to intervene).¹⁷ This Article suggests that banks are more likely than other market participants to reward these types of changes in a bank's risk profile, and thus more likely to incent such behavior.

Interbank discipline is particularly likely to encourage banks to become more interconnected because a bank doubly benefits when it enters into a new relationship with another bank. The bank itself becomes more interconnected, increasing the probability it will be bailed out. Further, the credit risk the bank assumes with respect to the other bank is reduced, at the margins, by the increased probability the other bank will be bailed out. Similarly, in order to assess whether the types of risks a bank is exposed to are closely correlated to the risk exposures of other banks, a party must not only understand a bank's risk profile, but also the risk profiles of other banks. A typical subordinated debtholder lacks the incentives to do the additional due diligence necessary to obtain that information. By contrast, the typical complex bank is already working with and monitoring most other banks. Complex banks thus commonly possess the information necessary to make informed judgments about how correlated a bank's risk profile is to other banks, making it more likely that they will respond—by rewarding—changes in this aspect of a bank's risk profile. In drawing attention to these and other dynamics, this Article shows how interbank discipline may function as a mechanism through which banks can take advantage of the government subsidy inherent in the possibility of a government bailout. It also shows how interbank discipline may increase systemic risk.

Drawing attention to the mixed effects of market discipline is one way this Article contributes to a new generation of literature on market discipline. The notion of market

16. See *infra* Part I.A.

17. See *infra* Part III.B.

discipline has gone out of vogue in the wake of the Crisis, and understandably so. Early advocates of market discipline too often believed that market participants' self interests could be relied upon to create a stable financial system and achieve other socially valuable ends.¹⁸ The Crisis revealed the fallacy of this assumption. The self-interests of market participants are far from perfectly aligned with the interests of society; and, market participants can make mistakes, just like regulators. Yet the answer is not to ignore market discipline. To the extent that market discipline incents socially suboptimal behavior, understanding market discipline can serve as a valuable guide for identifying areas that merit particular regulatory attention. Moreover, as reflected in the significant number of missed deadlines and delays plaguing the implementation of the Dodd-Frank Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act), regulators lack the expertise and resources to be relied upon as the sole tool for promoting good behavior. Understanding the ways that the market disciplines banks can thus help us to understand how we can best deploy inherently finite regulatory resources.

While the primary aim of this article is to draw attention to the power of interbank discipline and shed light on its effects, it also makes recommendations about how policymakers should respond to those effects. As an initial matter, the dynamics revealed here provide additional support for many of the reforms already underway. For example, to the extent that the Dodd-Frank Act's orderly liquidation provisions succeed in reducing the probability that the government will intervene to bail out a bank, the problematic effects of interbank discipline will be lessened.¹⁹ At the same time, such changes do not moot the need for further reform in light of interbank discipline. Such responses seemed destined to be imperfect, even if helpful, in reducing the probability of a government bailout; and, there are benefits of interbank discipline that the current regime largely fails to harness.²⁰

The Article's policy recommendations are non-exhaustive and necessarily preliminary in nature. Most arise from an analysis of the relative institutional competence of banks and regulators, and rely in part on the inherently finite nature of regulatory resources. Recognizing that interbank discipline may be good at discouraging certain types of risk taking, not so good at addressing others, and downright problematic at times suggests that we should establish

18. *E.g., The Financial Crisis and the Role of the Federal Regulators: Hearing Before the H. Comm. on Oversight and Gov't Reform Comm.*, 110th Cong. 16–18 (2008) (statement of Dr. Alan Greenspan, former Chairman of the Federal Reserve Board).

19. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, tit. II, 124 Stat. 1376, 1442–1520 (codified at 12 U.S.C. §§ 5381–94).

20. *See infra* Part I.B.

regulatory priorities that complement, support, and counteract, as appropriate, the effects of interbank discipline. More specifically, the Article proposes reducing the regulatory resources devoted to activities that are duplicative of those already performed by banks, increasing the resources devoted to activities that regulators are uniquely motivated or positioned to address, and seeking ways to counteract the problematic effects of interbank discipline.

The Article further suggests that the effects of interbank discipline, coupled with the transformation of banking from which it arises, may merit a more fundamental rethinking of the role of bank examinations. More specifically, it may be time to reconsider whether bank examiners should continue to be required to reach firm conclusions regarding the safety and soundness of complex banks. While the bank examiners' assessments are not made public, banks and other market participants know, and potentially rely upon, examiners' obligation to reach broad conclusions about a bank's well-being. Revising the nature of the conclusions that bank examiners are asked to reach may improve market discipline by making the limits of oversight clear. It could also facilitate a shift toward a regime that more effectively harnesses the power of banks and regulators in ways that reflect their relative incentives and competence.

The Article proceeds in five parts. Part I provides background. It considers the primary rationales for regulating banks and the social costs of bank failures. It also provides an overview of the ways that banking has changed over the last three decades, focusing on the rise of complex banks. It is these new complex banks, and the connections among them, that are the focus of this Article. Part I concludes by situating this Article's analysis of interbank discipline in the literature on market discipline.

Part II examines interbank discipline. It uses publicly available information about banks' risk exposures to show that other banks are a leading source of credit exposure for most complex banks. This Part further draws upon information about banks' risk management practices, and changes in those practices, to demonstrate why interbank exposures are likely to translate into active monitoring of banks by other banks. And, this Part describes the mechanisms through which banks can, and do, discipline one another. It further considers evidence that banks' efforts to manage other risks that arise from interbank activity—such as operation risks—separately contribute to interbank discipline. It concludes by considering the significance of the Crisis, and the reasons that the Crisis does not undermine this Article's claims regarding the importance of interbank discipline.

Part III addresses the institutional competence and incentives of banks as disciplinarians. It explains why banks may be more effective at monitoring and disciplining each other than most

other market participants and it considers empirical evidence supportive of their efficacy. Part III also draws attention to the ways that banks' interests systematically deviate from those that are socially optimal. In so doing, it shows how interbank discipline may cause banks to modify their behavior in ways that benefit the banks involved while simultaneously contributing to the fragility of the financial system. Part III thus sheds light on the probable effects of interbank discipline, and provides a basis for considering how policymakers should respond.

Part IV describes the bank oversight process and the leading bank regulators, the final pieces of information necessary to make meaningful recommendations about the policy ramifications of interbank discipline. It highlights the advantages that bank examiners enjoy relative to market participants, including inside access and an array of tools for changing a bank's activities. It also sheds light on pragmatic considerations that shape how regulators use the advantages afforded to them.

Part V proposes some steps for crafting a path forward. It examines the policy implications of interbank discipline in light of the relative institutional incentives and competencies of banks and regulators. It proposes modest steps that could be taken to reduce the adverse consequences of interbank discipline while harnessing the socially productive dimension of this phenomenon. The proposals include specific suggestions, such as using the information that the interbank market helps produce as a component in determining the premium a bank must pay for its government-provided deposit insurance. It also shows how the analysis here supports a more fundamental rethinking of the aims of bank examination.

I. BACKGROUND

This Part provides a brief introduction to the rationales for bank regulation. It then describes the changing nature of banking and the role given to market discipline in the current regime.²¹

A. Banking and Banking Regulation

Of the numerous explanations that have been provided for regulating banks, two tend to dominate.²² The first relates to deposit insurance. Because banks invest their capital in long-

21. Many of the issues this Article addresses, including the transformation in banking and the rise of interbank discipline, are international phenomena. Nonetheless, because context and history are at times significant, the Article focuses on the United States when appropriate and it uses U.S. banks and regulators as the relevant reference points.

term assets, like loans, while receiving much of that capital from short-term liabilities, like demand deposits, banks are inherently unstable.²³ No bank has sufficient liquid assets to repay all of its depositors should they demand their money back at the same time. Deposit insurance promotes bank stability, a social good, by eliminating a depositor's incentive to be first in line to get his money back at the first sign that a bank may be in trouble.²⁴ The challenge is that deposit insurance also gives rise to moral hazard. If depositors can rely upon the government to insure their deposits, they have little reason to monitor or restrain bank risk taking.²⁵ As a result, a bank that engages in very risky behavior can obtain capital from deposits on substantially the same favorable terms as a bank pursuing a more conservative course of conduct. As greater risks generally lead to greater returns, banks with insured deposits have an incentive to take excessive risks.²⁶

The second and related rationale for regulating banks arises from the social costs of bank failures, particularly when part of a financial crisis. As reflected in a recent study, systemic banking crises are associated with “deep and prolonged” declines in asset values, “profound declines in output and employment,” and an increase in government debt that averages 86 percent in the three years following the crisis.²⁷ Because these costs far exceed the losses incurred by the banks and their stakeholders, banks are not incentivized to restrain their risk

22. See Mark J. Flannery, *Supervising Bank Safety and Soundness: Some Open Issues*, *Banking*, 92 *FED. BANK ATLANTA ECON. REV.* 83, 85–86 (2007) (summarizing the rationales that have been given for bank regulation and identifying the moral hazard created by deposit insurance and the social costs of bank failures as the two most important).

23. Douglas W. Diamond & Philip H. Dybvig, *Bank Runs, Deposit Insurance, and Liquidity*, 91 *J. POL. ECON.* 401, 402–03 (1983) (demonstrating why even a solvent bank may be subject to a debilitating bank run).

24. See *id.* at 418.

25. Jens Forssbæck, *Ownership Structure, Market Discipline, and Banks' Risk-Taking Incentives Under Deposit Insurance*, 35 *J. BANKING & FIN.* 2666, 2666 (2011) (“What deposit insurance does is to remove depositors' incentives to discipline the bank by charging a risk premium commensurate with the bank's risk level, their own costs of monitoring, and other agency-related costs”); Jonathan R. Macey & Elizabeth H. Garrett, *Market Discipline by Depositors: A Summary of the Theoretical and Empirical Arguments*, 5 *YALE J. ON REG.* 215, 220 (1988) (“[D]epositors will be indifferent between putting their money in insured, riskless banks at riskless rates of return and putting their money in uninsured, risky banks at higher, risk-adjusted rates of return”).

26. Forssbæck, *supra* note 25, at 2677 (“[T]he existence of deposit insurance . . . introduces a subsidy on increased risk.”); Jonathan R. Macey & Maureen O'Hara, *Solving the Corporate Governance Problems of Banks: A Proposal*, 120 *BANKING L.J.* 326, 328 (2003) (explaining that “the implementation of deposit insurance poses a regulatory cost of its own—it gives the shareholders and the managers of insured banks incentives to engage in excessive risk taking”).

27. CARMEN M. REINHART & KENNETH S. ROGOFF, *THIS TIME IS DIFFERENT: EIGHT CENTURIES OF FINANCIAL FOLLY* 224 (2009).

taking to a socially optimal level. Exacerbating this incentive problem, and transforming it into a source of moral hazard, is the fact that governments often intervene to prevent a bank from failing when the externalities from allowing it to fail are sufficiently large.²⁸

There have been meaningful attempts to reduce both of these sources of moral hazard. The primary mechanism for trying to reduce the moral hazard arising from deposit insurance is the use of risk-based premiums.²⁹ If the premium a bank pays for deposit insurance accurately reflects the probability that the bank will fail and the cost to the insurance fund of its failure, the moral hazard largely disappears.³⁰ Banks that take greater risks will internalize the costs of those decisions through higher premiums.³¹ Experience has shown, however, that risk-based premiums are not a panacea and cannot be relied upon to alleviate the moral hazard deposit insurance creates.³² The premiums banks pay for deposit insurance continue to be risk based, but the appropriate formulas to use remain a matter of ongoing debate.³³

There have also been attempts to reign in the moral hazard arising from government bailouts. A central aim of the Dodd-Frank Act is to reduce the probability of future bank bailouts and a number of its provisions effectively further this aim.³⁴ The Dodd-Frank Act, for example, attempts to make it easier for regulators to close systemically significant banks, thereby

28. DARRELL DUFFIE, HOW BIG BANKS FAIL AND WHAT TO DO ABOUT IT 5 (2011) (explaining that “the common knowledge that too-big-to-fail financial institutions will receive support when they are sufficiently distressed—in order to limit disruptions to the economy—provides an . . . incentive to large financial institutions to take inefficient risks, a well-understood [source of] moral hazard”).

29. 12 U.S.C. § 1817(b) (2006).

30. GEORGE J. BENSTON ET AL., PERSPECTIVES ON SAFE AND SOUND BANKING: PAST, PRESENT, AND FUTURE 230 (1986).

31. *Id.* at 231.

32. Compare BENSTON ET AL., *supra* note 30, at 227–43 (advocating risk-based insurance premiums), with Robert A. Eisenbeis, *Hindsight and Foresight about Safe and Sound Banking*, in *Roundtable Discussion: Reflection on Twenty Years of Bank Regulatory Reform*, 92 FED. BANK OF ATLANTA ECON. REV. 124, 124, (2007) (explaining the challenges posed in translating risk-based deposit insurance into practice and his view that he and others who propose it have placed excessive emphasis on its importance) and George Kaufman, *Some Further Thoughts About the Road to Safer Banking*, in *Roundtable Discussion: Reflection on Twenty Years of Bank Regulatory Reform*, 92 FED. BANK OF ATLANTA ECON. REV. 135, 135 (2007) (explaining that with the benefit of hindsight and experience, he is no longer “enamored with risk-related ex ante FDIC deposit insurance premiums”).

33. See, e.g., Assessments, Large Bank Pricing, 76 Fed. Reg. 10,672, 10,676 (Feb. 25, 2011) (to be codified at 12 C.F.R. pt. 327) (describing proposed changes to the process for calculating the “premiums” to be paid by large banks and open issues regarding implementation).

34. Lissa Lamkin Broome, *The Dodd-Frank Act: TARP Bailout Backlash and Too Big to Fail*, 15 N.C. BANKING INST. 69, 70, 76–80 (2011) (“describ[ing] how Dodd-Frank . . . attempts to change the phrase ‘too big to fail’ to ‘too big, will fail’” and providing a summary of the key provisions in Dodd-Frank designed to reduce the likelihood of future government bailouts).

reducing the temptation to prop up a failing firm.³⁵ At the international level, the Basel Committee on Banking Supervision, the leading multinational forum on bank regulation, is similarly revising its capital adequacy and other requirements in order to reduce and combat this source of moral hazard.³⁶ The reforms include efforts to cause a bank to internalize, on an ongoing basis, additional costs when it becomes too-big-to-fail or otherwise changes its risk profile in a way that increases the probability its government would feel obliged to prevent it from failing.

The government has a long history, however, of attempting to reduce this moral hazard. While such efforts have at times succeeded in reducing market expectations regarding the probability of a bailout, the problem has never been eliminated.³⁷ Moreover, many view the Crisis as affirming the principle that the government will inevitably intervene to save an institution when the costs of its failure are sufficiently great.³⁸ Academics, like Adam Levitin, have provided theoretical support for the notion that it is impossible to eliminate this source of moral hazard completely.³⁹ In Levitin's analysis, "[b]ailouts are an inevitable feature of modern economies," because any "standardized resolution system" that may be adopted ex ante will, at times, result in "socially unacceptable" outcomes if adhered to when a crisis actually hits.⁴⁰ In the face of such an outcome, policymakers will almost assuredly find a way around the

35. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, tit. II, 124 Stat. 1376, 1442–1520 (2010 & Supp. 2012) (codified at 12 U.S.C. §§ 5381–94).

36. BASEL COMM. ON BANKING SUPERVISION, BASEL III: A GLOBAL REGULATORY FRAMEWORK FOR MORE RESILIENT BANKS AND BANKING SYSTEMS 7 (2011) [hereinafter BASEL III] (describing how the Basel III framework seeks to implement an "integrated approach" to addressing the challenges posed by "systemically important financial institutions" which could include "capital surcharges, contingent capital and bail-in debt").

37. See, e.g., Arthur E. Wilmarth, Jr., *Too Big to Fail, Too Few to Serve? The Potential Risks of Nationwide Banks*, 77 IOWA L. REV. 957, 994–1001 (1992) (describing the mixed success of efforts to limit the moral hazard that arose following the 1984 rescue of Continental Illinois on the basis of its being too big to fail).

38. FIN. STABILITY OVERSIGHT COUNCIL, 2012 ANNUAL REPORT 141 (2012) [hereinafter FSOC, 2012 ANNUAL REPORT] (noting that "many observers interpret actions taken by government authorities during the recent crisis as evidence that the public sector provides an implicit guarantee to large complex financial institutions").

39. Adam J. Levitin, *In Defense of Bailouts*, 99 GEO. L.J. 435, 439 (2011); see also Jonathan R. Macey & James P. Holdcroft, Jr., *Failure Is an Option: An Ersatz-Antitrust Approach to Financial Regulation*, 120 YALE L.J. 1368, 1370 (2011) (recognizing that "[p]olicymakers . . . cannot credibly commit to refrain from supporting large, important financial institutions" and explaining the intractable nature of the challenge); Oliver Hart & Luigi Zingales, *Curbing Risk on Wall Street*, NAT'L AFFAIRS, Spring 2010, at 21 (acknowledging that bailouts are very often the "most practicable response to very real threats to the financial system").

40. Levitin, *supra* note 39, at 439.

precommitment device they had previously fashioned.⁴¹ Hence, the possibility of a bailout cannot be reduced to zero so long as bank failures impose costs on parties other than the bank and its stakeholders.

In light of the externalities that may arise from bank failures, and the moral hazard created by deposit insurance and the inevitable possibility of a government bailout, governments have long imposed an array of regulations on banks. As reflected in the three “pillars” put forth by the Basel Committee on Banking Supervision, the tools most commonly used to limit bank risk taking are: (1) the imposition of capital adequacy requirements, (2) supervisory oversight, and (3) market discipline.⁴² Many countries supplement these measures in a variety of ways, as reflected in the Volcker Rule in the United States, which limits the types of activities in which banks can engage, and new rules in the United Kingdom requiring banks to insulate their core lending divisions from other, riskier activities in which the bank may be engaged.⁴³

B. Changing Nature of Banking

While the centrality of banks to a functioning economy has remained constant, the nature of banking has not. Over the last few decades, the number of commercial banks has fallen by half, the size of the average commercial bank has more than tripled, securitization has created a secondary market for loans, enabling banks to sell loans they originate rather than holding them to maturity, and bank activities now extend far beyond relationship lending.⁴⁴ Central to the “fundamental changes” that have occurred over this period has been a bifurcation of the banking

41. *Id.* As Levitin’s analysis makes clear, the decision to bail out a failing institution is driven by the political economy as much, if not more, than actual economic considerations. Thus, while this Article focuses on situations where a bailout is justified by reference to the systemic costs of allowing an institution to fail, there may well be a greater swathe of circumstances where a bailout is sufficiently predictable to affect creditors’ assessments of the riskiness of working with a particular institution.

42. BASEL III, *supra* note 36; BASEL COMM. ON BANKING SUPERVISION, INTERNATIONAL CONVERGENCE OF CAPITAL MEASUREMENT AND CAPITAL STANDARDS: A REVISED FRAMEWORK (2005).

43. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 619, 124 Stat. 1376, 1620–31 (2010 & Supp. 2012) (codified at 12 U.S.C. § 1851) (imposing an array of new limitations on the ability of commercial banks to engage in proprietary trading and make certain types of investments); Paul Hannon, *U.K. Sticks With Banking Reforms*, WALL ST. J. (May 6, 2012, 7:17 pm), <http://online.wsj.com/article/SB10001424052702304451104577388041493093010.html> (stating that “[t]he U.K. government . . . is on track to pass legislation that will protect the retail operations of banks from the banks’ more risky investment-bank activities”).

44. Loretta J. Mester, Commentary, *Some Thoughts on the Evolution of the Banking System and the Process of Financial Intermediation*, 92 FED. RESERVE BANK ATLANTA ECON. REV. 67, 67 (2007); Arthur E. Wilmarth, Jr., *The Transformation of the U.S. Financial Services Industry, 1975–2000: Competition, Consolidation, and Increased Risks*, 2002 U. ILL. L. REV. 215.

industry into two fundamentally different types of institutions.⁴⁵ On one hand are the community-based banks that provide traditional bank services like taking deposits and relationship-based lending.⁴⁶ As recently as 1980, community banks with assets of less than \$1 billion (in 2001 dollars) constituted 97 percent of commercial banks and held the majority of bank assets.⁴⁷ On the other hand are the new complex banks. These banks engage in a wide variety of financial activities beyond taking deposits and making loans, rely more heavily on fee-based income, and use more standardized methodologies for evaluating the creditworthiness of people and firms.⁴⁸ Complex banks are also central players in many facets of the “shadow banking system,” which has also come to play a central role in facilitating the flow of capital in today’s financial system.⁴⁹ This new breed of bank has come to dominate the industry. Even before the Crisis, banks with more than \$10 billion in assets (in 2005 dollars) held 75 percent of banking assets.⁵⁰ And, as a result of further consolidation precipitated by the Crisis, the ten largest banks in the United States now hold 77 percent of the industry’s domestic assets, and the five largest hold a full 52 percent.⁵¹

45. Robert DeYoung, *Safety, Soundness, and the Evolution of the U.S. Banking Industry*, 92 FED. RESERVE BANK ATLANTA ECON. REV. 41, 51–2 (2007); see also Wilmarth, *supra* note 44, at 254–57.

46. DeYoung, *supra* note 45, at 41–43; see also Helen A. Garten, *Regulatory Growing Pains: A Perspective on Bank Deregulation in a Deregulatory Age*, 57 FORDHAM L. REV. 501, 516 (1989) (explaining that the core of traditional banking lied in the “power to take deposits, [which] . . . not only provided banks with a cheap source of funding, but also enabled banks to build relationships with potential customers for other bank products, such as lines of credit, mortgages or credit cards . . . [thereby allowing banks to provide a] unique cluster of products and services”).

47. DeYoung, *supra* note 45, at 43.

48. *Id.* at 53–56; FIN. STABILITY OVERSIGHT COUNCIL, 2011 ANNUAL REPORT 59 (2011) [hereinafter FSOC, 2011 ANNUAL REPORT] (comparing Chart 5.2.12 and 5.2.13 demonstrates that community banks continue to derive a significantly greater proportion of their income from net interest income while large, complex banks earn relatively more in fees and other ways); Asli Demirgüç-Kunt & Harry Huizinga, *Bank Activity and Funding Strategies: The Impact on Risk and Returns*, 98 J. FIN. ECON. 626, 630 (2010) (showing that the proportion of income from fees is increasing as a proportion of bank income, while net interest income—the traditional source of income for community banks—is declining on a relative basis).

49. See Erik F. Gerding, *The Shadow Banking System and Its Legal Origins* 6–36 (Aug. 23, 2011) (unpublished manuscript), available at <http://ssrn.com/abstract=1990816> (providing a comprehensive definition of the shadow banking system and its structure); Tobias Adrian & Adam B. Ashcraft, Fed. Reserve Bank of N.Y., *Shadow Banking Regulation*, STAFF REPORT No. 559 (2012), available at http://www.newyorkfed.org/research/staff_reports/sr559.pdf (reviewing the literature on shadow banking).

50. Mester, *supra* note 44, at 67; see also FSOC, 2011 ANNUAL REPORT, *supra* note 48, at 69, Chart 5.2.38 (graphically depicting the rapid decline in industry assets held by small and medium-sized banks and the correspondent increase in the assets held by the largest banks).

51. Editorial, *Banking Run Amok Is Less Likely a Year After Dodd-Frank: View*, BLOOMBERG NEWS (July 17, 2011), <http://www.bloomberg.com/news/2011-07-17/banking-run-amok-is-less-likely-a->

One effect of the changing nature of banking is to change banks' interactions with one another. Banks have long made short-term loans to other banks and the interbank market has thus played an important role in redistributing liquidity from banks that have it to those in need of it. Nonetheless, banks' main sources of credit risk traditionally were the companies and persons to whom they loaned money and the assets, such as real estate, that served as collateral on those loans. Today's typical complex bank, by contrast, holds proportionately fewer loans on its balance sheet, reducing significantly its exposure to such sources of credit risk. At the same time, they engage in an array of new activities, many of which entail working with, and thereby increasing exposure to, other banks.⁵²

A typical complex bank will often have myriad relationships with other banks, including as a counterparty on swaps and other ongoing transactions, as a lender, as a depositor of cash in the other institution, and through other arrangements, such as resale and repurchase agreements (repos) and pending settlements. Each of these relationships gives the complex bank a self-interested reason to be concerned about other banks' financial well-being. As explained by one of the leading complex banks, J.P. Morgan:

Financial services institutions are interrelated as a result of market-making, trading, clearing, counterparty, [and] other relationships. The Firm [, J.P. Morgan,] routinely executes transactions with counterparties in the financial services industry, including brokers and dealers, commercial banks, investment banks, mutual and hedge funds, and other institutional clients. Many of these transactions expose the Firm to credit risk in the event of a default by the counterparty or client. The Firm [also] provid[es] clearing, custodial and prime brokerage services for financial services companies . . . , all of which can increase the Firm's operational and litigation costs [should the other firm fail].⁵³

year-after-dodd-frank-view.html; Tom Frost, *The Big Danger With Big Bank*, WALL ST. J., May 16, 2012, at A15.

52. DUFFIE, *supra* note 28, at 4 (treating complex banks as a "distinct class," and recognizing that they differ from traditional banks in a number of regards, including that "[t]hey typically act as intermediaries in the markets for securities, repurchase agreements, securities lending, and [OTC] derivatives", "[t]hey are prime brokers to hedge funds and provide asset management services" and "[t]hey may also act as investment banks"); SHELAGH HEFFERNAN, MODERN BANKING 41–99 (2005) (providing a thorough description of the new activities banks have undertaken in recent decades).

53. J.P. Morgan Chase & Co., 2011 Annual Report (Form 10-K), at 10 (Feb. 29, 2012) [hereinafter J.P. Morgan Annual Report 2011].

Additionally, the one source of exposure that banks have always had to one another, that arising from short-term loans, has also increased in recent decades.⁵⁴ As a result, other banks often comprise a primary source of credit risk for today's complex banks, and complex banks invest significant resources monitoring and disciplining other banks.⁵⁵

Despite this rise in interbank activity and discipline, the phenomenon has received little attention in the literature on market discipline. The next Subpart considers why.

C. Background on Market Discipline

The notion that markets have the potential to discipline banks and that regulators should promote such discipline is well established. As recognized by the Basel Committee on Banking Supervision, “market discipline has the potential to reinforce capital regulation and other supervisory efforts to promote safety and soundness in banks and financial systems.”⁵⁶ Many of the benefits of market discipline are those that arise from markets generally. Rather than relying upon a single person or regulator's assessment of a bank's risk exposures, market discipline entails multiple actors, each making independent assessments and taking actions on the basis of their findings. This is particularly valuable in light of the inherently limited capacity of regulators to identify and respond to all of the risks to which a bank may be exposed.⁵⁷

Most academics and policymakers interested in market discipline approach the issue by looking at a typical bank's balance sheet and assessing whether and to what degree each identifiable category of stakeholder—depositors, other debt holders, equity holders, and the like—has an incentive to monitor and restrain the bank's risk taking.⁵⁸ It is often noted, for

54. HEFFERNAN, *supra* note 52, at 66 (describing the “very rapid” growth of interbank activity, with interbank claims rising from \$1.5 trillion in 1983 to \$11.1 trillion in 2000, approximately half of which took the form of loans).

55. *See infra* Part II.A.

56. BASEL COMM. ON BANKING SUPERVISION, CONSULTATIVE DOCUMENT: PILLAR 3 (MARKET DISCIPLINE), SUPPORTING DOCUMENT TO THE NEW BASEL CAPITAL ACCORD 1 (2001).

57. *E.g.*, Roe, *supra* note 10, at 589 (explaining the importance of market discipline as lying in the fact that “prudential regulation will [inevitably] be imperfect, because of the standard debilities of government actors and because of the potential for capture by the regulated”).

58. *E.g.*, PETER J. WALLISON, BACK FROM THE BRINK: A PRACTICAL PLAN FOR PRIVATIZING DEPOSIT INSURANCE AND STRENGTHENING OUR BANKS AND THRIFTS 2–3 (1990); Elena Cubillas, Ana Rosa Fonseca & Francisco González, *Banking Crises and Market Discipline: International Evidence*, 36 J. BANKING & FIN. 2285 (2012); Douglas D. Evanoff, *Preferred Sources of Market Discipline*, 10 YALE J. ON REG. 347, 350 (1993); Douglas D. Evanoff, Julapa A. Jagtiani & Taisuke Nakatac, *Enhancing Market Discipline in Banking: The Role of Subordinated Debt in Financial Regulatory Reform*, 63 J. OF ECON. & BUSINESS 1 (2011); Forssbæck, *supra* note 25; Eric J. Gouvin, *Shareholder Enforced Market Discipline: How Much Is Too Much?*, 16 ANN. REV. BANKING L. 311 (1997); William Poole, *Moral*

example, that as a result of deposit insurance, most depositors have little incentive to monitor bank risk taking.⁵⁹ Because such analyses generally focus on ways to improve market discipline, they often result in calls for banks to issue subordinated debt (or, more recently, debt that converts into equity), reasoning that the subordinated debt holders will have the right incentive to monitor and discipline bank risk taking.⁶⁰ There have also been a number of proposals to improve market discipline by modifying the deposit insurance scheme to give depositors greater incentives to monitor and respond to bank risk taking.⁶¹ The other important strand in the literature on market discipline focuses on disclosure. Recognizing that market participants will impose meaningful discipline only to the extent that they can accurately assess the risks to which a bank is exposed, regulators require banks to disclose information intended to facilitate market discipline. Academics have made a number of innovative proposals for ways to modify disclosure requirements to improve the quality of the discipline the market imposes.⁶²

There are some notable contributions to the literature on market discipline that do not fit this paradigm. Mark Roe, for example, has explicitly recognized that banks and other financial institutions should be particularly adept at imposing discipline on other banks.⁶³ Roe's analysis, however, focuses solely on financial institutions as counterparties to derivative transactions, leading him to argue that special protections the Bankruptcy Code grants such parties gut their

Hazard: The Long-Lasting Legacy of Bailouts, 65 FIN. ANALYSTS J. 17, 21 (2009) (advocating subordinated debt); Macey & Garrett, *supra* note 25, at 215; Mark E. Van Der Weide & Satish M. Kini, *Subordinated Debt: A Capital Markets Approach to Bank Regulation*, 41 B.C. L. REV. 195 (2000).

59. Forssbæk, *supra* note 25.

60. *E.g.*, John C. Coffee, Jr., *Systemic Risk After Dodd-Frank: Contingent Capital and the Need for Regulatory Strategies Beyond Oversight*, 111 COLUM. L. REV. 795 (2011) (arguing that banks should be required to issue "contingent capital," that is, debt that converts to equity); Charles W. Calomiris & Richard J. Herring, *Why and How to Design a Contingent Convertible Debt Requirement* (Working Paper, 2011) (arguing same); Douglas D. Evanoff, *Preferred Sources of Market Discipline*, 10 YALE J. ON REG. 347, 355–59 (1993) (arguing for "increased reliance . . . on subordinated debt holders" as the best way to increase the efficacy of market discipline"); William Poole, *supra* note 57, at 22–23 (2009) (arguing same).

61. WALLISON, *supra* note 58, at 2–3; Macey & Garrett, *supra* note 25.

62. *E.g.*, Jose A. Lopez, Fed. Reserve Bank of S.F., *Disclosure as a Supervisory Tool: Pillar 3 of Basel II*, at 1 (FRBSF Econ. Letter 2003-22, 2003) ("The principle underlying Pillar 3 is that improved public disclosure of relevant information should enhance market discipline and hence its potential usefulness to bank supervisors."); Robert P. Bartlett, III, *Making Banks Transparent*, 65 VAND. L. REV. 293 (2012) (describing the disclosure requirements currently imposed on U.S. banks and calling for particular types of disclosure requirements as a means of improving market discipline); Albert J. Boro, Jr., *Banking Disclosure Regimes for Regulating Speculative Behavior*, 74 CALIF. L. REV. 431 (1986) (advocating the value of disclosure).

63. Roe, *supra* note 10, at 555–57.

economic incentive to meaningfully discipline one another.⁶⁴ Other scholars have also recognized that banks may be uniquely effective as monitors of other banks, but most similarly suggest that some policy change is required to give banks adequate incentives to monitor and discipline one another.⁶⁵ A related limitation is that many pieces in this vein were written at the early stages of the transformation in banking, and thus they necessarily fail to appreciate the full range and magnitude of relationships connecting today's complex banks.⁶⁶

While interested in many of the same benefits long associated with market discipline, this Article takes a different approach to the topic, one that complements, rather than challenges, much of the existing literature.⁶⁷ As an initial matter, it is less concerned with trying to figure out how to improve market discipline than it is with drawing attention to a meaningful source of discipline the market is already imposing. More importantly, in focusing on the role that banks play in disciplining other banks, it makes two moves that are atypical in the literature. First, it suggests that we should look past the nature of a stakeholder's claim in a bank to consider the nature of the stakeholder. Second, it suggests that we should consider a stakeholder's aggregate exposure to a bank when assessing that stakeholder's incentive to monitor and discipline a bank's risk taking.

64. *Id.* at 541–42.

65. *E.g.*, Charles W. Calomiris, *Blueprints for a New Global Financial Architecture*, in INTERNATIONAL FINANCIAL MARKETS: THE CHALLENGE OF GLOBALIZATION 259, 270–72 (Leonardo Auernhermier ed., 2000) (proposing that banks be required to issue debt that must be held by other reputable banks); Saule T. Omarova, *Wall Street as Community of Fate: Toward Financial Industry Self-Regulation*, 159 U. PA. L. REV. 411 (2011) (arguing for the creation of formal self-regulatory organizations based upon banks' presumed efficacy at monitoring one another).

66. *E.g.*, David G. Oedel, *Private Interbank Discipline*, 16 HARV. J.L. & PUB. POL'Y 327, 330 (1993) (suggesting that "private interbank discipline is a rare phenomenon in the United States," but that it is one that has a long history, and providing examples); Jean-Charles Rochet & Jean Tirole, *Interbank Lending and Systemic Risk*, 28 J. OF MONEY, CREDIT, & BANKING 733 (1996) (providing theoretical support for the capacity of banks to monitor each other but focusing on short-term interbank loans as the primary source of credit exposure).

67. The other body of literature related to this Article is that focused on the interbank lending market. Certain contributions to that literature are relevant and are examined further below. *See* Part III.A, *infra*. For the most part, however, that literature tends to focus exclusively on short-term loans among banks, which is just one component of the interbank exposures here described, and the contributions made often draw attention to the role of the interbank market in transmitting liquidity shortages. *See, e.g.*, Franklin Allen, Elena Carletti & Douglas Gale, *Interbank Market Liquidity and Central Bank Intervention*, 56 J. OF MONETARY ECON. 639 (2009); Xavier Freixas, Bruno Parigi & Jean-Charles Rochet, *Systemic Risk, Interbank Relations, and Liquidity Provision by the Central Bank*, 32 J. OF MONEY, CREDIT, & BANKING 611 (2000); Viral V. Acharya, Denis Gromb & Tanju Yorulmazer, *Imperfect Competition in the Interbank Market for Liquidity as a Rationale for Central Banking* (INSEAD Working Paper No. 2011/41/FIN, 2011); Franklin Allen et al., *Transmission of Bank Liquidity*

There are drawbacks to shifting away from the established paradigm. One rationale underlying the tendency to focus on an identifiable class of stakeholders is that the degree of governmental and other protections vary depending upon the nature of a stakeholder's interest in a bank. As just discussed, depositors are presumed to impose little discipline to the extent their interests are protected by an explicit government guarantee. Similarly, many counterparties are protected by certain preferences under the Bankruptcy Code and may benefit from further contractual protections.⁶⁸ Using a bank's aggregate economic exposure to another bank as a proxy for its economic interest in that bank's financial well-being elides these (at times, quite significant) distinctions.

At the same time, the proposed approach offers a number of advantages. Most importantly, it allows us to identify a meaningful source of market discipline that is not captured in the prevailing paradigm. Looking at a bank's aggregate credit exposure to another bank reveals that the magnitude of its economic interest in that bank's financial well-being is far greater than one would expect looking at any individual source of exposure. This move is justified by the fact that banks themselves increasingly consider and seek to control their aggregate credit exposure to other individual banks, and soon will be required to do so.⁶⁹ Thus, aggregate exposures provide a reasonable, even if imperfect, proxy for banks' economic exposures to one another. Additionally, because of operational and other risks arising from their interconnectedness, banks may have reasons to monitor other banks apart from their credit exposures to those banks.⁷⁰ Yet another advantage of focusing on banks rather than a particular stakeholder class is that banks, as banks, may have institutional advantages that make them more effective disciplinarians than other market participants.⁷¹

Finally, and in connection with the above, this Article's focus on interbank discipline helps demonstrate that the effects of market discipline are not solely positive from a social welfare perspective. While this has been recognized with respect to stockholders, the possibility that market discipline could create ex ante incentives that increase systemic risk has been less appreciated with respect to other stakeholders. The Basel Committee on Banking Supervision,

Shocks in Loan and Deposit Markets: The Role of Interbank Borrowing and Market Monitoring (Wharton Fin. Insts. Ctr., Working Paper 10-28, 2012).

68. E.g., 11 U.S.C. §§ 362(b)(17), 362(b)(27), 560 (2006) (providing derivatives and repurchase agreement counterparties the right to liquidate collateral in their possession).

69. Lending Limits, *supra* note 7, at 37,268; Enhanced Prudential Standards, *supra* note 7, at 600.

70. See *infra* Part III.B.

for example, advocates market discipline precisely because it believes that “[m]arket discipline imposes strong incentives on banks to conduct their business in a safe, sound and efficient manner.”⁷² Close examination of interbank discipline casts doubt on whether this assumption always holds.⁷³ Having established why interbank discipline may merit attention, the next Part considers the role that it plays in financial markets today.

II. THE FOUNDATIONS OF INTERBANK DISCIPLINE

This Part looks at three components which collectively suggest that banks play a meaningful role disciplining other banks: (a) an economic incentive to do so, (b) risk management systems that enable banks to monitor their exposure to other banks and to meaningfully assess the creditworthiness of those banks, and (c) mechanisms through which banks can alter their behavior in ways that affect the disciplined bank when its risk profile changes. The claim throughout is not that banks are perfect disciplinarians. There are numerous indications that they are not. Rather, the aim of this Part is to establish that interbank discipline is sufficiently meaningful to merit consideration as we try to determine how best to allocate inherently finite resources. It concludes with a brief discussion of the relevance of the Crisis.

A. Incentives

As banking has evolved, so has the numerosity and magnitude of a typical complex bank’s relationships with other banks. Until recently, regulation, or lack thereof, facilitated the growth of interbank exposures. While regulators have long imposed limitations on a bank’s capacity to become overly exposed to a particular firm, the Office of the Comptroller of the Currency (OCC), a leading bank regulator, construed those limits not to apply to loans between banks starting in 1963.⁷⁴ Other regulations applicable to banks, specifically the risk-weighted capital adequacy requirements required pursuant to Basel II, contributed to the tendency of banks to become more interconnected by according loans to other banks an exceptionally low risk weighting.⁷⁵ Regulations have been adopted since that time to limit interbank lending, but the standard limits did not apply when the loans were to a bank that was adequately capitalized, a

71. See *infra* Part III.A.

72. BASEL COMM. ON BANKING SUPERVISION, *supra* note 55, at 1.

73. *Infra* Part III.B.

74. RICHARD SCOTT CARNELL, JONATHAN R. MACEY & GEOFFREY P. MILLER, THE LAW OF BANKING AND FINANCIAL INSTITUTIONS 302 (4th ed. 2009).

limitation revealed to have limited bite by the Crisis.⁷⁶ Moreover, prior to the Dodd-Frank Act, these limits applied solely to loans and similar transactions, thus failing to incorporate credit risk arising from repos, reverse repos, securities lending transactions, securities borrowing transactions, and derivative transactions. The Act requires that the rules on interbank limits be revised to include these additional sources of credit risk.⁷⁷ The Act also imposes new limitations on interbank exposures and authorizes regulators to impose more stringent limitations than the Act requires. Nonetheless, the new regulations have not yet been finalized and remain the subject of ongoing resistance by the leading banks.⁷⁸ As a result, banks may have credit exposures to one another in excess of their credit exposures to other types of firms, and the limitations that will be imposed on interbank exposures remains uncertain.

Publicly available information about banks' risk exposures reflect the magnitude of interbank activity. As both Bank of America and Goldman Sachs have stated, "While our activities expose us to many different industries and counterparties, we routinely execute a high volume of transactions with counterparties in the financial services industry This has resulted in significant credit concentration with respect to this industry."⁷⁹

The actual figures are striking. For example, 28 percent of Citigroup's corporate loan portfolio—a portfolio that exceeds its aggregate consumer loan portfolio, including home loans and credit cards—consists of loans or commitments to banks, investment banks or other financial institutions.⁸⁰ Citigroup's next most significant areas of exposure are governments and central banks (at 12 percent) and petroleum (at 5 percent).⁸¹ Finance companies, including but not limited to banks, have accounted for 29.23 percent to 37.38 percent of the Goldman Sachs' total credit exposure every year from 2009 through 2011, the only years for which they have provided

75. BASEL COMMITTEE ON BANKING SUPERVISION, INTERNATIONAL CONVERGENCE OF CAPITAL MEASUREMENT AND CAPITAL STANDARDS (2004).

76. Federal Deposit Insurance Corporation Improvement Act of 1991 § 308, 12 U.S.C. § 371b-2 (2006); 12 C.F.R. pt. 206 (2011).

77. Lending Limits, *supra* note 7, at 37,265; Enhanced Prudential Standards, *supra* note 7, at 600.

78. Tom Braithwaite, *Banks Urge Fed Retreat on Credit Exposure*, FIN. TIMES (Apr. 15, 2012), <http://www.ft.com/cms/s/0/6a789456-871d-11e1-865d-00144feab49a.html> (describing industry resistance).

79. The Goldman Sachs Grp., 2011 Annual Report (Form 10-K), at 27 (Feb. 28, 2012); Bank of Am. Corp., 2011 Annual Report (Form 10-K), at 10–11 (2012). To be sure, until recently, Goldman Sachs was an investment bank, not a commercial bank. Today, however, all the firms that had been the leading investment banks are regulated as banks and such banks are among the "complex banks" here described. *See infra* Part IV.A.

80. Citigroup Inc., 2010 Annual Report (Form 10-K), at 114 (2011).

such information.⁸² J.P. Morgan, which remains very active in providing traditional services to consumers, similarly has exceptionally significant credit exposures to other banks and finance companies. At the end of 2011, J.P. Morgan's aggregate credit exposure to banks and other financial institutions was over \$71 billion, and that figure exceeds \$130 billion if other types of finance companies are included.⁸³ Economic exposures of this magnitude provide these banks with a very strong economic incentive to ensure that the exposures do not result in correspondent losses.

Significantly, the examples provided are representative of the exposures of most leading complex banks. The Annual Reports on Form 10-K filed by Bank of America, Citigroup, J.P. Morgan & Co., the Goldman Sachs Group, and Morgan Stanley for the preceding five years reveal that finance companies (including, but not limited to, banks) are the top industry exposure the majority of the time, and are consistently near the top even when not first.⁸⁴ Other leading sources of credit risk include real estate, government (including central banks), and, to a lesser degree, health care, consumer products, and services and energy.⁸⁵

Recently released information about the credit exposures between particular banks provides further evidence that banks have significant economic interests in the well-being of other banks. While no individual bank discloses this information, banks are in the process of resisting a proposal by the Board of Governors of the Federal Reserve System (Federal Reserve) to prevent the largest complex banks from having credit exposure to any single counterparty in excess of ten percent of the bank's regulatory capital.⁸⁶ To bolster their claims regarding the

81. *Id.*

82. Calculated using data from the Annual Reports on Form 10-K filed by Goldman Sachs Group for each of the relevant years. Supporting data on file with author and available for review.

83. *J.P. Morgan Annual Report 2011*, *supra* note 53, at 264.

84. Based upon data disclosed in Annual Reports on Form 10-K filed between 2007 and 2011, inclusive, by Bank of America Corp., Goldman Sachs Grp., J.P. Morgan Chase & Co., Morgan Stanley, and Wells Fargo & Co. Other leading financial institutions, like MetLife, Inc., do not disclose this type of information, and the information for the banks referenced varies in depth. Different banks use different methodologies and categorization schemes, so finance companies, as used here, are sometimes a composite. Also, many banks separate their consumer and commercial divisions for reporting purposes. For banks that separate, the information here reported is based solely on the commercial portion of their operations. Supporting data and additional information on file with author and available for review.

85. *Id.*

86. Enhanced Prudential Standards, *supra* note 7, at 600. The 10 percent limitation would apply to banks with assets in excess of \$500 billion. For further information about efforts by complex banks to resist the imposition of the proposed limitation, see Akshat Tewary, *CEOs' Meeting with Tarullo Is Big Banks' Version of May Day*, AM. BANKER (May 2, 2012) available at <http://www.americanbanker.com/bankthink/Tarullo-meeting-Federal-Reserve-counterparty-limit-1048954-1.html>.

unreasonableness of the proposed rule, trade associations representing the banking industry have compiled and released information demonstrating how far current practices deviate from the proposed standard.⁸⁷ Preliminary results of a study of interbank exposures, which used data from thirteen banking organizations, revealed “100 exposures to 29 unique counterparties in excess of the applicable credit limit.”⁸⁸ Moreover, the study found that “the average counterparty exposure for those excesses would be 248% of the applicable credit limit.”⁸⁹ These figures demonstrate that the leading complex banks have significant economic exposures to other individual complex banks. To emphasize just how drastically the proposed rule would alter bank activity, the trade associations assert that the “10% credit limit imposed on major covered companies—and even the 25% credit limit imposed on all covered companies [mandated by the Dodd-Frank Act]—may severely restrict legitimate and economically desirable credit-related business,” and “[t]o comply with the proposed requirements, the provision of some credit products and services may have to be reduced significantly.”⁹⁰ While the parties making these assertions clearly are not disinterested and objective, the banks and those lobbying on their behalf would have little reason to undertake such efforts if complex banks did not typically have credit exposures to one another far in excess of the proposed limits. A bank with even a ten percent exposure to another bank could face incredibly significant difficulties if the other bank failed, suggesting that these bank-to-bank exposures give banks a powerful, self-interested reason to monitor and respond to risk taking by other banks.

There are limitations inherent in the data available, arising in significant part from the lack of directly relevant disclosure requirements.⁹¹ Combined with the related challenges of limited

87. Clearing House Letter to Fed, *supra* note 13, at annex C; *see also* Braithwaite, *supra* note 78 (describing industry resistance to the proposed counterparty exposure limits). All of these figures appear to be calculated using the methodology the Federal Reserve proposed for calculating exposures; a number of banks and other commenters, including the Clearing House, claim this approach overstates actual risk exposures.

88. Clearing House Letter to Fed, *supra* note 13, at 10.

89. *Id.*

90. *Id.* at annex C, C-1.

91. The primary applicable disclosure requirements are set forth in “Guide 3,” applicable to bank holding companies. U.S. Sec. & Exch. Comm’n, *Industry Guides* 6–13 (2012) (the pertinent industry guide under the Securities Act of 1933); *id.* at 37 (the pertinent industry guide under the Securities Exchange Act of 1934). Guide 3 and other SEC disclosure requirements applicable to banks have, however, evolved far less than banking has changed over the past three decades, and the lack of more detailed information regarding counterparty and other interbank exposures is but one way that the current disclosure requirements potentially fail to give investors sufficient information to evaluate banks. *See* Henry T.C. Hu, *Too Complex to Depict? Innovation, “Pure Information,” and the SEC Disclosure*

historical data and banks' various and evolving methodologies for measuring credit risk from sources other than loans, the ability to do historical analyses and cross-bank comparisons is limited. At the same time, the limited nature of the data may itself support this Article's main claim. Banks cannot disclose what they do not themselves know. The increasing tendency of banks to provide increasingly thorough information about their credit exposure despite the lack of any change in the applicable requirements may indicate that it is only recently that banks' risk management systems have become sufficiently sophisticated for them to accurately measure and aggregate credit exposures.⁹²

Moreover, banks' self-interested reasons for being concerned about the financial well-being of other banks goes beyond the credit exposures captured in the preceding measures. Banks, for example, frequently act as market makers and otherwise trade in a range of securities and other instruments.⁹³ This creates settlement risk, as one party will often have to deliver the asset or payment before receipt of the consideration owed by the other side (creating a risk of loss if the other party fails in the interim).⁹⁴ As one treatise explains, settlement risk is "especially" problematic in "interbank markets because the volume of interbank payments is extremely high," particularly when viewed "in relation to the capital set aside by each bank."⁹⁵ Recall as well that complex banks, often also provide "clearing, custodial and prime brokerage services for financial services companies."⁹⁶ These activities pose relatively limited credit risk but, as J.P. Morgan acknowledged, they give rise to potential "operational and litigation costs," should the financial service company for whom the services are provided face financial distress.⁹⁷ Today's complex banks thus not only have significant credit exposure to other banks, but they also have other self-interested reasons to be concerned about the financial well-being of other banks.

B. Risk Management Systems

Having established that banks have the requisite incentives, the next question is whether banks have the tools necessary to monitor other banks and to make meaningful assessments of

Paradigm, 90 TEX. L. REV. 1601 (2012) (describing the applicable disclosure requirements and their limitations).

92. See *infra* Part II.B (addressing the importance of this development to interbank discipline).

93. E.g., *J.P. Morgan Annual Report 2011*, *supra* note 53, at 10.

94. HEFFERNAN, *supra* note 52, at 106–07.

95. *Id.* at 107.

96. *J.P. Morgan Annual Report 2011*, *supra* note 53, at 10.

97. *Id.*

the risks to which those banks are exposed. Evidence suggests that they do, and that their capacity in both of these regards is likely to continue to improve in the years ahead.⁹⁸

Risk management is a multitiered undertaking for most banks. A closer look at J.P. Morgan's system for understanding and limiting its credit exposures illustrates. The firm has a Chief Risk Officer who oversees its risk management program, which "works in partnership with the business segments in identifying and aggregating exposures across all lines of business."⁹⁹ The firm also has extensive "policies and practices . . . to ensure credit risks are assessed accurately, approved properly, monitored regularly and managed actively at both the transaction and portfolio levels."¹⁰⁰ This includes monitoring its "[w]holesale credit risk [discussed above] regularly at an aggregate portfolio, industry and individual counterparty basis with established concentration limits that are reviewed and revised, as deemed appropriate by management, typically on an annual basis."¹⁰¹ Its "[i]ndustry and counterparty limits" are "measured in terms of exposure and economic credit risk capital," and "are subject to stress-based loss constraints."¹⁰² As this makes clear, J.P. Morgan has systems in place to understand its aggregate economic exposure to other banks, and it manages those exposures at multiple levels.

The firm has also instituted a number of governance mechanisms designed to promote effective risk management. At the highest levels, the bank's "CEO is responsible for setting the overall risk appetite of the Firm." The firm also has two committees of its board of directors—the Risk Policy Committee and the Audit Committee—which play active roles in monitoring the firm's risk management policies and the implementation thereof. To ensure that the policies set by senior management are carried out and that senior management is informed when issues arise, the firm has instituted an internal governance regime involving multiple layers of committees designed to promote regular communication between the firm's Risk Working Group and each of the firm's other divisions.¹⁰³ Overlaying these specific mechanisms, the firm claims to promote "a culture of risk awareness and personal responsibility . . . where collaboration, discussion, escalation and sharing of information is encouraged."¹⁰⁴ What is most remarkable about J.P. Morgan's sophisticated, resource-intensive risk management system is that it is not all

98. See *infra* Part III.A provides additional insight into why banks may be particularly effective as monitors and disciplinarians of other banks.

99. *Id.*

100. *Id.*

101. *Id.* at 134.

102. *Id.*

103. *Id.* at 125–26, including organizational chart and accompanying description.

that remarkable. J.P. Morgan has a long history of being at the forefront of credit risk management, so it may have an exceptionally strong risk management system in practice, but the description here is consistent with the risk management regimes in place at most complex banks.¹⁰⁵

There are also external checks on the robustness of banks' risk management systems. Most notably, a primary aim of bank examiners is to ensure that the banks they oversee have adequate risk management systems. With respect to a bank's credit-administration procedures, for example, the Federal Reserve (another leading bank examiner) expects its examiners to: determine that the bank regularly reviews the creditworthiness of its counterparties, "[a]ssess whether management has demonstrated an ability to identify downgrades in creditworthiness between reviews," "[d]etermine if credit-risk-management staff demonstrate an ability to work out of positions with counterparties whose credit quality has deteriorated," "[d]etermine whether management considered the full range of exposures when establishing capital-at-risk exposures," and "[c]heck that limits are in place for counterparties before transacting a deal," among other things.¹⁰⁶ To facilitate such exhaustive reviews, bank examiners are given inside access to a bank's documentation and personnel.¹⁰⁷ Such reviews are meant to be sufficiently robust to enable an examiner to reach meaningful conclusions about each bank's risk management systems. Among other things, the Federal Reserve expects its examiners to: "determine if the institution's credit-risk-measurement system has been correctly implemented and adequately measures the institution's credit risks," "determine if the institution has implemented adequate policies and procedures that are sufficiently calibrated to the risk profiles of particular types of counterparties and instruments," and "ensure the comprehensiveness, accuracy, and integrity of management information systems that analyze credit exposures."¹⁰⁸ In short, bank examiners are expected to inspect, and second guess the efficacy of, every aspect of a bank's risk management

104. *Id.* at 125.

105. See Bank of Am. Corp., 2011 Annual Report (Form 10-K), at 68–71 (Month Day, 2012); Citigroup, 2011 Annual Report (Form 10-K), at 66–67 (Feb. 24, 2012); Wells Fargo & Co., 2011 Annual Report (Form 10-K), at 46–84 (Feb. 28, 2012); Goldman Sachs Grp., 2011 Annual Report (Form 10-K), at 82–86 (Feb. 28, 2012); Morgan Stanley, 2011 Annual Report (Form 10-K), at 102–06 (Feb. 29, 2012); U.S. Bancorp, 2011 Annual Report (Form 10-K), at 34–54 (Feb. 23, 2012); HSBC USA Inc., 2011 Annual Report (Form 10-K) at 131–33 (Feb. Day, 2012); Bank of N.Y. Mellon Corp., 2011 Annual Report (Form 10-K), at 57–59 (Feb. Day, 2012).

106. BD. OF GOVERNORS OF THE FED. RESERVE, DIVISION OF BANKING SUPERVISION AND REGULATION, TRADING AND CAPITAL-MARKETS ACTIVITIES MANUAL 2020.3, 1 (2011) [hereinafter FED, CAPITAL-MARKETS ACTIVITIES MANUAL].

107. See *infra* Part IV.B, and sources cited therein.

system. While not a perfect fail-safe, the very process of requiring a bank to explain and justify the adequacy of its risk management system to an inquisitive and powerful third party provides an important additional check on the robustness of such systems.¹⁰⁹

To be sure, the claim here is not that banks do a perfect job of identifying and accurately assessing the magnitude of risks to which other banks are exposed. Banks all too often fail to accurately assess their own risk exposures, as illustrated all too well by J.P. Morgan's "London Whale" debacle—a series of transactions intended to be part of the bank's efforts to manage its risk, which resulted in nearly \$6 billion in losses and forced the bank to admit to a "material weakness" in its internal controls for failing to catch inflated valuations that the traders placed upon the transactions.¹¹⁰ Market participants—like regulators—at times make mistakes. Nonetheless, it is clear that banks devote substantial resources to monitoring and responding to risk taking at other banks and financial institutions. In so doing, they likely develop a meaningful, even if flawed and incomplete, understanding of other banks' risk exposures.

C. Imposing Discipline

The third and final component supporting the power of interbank discipline is a mechanism through which a revised assessment by one bank (the disciplining bank) of the risks posed by another bank (the disciplined bank) alter the disciplining bank's activities in a way that affects the disciplined bank. The disciplined bank need not know it is being disciplined, but it must feel the effect. As a general matter, a stakeholder that becomes concerned about a bank's risk exposures can respond in one of two ways—it can exercise contractual, voting or other rights it may possess to try to change the bank's activities or it can reduce its economic exposure to the bank. Banks discipline each other almost exclusively through the latter of these two mechanisms. Even that process, however, is not straightforward. This section focuses on credit risk and then considers other bases for interbank discipline.

A primary way that banks respond to the perceived riskiness of other banks is through credit limits. As a disciplining bank's assessment of the risk profile of another bank changes, the maximum exposure the disciplining bank is willing to assume with respect to that bank should

108. FED, CAPITAL-MARKETS ACTIVITIES MANUAL, *supra* note 106, at 2020.2, 1.

109. For a further discussion of the ability of banks to make meaningful assessments of the creditworthiness of other banks, see *infra* Part III.A.

110. Dan Fitzpatrick & Matthias Rieker, *Whale's Tail Hits Buyback*, WALL ST. J., Aug. 10, 2012, at C1; Dan Fitzpatrick & Gregory Zuckerman, *'Whale' Tab Hits \$5.8 Billion*, WALL ST. J., July 13, 2012, at B1.

change accordingly. Limits are usually set at multiple levels, including firm-wide limits and limits on the aggregate credit exposure that might arise from a particular division or in connection with a particular type of transaction.¹¹¹ As the disciplining bank revises its assessment of the risks posed by the disciplined bank, it revises these limits accordingly, and makes corresponding changes in its actual credit exposures to that bank. A disciplining bank can reduce its actual credit exposure to the disciplined bank by refusing to extend new loans or enter into new agreements with the bank, terminating existing arrangements, and seeking to exit current arrangements by assigning them to a third party.¹¹² Holding everything else constant, the effect should be to reduce the disciplined bank's operations and operating revenue. While the magnitude of this effect may be small when viewed in isolation, the aggregate effect of numerous banks making similar changes in their dealings with the disciplined bank can be significant.¹¹³

The analysis, however, cannot end there because disciplining banks can and do use other means for reducing credit exposures. The disciplining bank often will, for example, seek to further reduce its exposure indirectly through hedging. Credit default swaps (CDS) effectively enable a bank (or any other firm) to insure itself against loss should a specified bank (or other firm) fail. By entering into CDS referencing the disciplined bank, a disciplining bank may reduce (or eliminate) its effective exposure to that bank. Doing so imposes a cost on the disciplining bank, as it must pay a premium, commonly referred to as the "spread," in exchange for the insurance policy. Hedging also affects the disciplined bank. Market participants and regulators alike recognize that the spread on CDS referencing a bank is indicative of a bank's financial well-being.¹¹⁴ When the disciplining bank hedges its exposure, it increases demand for CDS referencing the disciplined bank, increasing the spread on CDS referencing the bank, and thus sending a signal that the bank is marginally riskier than it appeared to be prior to the

111. See, e.g., FED, CAPITAL-MARKETS ACTIVITIES MANUAL, *supra* note 106, at 2020.2, 9–10.

112. *Id.* at 10.

113. See DUFFIE, *supra* note 28, at 1–3 (identifying as a typical early stage in the demise of a complex bank, and one which contributes to its demise, the growing unwillingness of counterparties to enter into new arrangements with it, and their assignment of outstanding arrangements to third parties).

114. Christian Weistroffer, *Credit Default Swaps*, DEUTSCHE BANK RESEARCH (Dec. 21, 2009), http://www.dbresearch.com/PROD/DBR_INTERNET_EN-PROD/PROD000000000252032/Credit+default+swaps%3A+Heading+towards+a+more+stable+system.pdf ("CDS spreads serve as an important source of information for private banks, central banks, supervisors and international organisations alike.").

hedge.¹¹⁵ Increases in CDS spreads also impose direct costs on disciplined banks by increasing the interest a bank must pay on short-term and other loans.¹¹⁶

Yet another way that banks reduce their effective credit exposure to other banks is through collateral arrangements. To the extent an exposure is collateralized, a bank reduces its potential loss upon the bankruptcy of the other bank by the value of the collateral. This protection can be particularly valuable for banks when acting as counterparties to derivative transactions because of special protections provided by the Bankruptcy Code.¹¹⁷

Like hedging, using collateral to reduce effective exposure entails transaction costs and often imposes additional costs on both banks. When a bank is required to post collateral, the bank loses the ability to use the asset so committed for other productive purposes. To the extent that a bank is required to post high-quality, highly liquid collateral, as is often the case, the bank faces proportionately greater liquidity constraints and has fewer liquid assets with which to pursue other opportunities. Even a contingent commitment to post collateral can be very costly for a bank, as the disciplined bank must alter its operations in a way that ensures it will have adequate satisfactory collateral in the event that the contingency arises.¹¹⁸ Correspondingly, the disciplined bank required to post collateral may demand better terms to compensate for these disadvantages, imposing potential costs on the disciplining bank. The disciplining bank also faces challenges with respect to monitoring and enforcing contingent rights to demand collateral. A final challenge is that the value of collateral can change. Even collateral that appears to be high quality and highly liquid (as most AAA-rated, mortgage-backed securities appeared to be before the Crisis) may prove to be otherwise, and true high quality assets may be in short supply.¹¹⁹

In practice, a bank seeking to reduce its exposure to another bank often uses all three of these mechanisms in varying degrees. At time, banks will also seek to be compensated for extra credit risk in other ways, like higher interest rates or otherwise demanding more favorable terms.

115. See DUFFIE, *supra* note 28, at 1–2 (describing how signals can lead to market gossip).

116. See Tony Boyd, *Rating Agencies at Risk*, BUS. SPECTATOR (Dec. 9, 2008, 12:29 PM), [http://www.businessspectator.com.au/bs.nsf/Article/Rating-agencies-at-risk-\\$pd20081209-M63NG?OpenDocument](http://www.businessspectator.com.au/bs.nsf/Article/Rating-agencies-at-risk-$pd20081209-M63NG?OpenDocument) (describing the increasing use of CDS spreads as a reference for setting interest rates on loans).

117. Roe, *supra* note 10, at 547–48.

118. E.g., Gretchen Morgenson & Louise Story, *Testy Conflict With Goldman Helped Push A.I.G. to Precipice*, N.Y. TIMES, Feb. 7, 2010, at A1.

119. E.g., Gary Gorton, *Slapped in the Face by the Invisible Hand: Banking and the Panic of 2007*, at *5 (Yale & NBER, Working Paper, 2009) (on file with author).

A disciplining bank also may utilize other mechanisms, like guarantees, to reduce the probability of loss should a bank to which it is exposed fail. The extent that a disciplining bank relies on each of these mechanisms involves complex cost-benefit tradeoffs, which are further influenced by intrafirm institutional dynamics. Interactions between how a bank sets its aggregate exposure limits, the limits it imposes with respect to particular transaction types or divisions, and the mechanisms it uses to enforce such limitations and otherwise compel divisions and persons inside the bank to internalize the cost of their actions all influence a bank's use of these various responses.

The key for the analysis here is that a bank cannot reduce its exposure to another bank in a way that is costless to both banks. Virtually all actions that the disciplining bank may take to reduce its credit exposure impose costs on the disciplined bank and many also entail costs for the disciplining bank. Because of the associated costs, banks do not generally use collateral and other forms of hedging to eliminate their credit exposure to other banks completely. Data released by J.P. Morgan, for example, show that the firm hedged between 12.22 percent and 19.54 percent of its exposure to all financial companies in the years 2007 to 2011.¹²⁰ Similarly, at the end of 2011, Citigroup economically hedged 10 percent of its credit exposures to banks and broker-dealers, and 5 percent of its credit exposure to insurance and special purpose vehicles; those figures were 7 percent and 4 percent, respectively, a year earlier.¹²¹ Because disciplining banks seek to minimize the costs they incur, the majority of these costs should fall upon disciplined banks. Similarly, when a bank changes its activities and risk profile in a way that makes working with that bank more appealing to other banks, other banks should respond by increasing their credit limits with respect to that bank, reducing their reliance on hedging and collateral, and otherwise dealing with the bank on more favorable terms.

Finally, banks' efforts to address the operational risks, as well as other risks arising from interbank activity provide yet other mechanisms for penalizing and rewarding other banks based upon their risk profiles. For example, recall that J.P. Morgan provides clearing and settlement services for a large number of banks and other financial institutions. In this role, it effectively stands between buyers and sellers of securities, facilitating the transfer of the securities and moneys paid for them. This is one of the activities that gives rise to operational, litigation and other risks. The Wall Street Journal—in the lead article in its Money & Investing section—

120. Calculated using data from the Annual Reports on Form 10-K filed by J.P. Morgan Chase & Co. for the relevant years. Supporting data on file with author and available for review.

recently reported that J.P. Morgan has undertaken a review of the clearing services it provides to banks and other financial institutions, with the aim of “dialing back services to some clients and severing ties with others.”¹²² Notably, it is not reducing the services it provides across the board. J.P. Morgan makes a lot of money from providing such services: “[N]et income at the unit was \$463 million in the second quarter” of 2012, 9 percent of the bank’s profits for the quarter—so it doesn’t want to scale back excessively.¹²³ Instead, the firm is engaging in complex cost-benefit analyses, which take into account its assessments of the downside risks to which various firms are exposed.¹²⁴ The publication and prominent positioning of the article—even before J.P. Morgan has made any public announcements about the changes—reflects the economic significance of such changes to the institutions affected.

The preceding three sections collectively describe a system in which banks are under constant oversight by other banks. Numerous banks, all doing business with a bank, regularly assess that bank’s risk profile. As they do, the disciplining banks adjust their willingness to work with the disciplined bank and alter their behavior accordingly. All of these processes are dynamic and iterative, increasing the probability that assessments and responses will increasingly reflect the disciplined bank’s actual risk exposures over time. Further increasing the accuracy of the system as a whole is the sheer number of participants. Interbank discipline is not the product of one bank’s assessment of another. Rather, its power lies in the judgments that many banks are constantly making about one another. These decisions may have only small effects on the disciplined bank, if viewed in isolation, but can have significant effects in the aggregate. By rewarding banks that alter their risk profiles in ways that make them attractive from a credit risk perspective and penalizing those that do the opposite, interbank discipline provides immediate, material benefits and costs to banks in accord with their risk profiles. Interbank discipline thus incentivizes banks to change how they do business in some troubling ways.

D. A Note About the Crisis

The Crisis has been viewed by many as evidence of the utter failure of the market, and hence of the error of relying upon market discipline. Even former Chairman of the Federal Reserve, Alan Greenspan expressed “shocked disbelief” that “the self-interest of lending

121. Citigroup Inc., 2011 Annual Report (Form 10-K) at 93 (Feb. 24, 2012).

122. Julie Steinberg, Jenny Strasburg & Dan Fitzpatrick, *J.P. Morgan Rankled by Risk—Bank Seeks to Dial Back Some Dealings With Brokerages*, WALL ST. J., Aug. 31, 2012, at C1.

123. *Id.*

institutions to protect shareholders' equity" was not sufficient to prevent the Crisis.¹²⁵ This Sub-Part explains why the Crisis and other apparent market failures change the lens that we should use for understanding market discipline, but do not undermine the importance of considering the effects of market discipline in the regulation of banks.

The most important reason why the Crisis does not undermine the importance of interbank discipline relates to the appropriate basis for comparison. If the question is whether banks perfectly monitor other banks, the answer is clearly no. Bank opacity prevents other banks from developing a perfect understanding of the risks to which a bank is exposed. Moreover, because of the costs associated with obtaining and processing information and the fallibility of the human beings who carry out risk management on banks' behalf, disciplining banks would almost certainly fail to incorporate perfect information even if it were available. To suggest that interbank market discipline merits attention does not, however, require that banks do a perfect job. All of those engaged in monitoring and assessing bank risk taking—including bank examiners, credit rating agencies, and other market participants—have regularly failed to identify banks on the verge of failure and have otherwise erred in their assessments of the risks posed by particular institutions. Policy choices are inevitably choices among imperfect alternatives interbank discipline may be both flawed and yet sufficiently powerful that its effects should be taken into account in determining how best to allocate finite government resources. Moreover, recognizing market discipline as significant need not mean abdicating regulatory oversight completely. Thus, once we recognize that the discipline banks impose on one another affects their risk taking behavior—and the analysis up to this point supports that conclusion—the question then shifts to the lessons to learn from it.

There are, however, additional reasons that the Crisis does not undermine this Article's claims regarding the power and efficacy of interbank discipline. As an initial matter, most banks' current risk management practices are significantly more robust than those in place prior to the Crisis. Credit risk management practices are continually improving in general and the Crisis substantially accelerated this process. Regulatory changes adopted in the wake of the Crisis provide further impetus for firms to improve their risk management practices. The Federal Reserve, for example, has proposed new rules designed to ensure the robustness of banks'

124. See *supra* Part II.A.

125. *The Financial Crisis and the Role of the Federal Regulators: Hearing Before the H. Comm. on Oversight and Gov't Reform*, 110th Cong. 17 (2008) (statement of Alan Greenspan, former Federal Reserve Chairman).

enterprise risk management systems and has mandated that large banks have risk management committees. The Financial Stability Oversight Council has similarly issued recommendations directing senior bank officials to institute “strong risk management and reporting structures,” and to “establish clear accountability for failures of risk management.”¹²⁶ The record low levels of bank failures in the period before the Crisis may have lulled banks into a false sense of complacency, and that does point to a significant challenge inherent in interbank discipline, that is, the risk that it will be cyclical, imposing the least discipline when it is most needed. Nonetheless, banks today are more attuned to the risks posed by interbank exposures than they were leading into the Crisis.

There is also reason to believe that many banks had fairly robust risk management systems already in place. Banks may have grossly overestimated the strength of the real estate market while underestimating the risks posed by securitized instruments tied to it, but the Crisis itself cannot be wholly attributed to flaws in banks’ systems for monitoring and managing their exposures to other banks. Banks’ interests and society’s interests are not synonymous—government bailouts benefit banks even yet are socially costly.¹²⁷ To the consternation of many, the great majority of complex banks survived the Crisis, with many recording substantial profits, and paying out correspondingly sizeable bonuses, while the rest of the economy only slowly recovered from the myriad challenges the Crisis created.¹²⁸

Additionally, some of the most significant developments in the Crisis were precipitated, in part, by interbank discipline. The failure of Bear Stearns and Lehman Brothers, for example, have been attributed in significant part to other banks’ refusals to provide the troubled banks financing or to engage in other transactions with them on sufficiently favorable terms.¹²⁹

126. FSOC, 2012 ANNUAL REPORT, *supra* note 38, at 15; *see also* Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 165(h), 124 Stat. 1376, 1429–30 (2010); Enhanced Prudential Standards, *supra* note 7, at 600.

127. *See infra* Part III.B.

128. *See, e.g.*, FSOC, 2011 ANNUAL REPORT, *supra* note 48, at 58–59 (showing in Chart 5.2.12 that by the first quarter of 2011, pretax net income for the largest banks was down just 12 percent from 2006 levels); Press Release, U.S. Dep’t of the Treasury, The Special Master for TARP Executive Compensation Concludes the Review of Prior Payments (July 23, 2010), <http://www.treasury.gov/press-center/press-releases/Pages/tg786.aspx> (noting large bonuses at banks in the years immediately after the peak of the financial crisis).

129. *See* Darrell Duffie, *The Failure Mechanics of Dealer Banks*, 24 J. ECON. PERSP. 51, 65–66 (2010) (describing banks rapidly withdrawing from transacting with Bear Stearns, for example, through refusing Bear Stearns’ novation requests); Bryan Burroughs, *Bringing Down Bear Stearns*, VANITY FAIR, Aug. 2008, at 106, 151 (“[E]xecutives at both Goldman and Credit Suisse told their traders to hold up all novation requests dealing with Bear Stearns, pending approval by their credit departments.”); Kate Kelly,

Similarly, the collateral demands that Goldman Sachs made upon AIG played a critical role in precipitating its need for a government bailout.¹³⁰ In each instance, it was the market, not regulators, who identified the relevant firm as troubled and took actions that penalized it accordingly. These examples illustrate a significant challenge inherent in market-imposed discipline: It can be imposed in dramatic ways that at times exacerbate problems rather than prevent them. Such challenges are inherent in market discipline and are important factors to consider in determining the appropriate policy responses to it, but they are not a reason to ignore its power.¹³¹

III. BANKS AS DISCIPLINARIANS

This Part looks at the institutional competence and incentives of banks with respect to the discipline they impose on other banks. It thus moves past the core aim of this Article—drawing attention to the power of interbank discipline—to the effects of that discipline. In revealing problematic effects of interbank discipline and variability in its efficacy, this Part also illustrates why this Article advocates a complementarity approach in responding to interbank discipline.

The complementarity approach advocated here shares certain assumptions with the two approaches generally endorsed by advocates of market discipline, that is, deregulation and belt-and-suspenders style duplication. It shares the assumption inherent in the deregulatory response that when the market is performing a task well, we should reduce, perhaps significantly, the regulatory resources devoted to it. It also shares the pragmatic view underlying the belt-and-suspenders approach that no regulator or market participant is ever going to be perfect, and the stability of the financial system is a sufficiently valuable social good that some duplication may be warranted.¹³² The complementarity approach differs from these established approaches in suggesting that we should also consider the relative institutional advantages of regulators and market participants in assessing the significance of interbank discipline on the establishment of regulatory priorities. Two institutional dimensions merit particular attention—competence and incentives. Competence matters because understanding what banks do well, and what regulators might do better, sheds light on how best to allocate finite regulatory resources in light of the discipline the market imposes. Incentives matter because to the extent there is a disparity

The Fall of Bear Stearns: Fear, Rumors Touched Off Fatal Run on Bear Stearns, WALL ST. J., May 28, 2008, at A1.

130. Morgenson & Story, *supra* note 118.

131. *See infra* Part III.B.

between the incentives of banks, as the relevant market participants, and the activity that would maximize social welfare, regulatory intervention may be needed to counter the effects of the disparity or to fill gaps that remain. This Part discusses each of these issues with respect to the role that banks play in disciplining each other. The next Part addresses both with respect to regulators.

A. Institutional Competence

The primary reason banks are likely to be effective disciplinarians lies in the power of economic incentives.¹³³ Regulators may lose prestige if they fail, but bank examiners are rarely fired for making mistakes, and the regulator that employs them is unlikely to go bankrupt as a result of their errors. The same is not true for banks. The sheer size of banks' economic exposures to one another gives them a powerful economic interest in understanding the risks to which other banks are exposed and protecting themselves as appropriate. Moreover, one way that risk management has improved in the wake of the Crisis is through the creation of new mechanisms for ensuring that senior officials play a more active role in risk management.¹³⁴ As a result, agency costs within banks that may undermine the efficacy of risk management systems should be more tightly constrained than they have been in the past.

Closely related to banks' economic incentives to be good disciplinarians is their capacity to hire the best and the brightest personnel available. Banks are not subject to constraints in the compensation they can provide, and the high levels of compensation typical at many banks helps them attract exceptionally capable personnel.¹³⁵ Moreover, some leading banks, like Goldman Sachs, are known for moving personnel between trading desks and risk management positions,

132. See, e.g., Bartlett, *supra* note 62, at 316; Roe, *supra* note 10, at 589.

133. See Macey & Garrett, *supra* note 25, at 220 (“The likelihood that regulators are as effective as private parties at designing methods to control bank risk is slight, because unlike private parties, regulators do not have their own funds at stake.”).

134. Enhanced Prudential Standards, *supra* note 7, at 600 (requiring large banks to have risk management committees); FDIC OFFICE OF THE INSPECTOR GEN., No. MLR-11-010, FOLLOW-UP AUDIT OF FDIC SUPERVISION PROGRAM ENHANCEMENTS: MATERIAL LOSS REVIEWS REPORT NO. MLR-11-010 (2010) at 14–16 (describing changes in the FDIC’s policy and procedures adopted to address the role of bank boards and management in responding to identified weaknesses).

135. *Times Topics: Executive Pay*, N.Y. TIMES, http://topics.nytimes.com/top/reference/timestopics/subjects/e/executive_pay/index.html (LAST UPDATED OCT. 10, 2012) (“As Wall Street grew in influence, its workers’ pay ballooned, increasing sixfold since 1975. That was nearly twice as much as non-financial worker pay increased in the United States . . .”).

as well as doing the reverse.¹³⁶ Such personnel movements can facilitate good working relationships between risk management departments and other divisions, in addition to further enhancing the ability of banks to attract highly capable individuals into risk management positions.

Yet another reason that banks may be effective disciplinarians is that they are analyzing entities that are like themselves. Banks, for example, understand the financial reporting requirements imposed on banks because they themselves must comply with the same. This gives banks an advantage in analyzing another bank's financial statements, enabling insights into which figures are likely to be reliable, which are likely to involve more judgment (and be subject to gaming), what small changes in a bank's financial position might signal problems down the line, and other issues. Such insights may be particularly valuable in light of the numerous judgment calls inherent in the process of financial reporting for today's complex banks.¹³⁷

A related advantage possessed by banks relative to other market actors is that as active participants in the same markets, banks often have inside information about other banks' activities and exposures. In the years before the Crisis, for example, underwriters and those involved in packaging mortgages into mortgage-backed securities likely had a better understanding than most regarding which banks had become the most lax in their underwriting policies and practices. Similarly, traders in a particular area often have a sense of who is buying what and on what terms. Such signals can be noisy, particularly because banks may engage in activities to limit the capacity of third parties to deduce their trading strategies. Nonetheless, imperfect information is still information and may be quite valuable, particularly when coupled

136. E.g., Dominic Elliott, *Inside Goldman Sachs Risk Management*, FINANCIAL NEWS, Apr. 19, 2010, <http://www.efinancialnews.com/story/2010-04-19/inside-goldman-sachs-risk-management> (stating that Goldman Sachs has a "culture of moving traders into risk management positions").

137. See, e.g., Sven Bornemann et al., *Are Banks Using Hidden Reserves to Beat Earnings Benchmarks? Evidence From Germany*, 36 J. OF BANKING & FIN. 2403 (2012) (providing evidence suggesting that banks build hidden reserves which they use to manage earnings); David Enrich & Max Colchester, *EU Banks' Risk in Eyes of Beholder*, WALL ST. J., June 22, 2012 at C1 (noting that "a parade of banks . . . intend to increase their capital ratios—a key gauge of their abilities to absorb future losses—partly by tinkering with the way they assess the riskiness of their assets"); Floyd Norris, *Accountants Misled Us Into Crisis*, N.Y. TIMES, Sept. 11, 2009, at B1 (quoting Robert Herz, then chairman of the Financial Accounting Standards Board, as saying that certain accounting practices resulted in "important aspects of our entire financial system . . . operating like a Wild West show, [resulting in] huge unregulated opaque markets").

with a deep understanding of the relevant market and considered in light of the fact that banks are notoriously opaque institutions.¹³⁸

Yet another reason that banks may be particularly effective as disciplinarians lies in the overlap between the types of judgments required to assess another bank's riskiness and the types of judgments banks must make in connection with other aspects of their operations. For example, if a bank has a large commercial real estate portfolio or has made an aggressive bet on sovereign debt issued by countries in a particular region, assessing the riskiness of that bank requires a judgment to be made about the strength of the commercial real estate market or the countries issuing the debt. Banks are already in the business of making these types of judgment calls and they have strong financial incentives—even apart from their interbank credit exposures—to ensure that these judgments are as accurate as possible. This is one of the ways that banks may have advantages relative not just to other market participants, but relative to bank regulators as well.

The evidence available supports the notion that banks may be effective disciplinarians. For example, in a study examining the interest rates banks charge other banks for overnight loans, Craig Furgine finds that “banks with higher profitability, fewer problem loans, and higher capital ratios pay lower interest rates.”¹³⁹ The Federal Reserve sets the target for such rates, and the daily average for the rates that banks charge each other is known as the effective federal funds rate, but the interest rate that any one bank charges another is determined entirely by the banks involved. Based on his findings, Furgine concludes that the “price of a federal funds loan reflects, in part, the credit risk of the borrowing institution . . . suggest[ing] that banks can distinguish credit risk among their peers and price loan contracts accordingly.”¹⁴⁰ Similarly, Gara Afonso and her co-authors found that immediately following Lehman Brothers' bankruptcy, “large banks with high percentages of non-performing loans showed drastically reduced daily borrowing amounts and borrowed from fewer counterparties in the days after Lehman's bankruptcy.”¹⁴¹ Based upon that finding and others, they conclude that their “results

138. E.g., Donald P. Morgan, *Rating Banks: Risk and Uncertainty in an Opaque Industry*, 92 AM. ECON. REV. 874 (2002).

139. Craig H. Furgine, *Banks as Monitors of Other Banks: Evidence From the Overnight Federal Funds Market*, 74 J. OF BUS. 33, 54 (2001).

140. *Id.*

141. Gara Afonso, Anna Kovner & Antoinette Schoar, *Stressed, Not Frozen: The Federal Funds Market in the Financial Crisis*, 66 J. FIN. 1109, 1110 (2011).

lend support to the interpretation that heightened concerns about counterparty risk reduce[] liquidity and increase[] the cost of finance for weaker banks.”¹⁴²

Spreads on credit default swaps (CDS) referencing banks provide further evidence of interbank discipline. The CDS spreads for both Bear Stearns and Lehman Brothers went up significantly prior to their respective failures, and CDS spreads throughout the Crisis demonstrate significant bank-specific variation.¹⁴³ As one of the primary mechanisms that banks use to manage their credit exposure to other banks, the degree of variation in CDS spreads likely reflects, at least in part, the effort banks devote to monitoring and managing their credit exposures to other banks.¹⁴⁴

At the same time, there are meaningful limitations on the efficacy of banks as disciplinarians. Many flow from the incentive issues described below, but others arise from institutional and positional constraints. Banks, for example, are never going to have the inside access afforded regulators, nor are they going to enjoy the broad set of remedial responses that regulators may employ.¹⁴⁵ The key here is that there is reason to expect that banks may be highly effective in monitoring and responding to changes in other banks’ risk profiles.

B. Incentives

The reason that banks monitor and discipline one another is that banks have an economic interest in limiting their downside risk exposures to the extent it is cost effective to do so; it is not to maximize social welfare. The two aims often overlap. If a bank takes excessive risks, other banks should penalize it accordingly, thereby discouraging such behavior. In those

142. *Id.*; see also Thomas B. King, *Discipline and Liquidity in the Interbank Market*, 40 J. MONEY, BANKING AND CREDIT 295 (2008) (“Using 20 years of panel data [to] demonstrate that high-risk banks have consistently paid more than safe banks for interbank loans and have been less likely to use these loans as a source of liquidity.”); Paolo Angelini, Andrea Nobili, & Maria Cristina Picillo, *The Interbank Market After August 2007: What Has Changed and Why?* (Bank of Italy, Working Paper No. 731, 2009) (finding that the importance of borrower bank characteristics to interbank lending rates increased after August 2007”). *But see* Viral Acharya & Ouarda Merrouche, *Precautionary Hoarding of Liquidity and Inter-Bank Markets: Evidence From the Sub-Prime Crisis* (NYU Working Paper, 2011) (finding that in the United Kingdom, the borrowing rates of the 10 largest banks do not vary significantly with bank characteristics).

143. Hart & Zingales, *supra* note 39, at 31 (Table 1) (providing CDS spreads for leading banks on four key dates leading up to and during the crisis, showing significant variation by bank on each of the dates); see Robert J. Grossman & Martin Hansen, *FitchRatings, CDS Spreads as Default Risk Indicators* 12 (2011), available at <http://www.scribd.com/doc/63597725/CDS-Spreads-as-Default-Risk-Indicators-Feb-2011> (showing CDS spreads for U.S. broker dealers, including Lehman and Bear Stearns, from January 2006 through October 2010).

144. See *supra* Part II.C.

circumstances, the discipline banks impose on one another fulfills the ideal of market discipline embodied in Basel and embraced by many of its proponents. In general, when the issue is the quantum of risk that a bank is taking, the interests of banks and society are largely aligned—excessive risk taking is bad for both.

Moving past the question of whether a bank's risk taking is excessive to consider the nature of the risks a bank is assuming, however, reveals that banks' incentives may systematically deviate from the socially optimal in a number of regards. As reflected in the Crisis, one significant source of divergence relates to liquidity risk. The interbank market plays an important role helping to smooth access to liquidity during normal time. At the same time, the interbank market can give rise to inefficiencies and may exacerbate liquidity contractions when signs of trouble arise. These divergences between the outcomes that are socially optimal and those that would result in the absence of government intervention help to explain the existence and value of having a central bank that, among other things, can function as a lender of last resort.¹⁴⁶ This Article examines other ways that banks' incentives may systematically deviate from the socially optimal, focusing attention outside of crisis periods. Three issues—systemic risk, tail risks, and correlated risks—merit particular attention, although more may well exist.

1. Systemic Risk

The most significant way that banks' incentives vary from the socially optimal is in their relative concern with systemic risk. Because of the large externalities associated with banking crises, banks and their stakeholders do not face optimal incentives to avoid systemic risk.¹⁴⁷ The possibility of government intervention transforms this divergence into a source of moral

145. See *infra* Part IV.B.

146. E.g., Acharya, Gromb & Yorulmazer, *supra* note 67 (showing that banks may use market power in ways that contribute to effective liquidity shortages, providing a rationale for central banks to serve as a lender of last resort); Allen, Carletti & Gale, *supra* note 67, at 2 (“show[ing] that the introduction of a central bank that engages in open market operations to fix . . . the short term interest rate[] removes the inefficiency associated with a lack of hedging opportunities” under certain circumstances); Xavier Freixas, Antoine Martin & David Skeie, *Bank Liquidity, Interbank Markets, and Monetary Policy*, 24 REV. OF FIN. STUD. (SOC'Y FOR FIN. STUDIES) 2656, 2658 (2011) (showing that a “central bank's interest rate policy can directly improve liquidity conditions in the interbank lending market during a financial crisis”). For a discussion of how the interbank market functioned during the Crisis, see [Gara Afonso, Anna Kovner & Antoinette Schoar, Stressed, *Not Frozen: The Federal Funds Market in the Financial Crisis* Journal of Finance,]]

147. *Supra* Part I.A.

hazard.¹⁴⁸ This means that as the probability that a bank's failure will have systemic repercussions increases, so too does the magnitude of the disparity between a bank's incentives and those that would maximize social welfare.

That government bailouts can never be assured does not undermine the role that a possible bailout plays in other banks' risk assessments. A core function of risk management is to assign probabilities to various possible outcomes. Government bailouts, and the situations in which they are provided, are sufficiently predictable that risk managers have long taken them into account when assessing a bank's creditworthiness. For example, when Moody's assigns a credit rating to a bank, it engages in a two-step process. First, it engages in a thorough analysis of the bank as a stand-alone entity and assigns it an initial rating on that basis.¹⁴⁹ It then engages in a separate analysis in which it considers the probability that the bank will receive external support, including a government-funded bailout, if it faces financial distress.¹⁵⁰ Moody's then adjusts its rating accordingly. Thus, the final rating given to any bank is the product of both the bank's actual creditworthiness and Moody's assessment of the probability that it would receive a bailout.¹⁵¹ A bank's creditors, including other banks, make comparable adjustments to their analyses.¹⁵² Empirical evidence also reveals that banks are capable of very quickly revising their estimations of the probability of a bailout when new information comes to light, and that they rapidly adjust their willingness to work with other banks accordingly.¹⁵³

148. *Supra* Part I.A; *see also* Pragyam Deb, Market Frictions, Interbank Linkages and Excessive Interconnections 3 (July 2012) (working paper), available at http://personal.lse.ac.uk/debp/Papers/Network_Paper.pdf (using a model to show that in the presence of government guarantees, including implicit expectations of a bailout, "competitive banks find it optimal to participate in the interbank market even when the risk of contagion is high and it is socially suboptimal to do so").

149. Moody's Global Banking, *Special Comment: Calibrating Bank Ratings in the Context of the Global Financial Crisis* 4 (2009), available at http://www.iflr.com/pdfs/web-seminars/regulatory-capital/moodys_2-09.pdf.

150. *Id.* at 4–5.

151. *Id.*

152. DUFFIE, *supra* note 28, at 5 (explaining that "creditors of systemically important financial institutions may offer financing terms that reflect the likelihood of a government bailout," contributing to the moral hazard); Reint Gropp, Jukka Vesala & Giuseppe Vulpes, *Equity and Bond Market Signals as Leading Indicators of Bank Fragility* (European Central Bank, Working Paper No. 150, 2002) (finding that subordinated debt yields reflect bank risk but only when there is not a strong expectation of government support).

153. Afonso, Kovner & Schoar, *supra* note 141, at 1111 (finding that when the "AIG bailout was announced, the . . . spreads [for interbank loans] for the largest banks fell steeply" while "small banks . . . continued to face higher spreads").

The most well recognized way in which these dynamics become manifest, and the one for which there is the best empirical support, is the phenomenon of banks becoming “too big to fail.” Economists studying new bond issuances, for example, found that “[t]he larger the bank, the less its portfolio matters for explaining the spreads on its bonds.”¹⁵⁴ The effect was particularly pronounced for banks that the government had previously indicated may be too big to fail.¹⁵⁵ In other words, the market views some banks as likely being too big to fail and those banks are able to borrow at lower interest rate than they would otherwise have to pay as a result. Recent studies on the relationship between a bank’s size and the spread on CDS referencing the bank provide further evidence that the market views some banks as too big to fail and this affects market participants’ willingness to assume credit risk with respect to a bank.¹⁵⁶ A recent study places the value of the implicit government subsidy provided to the eighteen largest U.S. bank holding companies as a result of too-big-to-fail bailout expectations at over \$34 billion per year.¹⁵⁷

Not surprisingly, there is also evidence that banks, aware of these benefits, actively seek to become too big to fail in order to enjoy the government subsidy lavished on such institutions.¹⁵⁸ A feedback loop thus exists. If a bank knows it can extract better terms from creditors and others by increasing its probability of receiving a bailout, it will change itself to increase that probability, thereby enabling it to enjoy the current economic advantages that flow from that probabilistic change. Interbank relationships provide an important mechanism through which banks can enjoy immediate benefits from being viewed as a probable bailout recipient.

Too big to fail remains a significant issue, but it is no longer the only one. The Crisis made clear that the systemic significance of a bank’s collapse, and hence the likelihood of a government bailout, is not just a product of the bank’s size. Systemic risk also increases when a

154. Donald P. Morgan & Kevin J. Stiroh, *Bond Market Discipline of Banks: The Asset Test*, 20 J. FIN. SERV. RES. 195 (2001).

155. *Id.*

156. *E.g.*, Manja Völz & Michael Wedow, *Market Discipline and Too-Big-to-Fail in the CDS Market: Does Banks’ Size Reduce Market Discipline?*, 18 J. EMPIRICAL FIN. 195 (2011).

157. Dean Baker & Travis McArthur, *The Value of the “Too Big to Fail” Big Bank Subsidy 2* (CEPR Reports and Issue Briefs 2009).

158. *E.g.*, María Fabiana Penas, & Haluk Unal, *Gains in Bank Mergers: Evidence From the Bond Markets*, 74 J. FIN. ECON. 149 (2004); Edward J Kane, *Incentives for Banking Megamergers: What Motives Might Regulators Infer From Event-Study Evidence?*, 32 J. MONEY, CREDIT, & BANKING 671 (2000). For a review of the literature on the benefits and drawbacks of large, complex banks and the extent to which bank growth may be attributed to efforts to become too-big-to-fail, see Wilmarth, *supra* note 44, at 302–12, and sources cited therein.

bank is “too interconnected to fail” or “too correlated to fail.”¹⁵⁹ We can therefore expect that banks will also consider these characteristics in evaluating their relationships with other banks.

When a bank enters into a contractual arrangement or otherwise engages with another bank, each bank increases its connectivity to the other. The more connected a bank is to other banks, the greater the probability that its failure will have systemic consequences, and the greater the probability that the government will intervene to prevent its failure. As a result, when Bank A is evaluating whether to enter into an arrangement with Bank B, Bank A may reasonably expect that the very process of creating that relationship increases the likelihood that the government would intervene in the event that either Bank A or Bank B faces financial difficulties. The net result is that entering into the agreement benefits Bank A directly, by increasing the probability it will be bailed out, and indirectly, by reducing the magnitude of the credit risk it assumes in its dealing with Bank B (by also increasing the probability of Bank B being bailed out). Thus, the resulting increased interconnectivity may itself increase Bank A’s incentive to enter into a relationship with Bank B.

Similar dynamics arise with respect to correlated risk taking. In the event that a bank fails for highly idiosyncratic reasons, regulators have little reason (apart from the two just mentioned) not to allow the bank to fail. Regulators also have tools for limiting the systemic repercussions of such a failure.¹⁶⁰ The situation changes dramatically, however, if numerous banks are exposed to a similar set of risks. In determining whether to intervene if a common exposure proves problematic, the government must now consider the systemic significance of allowing all of the exposed banks fail when determining whether to intervene. Thus, if Bank A is facing a choice between increasing its economic exposure to Bank B or Bank C and both banks are exposed to an identical amount of risk, Bank A should favor the bank with the risk profile that most resembles the risk profiles of other banks. Once again, this effect is likely to lead to increased fragility. Banks are rewarded for having risk profiles that resemble those of other banks, whereas the system would be more stable if banks assumed more idiosyncratic risks.¹⁶¹

To be clear, there are two related issues that arise from the expectation that a government may bail out a bank when the systemic costs of its failure are sufficiently great. As an initial

159. Coffee, *supra* note 60, at 816.

160. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, tit. II, 124 Stat. 1376, 1442–1520 (2010) (codified at 12 U.S.C. §§ 5381–95).

161. E.g., Charles K. Whitehead, *Destructive Coordination*, 96 CORNELL L. REV. 323 (2011) (describing the destructive potential that arises from banks assuming similar risks).

matter, banks themselves have an incentive to become more interconnected and to have risk exposures that are more closely correlated to other banks in order to increase the likelihood they will receive a bailout. The second issue is that interbank discipline may exacerbate these tendencies by providing a mechanism through which banks can realize immediate economic benefits based on expectations of a bailout. To the extent a bank grows, increases its connectivity, or alters the nature of its risk exposures in a way that increases the probability of a government bailout, those changes affect other banks' assessments of that bank. As a result, other banks should be relatively more willing to work with a bank when it changes its profile in any of these ways. To be sure, this dynamic is not specific to other banks. All of a bank's creditors may be expected to adjust their expectations regarding the credit risk a bank poses to account for the possibility of a government bailout.¹⁶² Nonetheless, this problem may be particularly great in the context of interbank interactions. Precisely because of the numerosity and diversity of the connections among banks, they can respond swiftly and effectively when another bank changes its risk profile in a way that affects the probability it will be bailed out.¹⁶³ Moreover, all of the factors suggesting that banks may be particularly adept at disciplining other banks also facilitate banks' ability to detect changes in a bank's risk profile that affect the probability it will receive a bailout.

There are also specific reasons to expect that interbank discipline is more likely to contribute to correlated risk taking and increased interconnectivity than other forms of market discipline. To assess how correlated a bank's risk profile is to that of other banks, it is necessary to consider not just that bank's risk profile, but also the risk profiles of other banks. Because of the costs associated with obtaining and processing such information, few stakeholders will have an adequate incentive to engage in such an analysis. By contrast, a typical complex bank has relationships with most other complex banks and thus already possesses the information necessary to reach such judgments. Relatedly, interbank activity is the source of connectivity; it is the mechanism through which banks can exploit this subsidy.

162. The dual nature of the problem inherent in bailout expectations is not unique to banking. *See, e.g.,* Steven L. Schwarcz, *Sovereign Debt Restructuring: A Bankruptcy Reorganization Approach*, 85 CORNELL L. REV. 956, 961–62 (2000) (explaining IMF's intervention as creating moral hazard for countries); Charles W. Calomiris, *The IMF's Imprudent Role as Lender of Last Resort*, 17 CATO J. at 275, 277 (Winter 1998) (same).

163. *See* Fed, *Capital-Markets Activities Manual*, *supra* note 106, at 2020.1, 10 (stating that banks that are active dealers "should have counterparty credit exposure monitored daily").

That banks' incentives are not welfare optimizing is far from a new insight. Nonetheless, the analysis here sheds new light onto the mechanisms through which the moral hazard arising from the possibility of a government bailout becomes manifest. Even if very few banks are trying to exploit these dynamics today, that could change, and it could change quickly. Banks operate in a highly competitive environment. When one bank realizes that changing its operations in a particular way allows it to realize immediate gains while exposing it to only a limited portion of the associated downside risk, other banks are likely to follow.¹⁶⁴ History is replete with examples of banks doing just that, even as their actions increase in the fragility of the financial system as a whole.¹⁶⁵

2. Tail Risks

Banks' incentives to alter their risk taking behavior and assessments of other banks to exploit implicit government subsidies are not the only way that interbank discipline may lead to socially suboptimal outcomes. A second, and somewhat overlapping, way that banks' risk management systems have proved wanting is with respect to their capacity to capture and appropriately measure tail risks. Tail risks are low probability events which, if they arise, result in significant losses (or gains).¹⁶⁶ A common theme in many accounts of the Crisis is that banks did not adequately seek to understand and limit their exposure to tail risks.¹⁶⁷ A partial explanation for this failure is that one of the primary mechanisms banks used to manage risk exposures—Value at Risk (VaR) models—have the known flaw of underestimating tail risks.¹⁶⁸

164. RICHARD A. POSNER, *THE CRISIS OF CAPITALIST DEMOCRACY* 264 (2010) (explaining that “competition . . . force[s] banks to take risks . . . , provided the risks are legal and profit-maximizing, whatever their consequences for the economy as a whole”).

165. See, e.g., Asli Demirgüç-Kunt & Harry Huizinga, *Bank Activity and Funding Strategies: The Impact on Risk and Returns*, 98 J. FIN. ECON. 626, 647 (2010) (showing “higher fee income and nondeposit funding shares increase bank risk”); WILLIAM D. COHAN, *HOUSE OF CARDS* 5 (2009) (explaining that “Goldman Sachs, Morgan Stanley, Merrill Lynch, Lehman Brothers, and Bear Stearns” were long on a constant verge of “a funding crisis” because of their excessive reliance on short-term credit).

166. Peter Conti-Brown, *A Proposed Fat-Tail Risk Metric: Disclosures, Derivatives and the Measurement of Financial Risk*, 87 WASH. U. L. REV. 1461, 1462–63 (2010).

167. E.g., Viral V. Acharya et al., *Manufacturing Tail Risk: A Perspective on the Financial Crisis of 2007–09*, 4 FOUNDATIONS & TRENDS IN FIN. 249, 250–51 (2010).

168. E.g., Conti-Brown, *supra* note 166, at 1465 (identifying as a primary flaw of VaR that “in times of crisis, VaR fails to provide any clear content on risk exposures in the long tail, especially when those tails are fat”); Joe Nocera, *Risk Mismanagement*, N.Y. TIMES MAG., Jan. 4, 2009 at 24, 26–27 (quoting David Einhorn, founder of Greenlight Capital, a prominent hedge fund, who analogizes VaR to “an air bag that works all the time, except when you have a car accident” because of its failure to capture tail risks); Yasuhiro Yamai & Toshihiro Yoshida, *Comparative Analyses of Expected Shortfall and Value-*

Incentive issues similar to those associated with systemic risk exacerbate the challenge. Banks can earn significant profits from excessively discounting tail risks, and such risks often become manifest only in extreme adverse circumstances, that is, in the type of conditions when the financial system as a whole is most likely to be under stress and the government is most likely to intervene.¹⁶⁹ Assuming that the tools and metrics a bank uses for assessing its own risk exposures are similar to those it uses when assessing the risk exposures of other banks, a typical bank's lack of regard for the tail risks to which it is exposed directly portends a similar lack of regard for tail risks to which banks with whom it deals may be exposed. Once again, these dynamics shape incentives in problematic ways, as banks are under-penalized for assuming tail risks.

There is new pressure on banks to perform stress tests and otherwise evaluate how they would fare in extremely adverse circumstances.¹⁷⁰ Nonetheless, tail risks are difficult to identify and measure, and banks continue to lack adequate incentives to identify and respond to them. Assuming that banks do not fully penalize other banks for assuming tail risks—either because the risk management tools they use do not capture them or because they have an incentive to discount them—the discipline banks impose on one another may accentuate their tendency to assume excessive tail risks.

3. Correlation Seeking

Similar issues arise with respect to correlated risk taking, which may pose challenges even apart from systemic risk. Richard Squire has shown that because equity holders have limited liability, firms will rationally discount contingent liabilities to the extent that such risks are likely to become manifest in situations where the firm would already be bankrupt.¹⁷¹ As a result, firms

at-Risk (3): Their Validity Under Market Stress, 20 MONETARY AND ECON. STUD. 181, 182 (2002) (explaining that VaR models tend to “disregard the fat-tailed properties of actual returns, and underestimate the likelihood of extreme price movements”).

169. *E.g.*, Acharya et al., *supra* note 167, at 291 (arguing that “the root cause of the crisis was the desire of highly leveraged [complex banks] to take even greater risks, generating even higher short-term ‘profits,’” which they accomplished by “manufacturing” tail risks).

170. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 165(i)(2), 124 Stat. 1376, 1430 (2010) (codified at 12 U.S.C. § 5365).

171. Richard Squire, *Strategic Liability in the Corporate Group*, 78 U. CHI. L. REV. 605, 607–08 (2011) (explaining shareholders' interest in assuming intragroup credit guarantees as a means of increasing value for shareholders at the expense of creditors who will be unable to recover in the event the corporate group as a whole goes bankrupt); Richard Squire, *Shareholder Opportunism in a World of Risky Debt*, 123 HARV. L. REV. 1151, 1158–59 (2010) (detailing the advantages to shareholders posed by correlating company risks).

should seek to assume contingent liabilities that are positively correlated to significant risks to which they are already exposed. Squire labels such behavior “correlation seeking.” In order to engage in correlation seeking, a firm must be able to make sophisticated judgments about the risks to which it is exposed, the probability those risks will bankrupt the firm, and the correlation between those risks and other risks that the firm might assume. In light of the centrality of risk management to banking and the significant resources banks invest in the endeavor, banks may be particularly adept at the practice. Potentially counterbalancing correlation seeking by banks is the fact that banks and other financial firms are aware of this risk and are likely to be more adept than most counterparties at identifying such behavior and responding accordingly.¹⁷² Moreover, changes to the schemes used to compensate bank executives may make it so they are not solely responsive to equity holders, reducing their incentive to engage in correlation seeking.¹⁷³

Assuming that banks engage in correlation seeking, when Bank A is evaluating whether to assume credit risk with respect to Bank B, Bank A will reduce its assessment of the associated cost to the extent that Bank A believes it will already be bankrupt should the risk (of Bank B failing) become manifest. To make the example more concrete, if Bank A has significant exposure to commercial real estate as a result of loans, guarantees, and other commitments, Bank A should be relatively more willing to write CDS on a bank similarly exposed. This means that if Bank A is considering taking on a contingent liability with respect to Bank B or Bank C and the magnitude of their risk exposures are identical, Bank A should favor the bank whose risk exposures are more closely correlated to its own. While the relevant reference point—the risk profile of the disciplining bank—is different from the relevant reference point for the systemic risk issue—the risk profile typical of banks—the effect of correlation seeking may be to exaggerate the tendencies described above. Banks are rewarded, and thereby incentivized, to assume risks that are similar to the risks to which other banks are exposed; they are also discouraged from assuming idiosyncratic risks.

These insights into banks’ incentives, coupled with the preceding sections, provide a picture of a system that is powerful, imperfect, and, from a social welfare perspective, flawed. This implies that we can build a more stable financial system by reconsidering regulatory priorities and the allocation of finite regulatory resources in a way that addresses interbank discipline. The

172. INTERAGENCY GUIDANCE, *supra* note 7, at 10 (warning banks to be attuned to this type of risk).

173. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 956, 124 Stat. 1376, 1905–06 (2010) (codified at 12 U.S.C. § 5641).

next Part provides the final piece of background necessary in order to determine the best way forward.

IV. BANK SUPERVISION

This Part introduces the key bank regulators. It examines the aims of bank regulators, in part by looking at their history, the tools they have been given to accomplish those aims, and how they have used those tools. The focus is on bank examination as the mode of regulation most likely to duplicate (and also potentially able to complement and counteract) interbank discipline. An additional reason for this focus is that bank examination remains a critical component of financial regulation yet has received relatively little attention in financial reform discussions. This introduction is brief, reflecting the Article's primary aim of drawing attention to interbank discipline. Yet even this sparse introduction provides an important point of reference for assessing the policy implications of interbank discipline.

A. History and Incentives

Currently, bank supervision is carried out at the federal level by three federal regulators, the Federal Reserve, the OCC, and the Federal Deposit Insurance Corporation (FDIC), with primary oversight responsibility allocated according to the nature of the bank.¹⁷⁴ As a result of mergers, conversions, and a bankruptcy, the leading investment banks are all now regulated as banks.¹⁷⁵ Additionally, the Federal Reserve's oversight authority was expanded post-Crisis to encompass large financial institutions that are systemically significant even if they are not formally banks, so all U.S. complex banks, as that term is used here, are subject to oversight by one or more of these regulators.¹⁷⁶

The supervisory authority given to the banking regulators, and the aims of such oversight, stem largely from the Banking Act of 1933. That Act created the FDIC, instituted deposit

174. The Fed has primary oversight responsibility for all bank holding companies and state banks that are members of the Federal Reserve; the OCC has primary responsibility for all national banks and thrifts; the FDIC has primary responsibility for state banks and thrifts that are not members of the Federal Reserve. *See generally* MARK JICKLING & EDWARD V. MURPHY, CONG. RESEARCH SERV., R40249, WHO REGULATES WHOM? AN OVERVIEW OF U.S. FINANCIAL SUPERVISION (2009) (providing a summary of the primary federal institutions and mechanisms present in the U.S. financial regulation system).

175. *See, e.g.*, Sewall Chan, Financial Debate Renews Scrutiny On Size of Banks, N.Y. TIMES, Apr. 21, 2010, at A1 (describing how “Bank of America swallowed Merrill Lynch, JPMorgan Chase bought Bear Stearns” and “Goldman and Morgan converted to bank holding companies”).

176. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 113, 124 Stat. 1376, 1398–1402 (2010) (codified at 12 U.S.C. § 5323).

insurance, and expanded the oversight authority of both the Federal Reserve and the OCC.¹⁷⁷ As a result, bank examination practices and procedures were formulated initially with the primary aim of protecting the insurance fund managed by the FDIC and, hence, tended to focus on maintaining the safety and soundness of individual financial institutions whose bankruptcy might result in claims against the fund. Maintaining the stability of the overall financial system was also a clear aim of bank oversight, but until the Crisis, it was largely assumed that the stability of the system would follow from efforts to maintain the safety and soundness of the individual institutions that constitute the system.¹⁷⁸

The focus on ensuring the safety and soundness of individual banks holding insured deposits has been reiterated and affirmed over time. Even the Federal Reserve, which has long had greater responsibility with respect to macroeconomic considerations than other bank regulators, has made this a top priority of its bank oversight activities, and it has done so even with its oversight of bank holding companies, institutions that control but are not themselves depository institutions.¹⁷⁹ Other institutional arrangements further perpetuate the focus on the safety and soundness of individual financial institutions. For example, each bank regulator has an independent Inspector General that must undertake a detailed loss review every time a bank failure results in a material loss to the FDIC's insurance fund or exhibits unusual circumstances that warrant an in-depth review.¹⁸⁰ Knowing that their actions will be closely scrutinized in connection with such a failure augments the tendency of examiners to make the safety and soundness of individual banks their top priority. To be sure, there have been significant changes

177. See, e.g., Edward L. Symons, Jr., *The United States Banking System*, 19 BROOK. J. INT'L L. 1, 11 (1993); Mark B. Greenlee, *Historical Review of "Umbrella Supervision" by the Board of Governors of the Federal Reserve System*, 27 REV. BANKING & FIN. L. 407, 453 (2008) (describing how the Fed's authority over bank holding companies grew incrementally, starting in 1933).

178. MARKUS BRUNNERMEIER ET AL., INT'L CTR. FOR MONETARY & BANKING STUDIES & CTR. FOR ECON. POLICY RESEARCH, GENEVA REPORTS ON THE WORLD ECONOMY: THE FUNDAMENTAL PRINCIPLES OF FINANCIAL REGULATION xi (2009) ("The current approach to systemic regulation implicitly assumes that we can make the system as a whole safe by simply trying to make sure that individual banks are safe.").

179. Greenlee, *supra* note 177, at 443 quoting Fed. Reserve Bd., Letter From Fed. Reserve Bd. to Fed. Bank Examiners, SR 00-13 (Aug. 15, 2000) (explaining that the purpose of consolidated supervision is to ensure that bank holding companies "are operated in a safe and sound manner *so that* their financial condition does not threaten the viability of affiliated depository institutions") (emphasis added).

180. 12 U.S.C. § 1831o(k) (2006). OCC is a division of the Treasury Department and thus subject to review by its Inspector General.

in how bank regulators seek to promote the safety and soundness of individual financial institutions over this period of time, but the focal point has remained relatively constant.¹⁸¹

A related way that the purpose of bank oversight has remained relatively constant over this time is in the expectation that bank examiners can best protect the safety and soundness of individual banks by using their oversight authority to engage in a thorough examination of each bank and, on the basis of that examination, reaching firm conclusions about the bank's safety and soundness. Even today, the Federal Reserve, for example, expects its examiners at the completion of each examination, "[t]o reach conclusions regarding the present condition of the bank[, t]o reach conclusions regarding the future prospects of the bank[, and t]o determine the bank's ability to meet demands in the ordinary course of business or reasonably unusual circumstances."¹⁸² This is comparable to the expectations placed upon examiners in 1933, when the nature of banking, buttressed by the Glass-Steagall Act, made banks much simpler, bank examination far easier, and "permitted the regulators to channel their efforts and expertise more efficiently."¹⁸³

This brief history sheds light on the incentives of bank examiners. While in theory one might presume that regulators should aim to maximize social welfare, in practice, incentives are often shaped by the history behind a regulator's creation and the tasks with which it is charged. The history of bank oversight suggests that the key regulators, while concerned with maintaining the stability of the overall financial system, focus primarily on the survival of the individual institutions constituting that system. This history also suggests that institutional arrangements within bank regulators are similarly structured to further this aim. Further insight comes from looking at the authority given to bank examiners and their use of that authority.

B. Institutional Competence

Bank examiners enjoy a number of advantages over market participants, including banks. Many of these advantages relate to access. In order to assess the safety and soundness of the

181. Garten, *supra* note 46, at 504–05 (discussing the historical focus on narrow banking, the shift to a debtor-based approach and a subsequent shift to a deregulatory, equity-based approach to bank regulation).

182. BD. OF GOVERNORS OF THE FED. RESERVE SYS., DIV. OF BANKING SUPERVISION AND REGULATION, COMMERCIAL BANK EXAMINATION MANUAL 5020.2 (2010) [*hereinafter* FED, COMMERCIAL BANK MANUAL].

183. Garten, *supra* note 46, at 520. The Glass-Steagall Act, as originally conceived and implemented, created a hard line separating commercial banking from investment banking, resulting in less complex institutions. [Macey text]

institutions they oversee, each regulator is given broad oversight authority. OCC examiners, for example, “have power to make a thorough examination of all the affairs of [any national] bank,” including the “power to administer oaths and to examine any of the officers and agents thereof under oath.”¹⁸⁴ Further accentuating regulators’ unique access is their shift from periodic examinations to a regime of ongoing monitoring for the largest complex banks.¹⁸⁵ This means that regulators have full-time teams of examiners working at each of the leading complex banks, closely following their operations and regularly interacting with their personnel.

This type of access enables regulators to witness and analyze aspects of a bank’s risk profile and activities that are not transparent to, and may even be hidden from, market participants like banks. Bank examiners, for example, are often in a better position than market participants to verify the accuracy of information that a bank discloses, including the accuracy of its disclosures regarding its policies, procedures, and even risk exposures. Bank examiners may also be in a relatively better position to identify operational risks to which a bank may be exposed, such as those arising from weaknesses in a bank’s internal controls. Empirical evidence supports the notion that this may be a way for examiners to add value, as studies have found that examiners may “exert additional discipline, beyond that provided by a bank’s private auditors,” “examiners [have a] richer information set than the market does,” at least some of the time, and “examiners [a]re particularly good at discovering information that managers would prefer to conceal.”¹⁸⁶

Yet another advantage possessed by bank regulators arises from the tools they have to respond when they identify trouble. Decisions that banks make with respect to their dealings with other banks are generally bundled decisions. A disciplining bank may, for example, engage in a thorough analysis suggesting that another bank has strong management, a healthy balance sheet, including high-quality assets and low expected funding costs, and good growth prospects, but the disciplining bank’s analysis may further suggest that the bank is exposed to potentially significant downside risks from its overseas operations. In determining how to proceed in light of such an assessment, the disciplining bank must find a way to translate this multi-dimensional

184. 12 U.S.C. § 481 (2006).

185. *Review of Regulators’ Oversight of Risk Management Systems at a Limited Number of Large, Complex Financial Institutions: Hearing Before the S. Subcomm. on Sec., Ins., and Invs., Comm. on Banking, Hous. & Urban Affairs*, 111th Cong., at Highlights (2009) (statement of Orice M. Williams, Director of Financial Markets and Community Investment) [hereinafter *Statement Regarding Oversight of Risk Management Systems*].

186. Mark J. Flannery, *Using Market Information in Prudential Bank Supervision: A Review of the U.S. Empirical Evidence*, 30 J. MONEY, CREDIT & BANKING 273, 294–95 (1998) (surveying the relevant literature).

analysis into one-dimensional metrics, like credit exposure limits. Such decisions have important economic implications and thus can have powerful disciplining effects, but they are necessarily quite coarse.

Examiners, by contrast, are not so constrained. Examiners have an array of tools, both formal and informal, that they can wield to bring about narrow but important changes in a bank's operations.¹⁸⁷ Bank regulators have the authority to issue cease-and-desist orders to compel banks to undertake particular conduct, to issue cease-and-desist orders against individual officers, directors and other insiders to further influence a bank's operations, to impose civil penalties (which are often imposed on individuals within the bank), and even to remove bank management under certain circumstances.¹⁸⁸ Regulators also have an array of less formal mechanisms for influencing bank behavior. For example, the need for regulatory approval for many activities, ranging from branch openings to acquisitions, combined with "the threat of severe sanctions, although rarely used, [has] made bank management more willing to acquiesce in the regulators' informal requests for compliance."¹⁸⁹

Despite their exceptional access and tool kit, finite resources, imperfections in the incentives and skill sets of those conducting bank examinations, and other factors limit the efficacy of the bank examination process. In order to develop a more complete picture of the institutional competence of bank examiners, it is important to look past the authority granted to them to consider how they actually use that authority. Agency costs within regulators complicate this analysis significantly, just as they do with banks, but some insights are possible. Experience suggests that despite their massive toolkit, bank examiners regularly underutilize the tools available to them. A recent study by the Government Accountability Office, for example, found that regulators identified an array of weaknesses, including "inadequate oversight of institutions' risks by senior management," "weaknesses in models used to measure and manage risk," and "numerous stress testing weaknesses" at the leading complex banks in the years before the Crisis, but the regulators quite often failed to impose disciplinary measures commensurate with the weaknesses they identified.¹⁹⁰ A further challenge is that forcing the closure of a bank—the most extreme but also the most important of a bank regulator's tools—can be viewed as a sign of

187. *E.g.*, Symons, Jr., *supra* note 177, at 18–19; Garten, *supra* note 46, at 537–38.

188. 12 U.S.C. §§ 1818(b), (b)(1), (j) & (e)(1) (2006); Symons, *supra* note 177, at 19–20 (explaining that the civil penalties are most commonly used against individuals "to the root of the problem").

189. Garten, *supra* note 46, at 538.

190. *Statement Regarding Oversight of Risk Management Systems*, *supra* note 185.

regulatory failure and can give rise to short-term costs. Thus, it is not surprising that there is a long history of bank regulators failing to close banks in a timely fashion.¹⁹¹

Experience also sheds light on other institutional considerations, such as the processes through which bank examination procedures change in response to changes in banking. The Federal Reserve, the OCC, and the FDIC all use the same basic methodology as a starting point for their examinations procedures. Originally adopted in 1979, the Uniform Financial Institutions Rating System regime, more commonly known as CAMELS, provides a composite score based upon a bank's capital adequacy, asset quality, management, earnings, liquidity, and sensitivity to market risk.¹⁹² All three agencies have made some significant changes to their examination procedures in light of the changing nature of banking, and have made further changes to address weaknesses revealed by the Crisis and third party reports. The Federal Reserve, for example, recognizes that “[e]volving financial instruments and markets have enabled banking organizations to rapidly reposition their portfolio risk exposures,” and it has adopted a “risk-focused” approach to examinations in response.¹⁹³ The FDIC and OCC have also updated their examination procedures and all three recognize the fundamental differences between community-based banks and today's complex banks.¹⁹⁴ Nonetheless, many of the core elements of the bank examination process have not changed. The bank examination process remains largely focused on the safety and soundness of individual banks, CAMELS remains a centerpiece of the examination process for all three regulators, and a firm's CAMELS rating remains a core component in determining how much a bank must pay for its deposit insurance.¹⁹⁵ The CAMELS components have also remained remarkably consistent since 1979, undergoing

191. See, e.g., EDWARD J. KANE, *THE S & L INSURANCE MESS: HOW DID IT HAPPEN?* (1989); Catherine England, *Lessons From the Savings and Loan Debacle: The Case for Further Financial Deregulation*, 15 CATO REV. BUS. & GOV'T 36, 40 (1992).

192. E.g., FED, COMMERCIAL BANK MANUAL, *supra* note 182, at 1–2.

193. *Id.* at 1000.1, 4.1.

194. E.g., *id.* at 2 (describing examination procedures); Comptroller of the Currency, *Bank Supervision Process: Comptroller's Handbook* 11–15 (2007) (describing the CAMEL regulatory ratings and examination systems); FDIC Office of the Inspector General, Office of Material Loss Reviews, Follow-up Audit of FDIC Supervision Program Enhancements, Report No. MLR-11-010 (2010) at 7–9 (describing the Fed's new “forward-looking supervision” approach);

195. E.g., FED, COMMERCIAL BANK MANUAL, *supra* note 182, at 1–2 (explaining that “to assess the bank's performance and summarize its overall condition, examiners use the [CAMELS] rating system,” and that while there has been greater focus placed on risk management, the importance of assessing the CAMELS components has not diminished); Risk Categories & Risk-Based Assessment Rates, FDIC, <http://www.fdic.gov/deposit/insurance/assessments/risk.html> (last visited Nov. 6, 2012) (providing methodology for calculating how much a bank must pay for its FDIC insurance and revealing the centrality of a bank's CAMELS rating to that determination).

only one significant revision in 1996, which resulted in the addition of just one component and other minor modifications.¹⁹⁶ No dimension of this persistence can be attributed to success, as regulators regularly fail to identify troubled banks in a timely manner and other measures have proven to be better leading indicators that a bank will face financial distress than the bank's CAMELS rating.¹⁹⁷ Combined with the history provided in the preceding Section, this suggests that bank regulators, and bank examination procedures, tend toward incremental change, even when the banks they are regulating are undergoing more dramatic transformations.

Another reason that bank regulators often fail to respond effectively to the dynamism of banks and banking is because they lack the tools, authority, or will for reasons relating to the political nature of the processes through which regulators are formed, granted authority, and held accountable. These processes have been critiqued on a number of grounds, ranging from a strong tendency for inefficient systems to persist to being overly reactive when things go wrong.¹⁹⁸ Put differently, in contrast to the strong economic incentives driving banks and other market participants, regulators are embedded in a system where the incentives might not just be weaker, but where they might pull in different and contrary directions.

This overview of bank regulators is limited and painted in broad strokes, eliding variety that exists within and among the regulators and providing only a cursory introduction to some of the institutional dynamics that characterize bank regulators and their examination departments in particular. Nonetheless, it illustrates clearly that bank examiners have different skill sets, tools, and incentives than banks. These differences increase the potential for real value to be created by allocating finite resources in a way that capitalizes upon the relative strengths of bank examiners.

196. Fed. Deposit Ins. Corp., Uniform Financial Institutions Rating System, 62 Fed. Reg. 752 (Jan. 6, 1997) (describing the modest changes adopted).

197. *E.g.*, Assessments, Large Bank Pricing, 76 Fed. Reg. 10,672, at 10,683 chart 3 (Feb. 25, 2011) (showing that proposed measures do a better job of predicting bank performance than CAMELS).

198. *E.g.*, Jody Freeman & Jim Rossi, *Agency Coordination in Shared Regulatory Space*, 125 HARV. L. REV. 1131, 1139 (2012) (drawing attention to the frequency with which Congress makes overlapping or redundant delegations to committees and suggesting that “such delegations are best explained as by-products of the congressional committee system, which incentivizes members to expand the jurisdiction of the agencies they oversee in order to direct benefits to their constituencies”); Roberta Romano, *The Sarbanes-Oxley Act and the Making of Quack Corporate Governance*, 114 YALE L.J. 1521, 1543 (2005) (asserting that the Sarbanes-Oxley Act was adopted even though the “decisive balance of research indicates that those mandates [contained in the Act] will not benefit investors”).

V. IMPLICATIONS

The primary aim of this Article is to draw attention to the power of interbank discipline and shed light on its effects. As both a byproduct of modern banking and a force that shapes the activities of modern banks, the significance of this phenomenon cannot be addressed in isolation. The Article's descriptive account contributes to a number of ongoing debates regarding banks and financial regulation. For example, responses to the Crisis resulted in banks that are larger and more interconnected, even as many commentators have argued that banks should be significantly smaller and less connected. This Article's insights contribute to that debate. In showing how interbank discipline may reduce excessive risk taking, it suggests that there may be benefits to interbank connections that are underappreciated in most accounts. At the same time, in drawing attention to the way that interbank discipline serves as an important mechanism through which banks may exploit the implicit government subsidy inherent in the possibility of a bailout, the Article simultaneously suggests that interbank connections may be troubling for a reason that is similarly underappreciated in most accounts. There is reason to suspect that the more troubling aspects of interbank discipline exceed the corresponding benefits when banks have characteristics that make them likely bailout recipients.

At the same time, the ramifications of interbank discipline on such debates cannot be resolved in the confines of this Article. While the effects of interbank discipline are significant, they are also modest in relation to the other benefits and drawbacks of the evolution in banking. To try to answer such questions on the basis of interbank discipline would have the quality of the tail wagging the dog. The Article, accordingly, does not try to address, much less resolve, the full panoply of potential policy issues raised by the dynamics here revealed. Instead, it considers only a subset of policy implications, focusing on those that have received relatively little attention in post-Crisis reforms.

In addition to being necessarily incomplete, the Article's recommendations are necessarily preliminary. Whether and to what extent each should be pursued are determinations that can be made only with significant further study. There are a number of reasons for this. As an initial matter, the degree of interbank discipline is a byproduct of interbank activity and that is not fixed. A number of policies adopted in response to the Crisis have the intention or effect of reducing bank connectivity. The proposed Federal Reserve and OCC regulations to reduce interbank exposures are but one example of the regulatory reform efforts already underway that

have the intention or effect of reducing bank connectedness.¹⁹⁹ Efforts to push much of the derivatives market into centralized exchanges and away from the over-the-counter market are another reform effort that might result in a material reduction in interbank exposures.²⁰⁰ Similarly, other policy responses to the Crisis, like the capital surcharges based upon bank size and connectedness embodied in Basel III, seek specifically to counteract banks' tendency to develop the characteristics that might increase the probability of being bailed out.²⁰¹ If such efforts succeed in perfectly offsetting the benefits associated with being a probable bailout recipient, the capacity of interbank discipline to serve as a mechanism through which banks can reap immediate financial benefits from changing their risk profile in socially problematic ways may become a moot issue. More generally, banking is an inherently dynamic enterprise.²⁰² Not only can we expect banks and banking to change in response to regulatory reforms, they will also adjust their degree of discipline in light of other market forces. Depending upon the internal structures banks create to monitor and discipline other banks, for example, there is a real risk that the degree of interbank discipline will be cyclical, with discipline becoming less robust during credit bubbles. Establishing and entrenching a regulatory regime that assumes the current levels of interbank discipline may thus be almost as problematic as ignoring this phenomenon altogether. Despite these many challenges, this Article draws attention to a phenomenon that affects bank risk taking, that appears likely to persist, and which gives rise to a range of policy implications so long as it does. The remainder of this Part addresses some of those implications.

The Part proceeds in three Subparts. The first Subpart draws attention to a fact that may seem clear from the analysis here but which has been overlooked at times by bank regulators.

199. Enhanced Prudential Standards, *supra* note 6, at 600; *Interagency Guidance*, *supra* note 6, at 3–4.

200. Title VII of the Dodd-Frank Act creates clearing and exchange trading requirements for both swaps and securities-based swaps. See Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, §§ 723, 124 Stat. 1376, 1675–82 (2010) (codified at 7 U.S.C. § 1b–2); § 763, 124 Stat. at 1762–84 (to be codified at 15 U.S.C. § 78a *et seq.*).

201. See, e.g., *Basel III*, *supra* note 31, at 7; Enhanced Prudential Standards, *supra* note 7, at 600; *Interagency Guidance*, *supra* note 7, at 3–4.

202. Developments in this vein include new rules requiring banks to execute certain swap transactions through centralized clearing parties, Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 723, 124 Stat. at 1675–82 (codified at 7 U.S.C. § 1b–2), proposed rules limiting interbank exposures, *see* Lending Limits, *supra* note 7, the enhanced prudential standards to be applied to certain large bank holding companies and nonbank financial companies, Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 115, 124 Stat. at 1403–06 (codified at 12 U.S.C. § 5325), and the new rules for establishing capital adequacy requirements. See FSOC, 2012 ANNUAL REPORT, *supra* note 38, at 100–01 (describing the new capital requirements imposed by Dodd-Frank and Basel III and ongoing regulatory attempts to reconcile the two).

The second Subpart creates a framework for responses that builds upon the complementarity approach advocated here. It addresses ways that bank regulation, and examination procedures in particular, should change in order to more effectively promote financial stability in light of interbank discipline. The third Subpart considers additional ways that regulators may promote effective interbank discipline and use the valuable information this market produces. The recommendations that follow build upon one another, though most can be pursued independently of the others.

A. Risk Management as a Double-Edged Sword

One policy issue this Article raises relates to banks' risk management systems. Bank regulators have long encouraged banks to adopt more robust risk management systems, and regulatory efforts in this vein have ramped up significantly in the wake of the Crisis.²⁰³ These efforts are often premised on an assumption that improving risk management is an unmitigated good. This Article reveals a more complex picture. Banks bear primary responsibility for their own well-being and risk management systems are critical to that endeavor. At the same time, banks may use risk management systems to alter their activities in ways that inure to their benefit while simultaneously contributing to the fragility of the overall financial system. Efforts to exploit the implicit subsidy arising from the possibility of being bailed out is the most prominent, but not sole, example.

One implication is that bank regulators should pay close attention to how risk management systems actually work and how they are used in practice, not assuming them to be entirely benign. A second implication is that regulatory actions that promote the socially productive dimension of interbank discipline are likely to have the unintended consequence of facilitating its more problematic effects. Requiring banks to disclose more information about their risk exposures, for example, might facilitate the capacity of banks and other market participants to discipline excessive risk taking, but could also be used to penalize idiosyncratic risk taking and reward the assumption of more systemically troubling forms of risk. Given the limitations inherent in regulatory competence and resources, and the inevitability of interbank activity, this Article generally favors efforts to promote interbank discipline. Nonetheless, this is but one example of the unintended consequences that might result, and hence the need for further analysis before pursuing any of the recommendations proposed.

203. See, e.g., Enhanced Prudential Standards, *supra* note 7, at 600.

B. Priorities and Resource Allocation

This Subpart develops the Article's primary policy claim that we should re-evaluate regulatory priorities and policies in light of interbank discipline. It suggests three types of responses—duplication, gap filling, and counteraction—which collectively should enable interbank discipline and bank examination to work more effectively as complements and otherwise promote systemic stability. It further suggests that it may be time to undertake a more fundamental re-evaluation of bank oversight priorities and procedures.

1. Reducing Duplication

One important implication of the vast resources banks devote to monitoring and disciplining risk taking at other banks is that it may not make sense for regulators to devote as many resources as they currently are to duplicating these activities. This does not mean that bank examiners should cease to engage in meaningful assessments of the nature and magnitude of the risks to which banks they examine are exposed. Assessing a bank's overall safety and soundness may enable examiners to be more effective at those tasks they are well positioned to undertake. For example, an examiner cannot effectively probe the efficacy of a bank's risk management system without understanding the risks to which a bank is exposed and their potential gravity. Moreover, as reflected in the belt-and-suspenders approach to market discipline, the importance of determining how risky a bank's activities are and the challenges inherent in making such assessments merit some duplication. Nonetheless, the analysis here suggests that examiners devote more resources than are justified engaging in risk analyses that are already being carried out, with perhaps more skill and insight, by other banks.

2. Gap Filling

Devoting proportionately fewer resources to duplicating efforts undertaken by other banks should enable regulators to devote proportionately more resources to activities that banks are not motivated or positioned to undertake effectively. The losses and reporting errors exposed by J.P. Morgan's "London Whale" illustrate.²⁰⁴ The nearly \$6 billion in losses the bank has incurred are the result of "trading mistakes," and the gravity of the debacle was made worse as a result of personnel inside the bank apparently intentionally "plac[ing] inaccurate prices on their

204. See note 110, *supra*, and accompanying text.

positions,” in order to hide the losses.²⁰⁵ Verifying that trading practices conform to a bank’s own policies and procedures for valuing assets are the types of activities that regulators are better suited to perform than other banks.²⁰⁶ While there can be no guarantee that this particular situation would have been detected earlier, the situation exemplifies why there may be real value in allocating greater regulatory resources to such endeavors.

The reasons to reconsider how we allocate finite bank resources thus arise less from concerns about potential waste than from a focus on relative value creation. While some duplication is likely warranted, the degree will depend in part on the value of such duplication relative to the potential value that may be created by devoting greater regulatory resources to other activities. The greater the range or importance of oversight activities that regulators are uniquely well positioned to address, the more difficult it is to justify significant duplication.

3. Counteraction

Yet another implication of the power of interbank discipline is that bank regulators, including bank examiners, should seek to address its adverse effects. Core elements of our financial regulatory scheme, like the Federal Reserve’s discount window, are designed in part to respond to the tendency for the interbank market to contract more than is optimal during times of crisis. In addition, Other efforts to reign in government bailouts and impose additional burdens on the banks most likely to receive them may reduce the magnitude of the implicit subsidy available. Nonetheless, given that those responses seem destined to be incomplete suggests that bank examiners may have an important role to play in helping address the issues revealed here. In light of examiners’ ongoing monitoring and intimate knowledge of the activities of banks they oversee, bank examiners may be well positioned to identify changes in a bank’s activities that exploit this subsidy. Moreover, the range of tools available to regulators to encourage or compel banks to change particular aspects of their operations may enable them to respond effectively to such developments. This suggests that, while the nature of bank examination is always going to be microprudential (that is, focused on individual institutions) in part, bank examiners may also have a role to play in macroprudential regulation, that is, regulation aimed to promote the stability of the overall financial system.

205. Dan Fitzpatrick & Gregory Zuckerman, *‘Whale’ Tab Hits \$5.8 Billion*, WALL ST. J., July 13, 2012, at B1.

206. Part IV.B, *supra*, and sources cited therein.

4. Reconsider Goals

Each of the three preceding considerations suggest that it may be time to engage in a more thorough evaluation of the appropriate priorities and procedures for bank examinations. Such an inquiry may be particularly timely in light of the limitations inherent in traditional approaches to financial regulation revealed by the Crisis, including the need for bank regulation to become more macroprudential in its focus.²⁰⁷ This insight has received significant support from policymakers and academics, but it has thus far failed to trigger a broad-based debate about bank examination comparable to the debates that have arisen in regard to other aspects of financial regulation.²⁰⁸ This Article suggests that it might be time to start that conversation.

The sketches of the institutional competence of banks relative to examiners provided here serve as a starting point, but further inquiry is warranted. In addition to developing a more complete descriptive account of the skills, resources, norms, and other characteristics of bank examiners and the bank examination process, attention should also be paid to theoretical considerations. For example, there may well be ways that bank oversight should assume a more macroprudential dimension beyond counteracting the problematic aspects of interbank discipline. These two lines of inquiry are necessarily related. Placing theoretically ideal but pragmatically impossible goals upon bank examiners is a recipe for failure. At the same time, the institutional competence of bank examiners should not be treated as fixed. While current personnel, resource constraints, and other factors may impose meaningful constraints, change is possible. One aim of the theoretical inquiry, accordingly, should be to inform the type of change that is desirable.

As an ambitious initial step it may be time to reconsider whether assessing the safety and soundness of individual institutions should remain the top priority of bank examiners. It may also be appropriate to reconsider the nature of the conclusions examiners are asked to reach. In order to render judgments about the safety and soundness of an individual bank, one must first draw conclusions about the magnitude and nature of particular risks and then assess the sufficiency of efforts to manage them. The strength of the U.S. real estate market in 2006 and the prospects for the Euro in 2012 are just two of the types of issues that have massive

207. See, e.g., BRUNNERMEIER ET AL., *supra* note 178, at xvi-ii; Beverly Hirtle, Til Schuermann & Kevin Stiroh, *Macroprudential Supervision of Financial Institutions: Lessons From the SCAP*, Fed. Reserve Bank of N.Y. Staff Report No. 409 (2009); Jeffrey Gordon & Colin Mayer, *The Micro, Macro and International Design of Financial Regulation* (Columbia Law & Econ. Working Paper No. 422, 2012), available at <http://ssrn.com/abstract=2047436>.

208. A “natural language” search on Westlaw for the terms “bank” and “examination” did not produce a single article published since the 2007–2009 Financial Crisis in the top thirty results.

ramifications for the safety and soundness of individual banks. There is little reason to think that the judgment of a single regulator with respect to such an issue is likely to be more accurate than other banks' collective wisdom about the same.

At the same time, asking regulators to make such judgments, as the current regime inevitably requires, has a number of potentially adverse consequences. First, given the inherently finite nature of regulatory resources, it reduces the resources available for other aspects of bank regulation. Second, the current regime potentially impedes interbank and other forms of market discipline. Even though bank examiners' reports and conclusions are not made public, it is well known that regulators are expected to ensure the safety and soundness of institutions they oversee. This may reduce market participants' incentives to be as thorough as they otherwise would in evaluating other institutions. It hence may be appropriate to modify the type of conclusions examiners are asked to reach by, for example, making them more narrow or reformulating them as conclusions that nothing came to the examiners' attention that would justify intervention. Such changes may have the additional benefit of protecting regulators' reputation, to the extent such protection is warranted, and discouraging forbearance premised on the same, thus promoting accountability and credibility.²⁰⁹

C. Working Together

1. Promote Efficacy

In light of the potential for banks to play a socially valuable role in monitoring and disciplining excessive risk taking by other banks, this Article suggests that regulators should promote the efficacy of such efforts.²¹⁰ Making it clear that regulators are not vouching for the safety and soundness of the banks they examine and altering the nature of the conclusions bank examiners reach should further this aim, but there are other ways that regulators may further enhance the quality of interbank discipline. For example, it has long been recognized that for market discipline to be effective, market participants must be able to make informed decisions about the risks to which a bank is exposed.²¹¹ Thus the primary role that regulators have played is in adopting and enforcing mandatory disclosure regimes. Like other stakeholders, banks use

209. Lucy White & Alan D. Morrison, *Reputational Contagion and Optimal Regulatory Forbearance* (ECB Working Paper No. 1196, 2010) (showing that one mechanism through which a bank's failure can have adverse systemic consequences occurs when the failure of one bank undermines confidence in the competence of its banking regulator).

210. *Cf.* Part V.A.

other banks' public disclosures in their evaluations, so this remains important. However, the value of such information is necessarily imperfect. Banks can quickly change their risk profiles and, as reflected in Lehman's famous "Repo 105" program, banks often will engage in activities specifically designed to disguise aspects of their operations.²¹² Banks may be particularly well situated to ferret out such efforts and otherwise obtain inside information about another bank's activities, enabling them to make more informed decisions and impose higher quality discipline. For banks to do so, however, traders and other persons within the disciplining bank who have information about the risks to which other banks are exposed must convey this information to the disciplining bank's credit risk management division. This suggests that in addition to disclosure, bank regulators could improve market discipline by facilitating the formation and use of appropriate lines of communication within a bank, to the extent it is legal and appropriate. While banks have private incentives for implementing systems, the rate at which such systems are created and used might be aided by on-site oversight.

Regulators could also help ensure that banks remain diligent about monitoring and disciplining other banks even when times are good. Among the factors contributing to systemic crises is the cyclical nature of credit conditions, facilitated by the tendency of market participants to alter their assessments of risk in light of recent conditions.²¹³ While regulators can succumb to the same biases as market participants, their differential incentives could be used to try to promote a longer term perspective and find ways to counteract this tendency.

2. Use Information

A final benefit of interbank discipline is that it may produce valuable information about the riskiness of various banks. One way that the current regulatory scheme might harness this valuable information is by using it as one of the factors affecting the premiums the FDIC charges for deposit insurance. For example, the FDIC could add CDS spreads, which are influenced by interbank discipline, to the factors it considers when calculating the premium that should be paid by a complex bank. The FDIC already uses a different formula for large, complex banks than for others and, until recently, it had used credit ratings as one component in calculating its

211. See note 62, *supra*, and accompanying text.

212. David A. Skeel, Jr. & Thomas H. Jackson, *Transaction Consistency and the New Finance in Bankruptcy*, 112 COLUM. L. REV. 152, 164 (2012) (describing "the now-infamous Repo 105 transactions that Lehman employed at the end of each quarter to disguise the amount of its leverage").

213. HYMAN P. MINSKY, JOHN MAYNARD KEYNES 53–113 (2nd ed. 2008).

assessments.²¹⁴ Because CDS spreads are distorted by expectations that a bank may be bailed out and other factors, the FDIC should exercise caution and consider making adjustments. But, this is no reason for it not to use this valuable market-based information about a bank's riskiness in making its assessment.²¹⁵ Regulators might also consider other ways of incorporating banks' assessments of other banks, or market measures reflecting those assessments, into their examination and other procedures.²¹⁶

CONCLUSION

Bank connectivity and interbank discipline are not new phenomena. The transformation in banking that has occurred over the last three decades, however, has transformed the nature and magnitude of the relationships among banks and their credit exposures to one another. Interbank discipline is now a critical market force influencing banks' risk taking and other activities. This Article draws much needed attention to this development and the policy ramifications that follow, but it should mark but the first step in an ongoing examination of interbank discipline, its effects, and the future of bank examination.

214. Assessments, Large Bank Pricing, 76 Fed. Reg. 10,688 (Feb. 25, 2011) (to be codified at 12 C.F.R. pt. 327).

215. *Id.* at 10,699 (explaining that the FDIC “retain[s] the ability to adjust the total score for large institutions and highly complex institutions by a maximum of 15 points, up or down, based upon significant risk factors that are not captured in the scorecards” and acknowledging that the FDIC is still determining how it will use that discretion).

216. *E.g.*, Hart & Zingales, *supra* note 39, at 25–30 (arguing for the issuance of contingent capital and suggesting that CDS spreads be used as a trigger for conversion from debt to equity).