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Regulating for the Next Financial Crisis

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Regulating for the Next Financial Crisis

Charles K. Whitehead*

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I. INTRODUCTION

Is it possible to regulate the financial markets prospectively? Doing so, no doubt, would be difficult. Yet, as the recent financial crisis has shown, a forward-looking approach to regulation—one that takes account of change in the financial markets and emerging risks before they result in crisis—is important to sustained economic growth. Financial regulation, nevertheless, is often reactive—responding after the fact to a crisis, a shift in the markets, or other change that threatens the stability of the financial system.¹ For example, the decision in the 1930s to separate commercial and investment banking followed the Great

* Professor of Law, Cornell Law School. This Article is based, in part, on a presentation by the author at the University of the Pacific, McGeorge School of Law conference, “Local to Global: Rethinking Spheres of Authority after a World Financial Crisis,” held October 16-17, 2009. I appreciate the thoughtful questions and comments from the conference’s participants. This Article is also derived from Charles K. Whitehead, *The Evolution of Debt: Covenants, the Credit Market, and Corporate Governance*, 34 J. CORP. L. 641 (2009), Charles K. Whitehead, *Reframing Financial Regulation*, 90 B.U. L. REV. 1 (2010), and Charles K. Whitehead, *The Volcker Rule and Evolving Financial Markets*, 1 HARV. BUS. L. REV. 39 (2011). Any errors are the author’s alone.

1. See Erik F. Gerding, *The Next Epidemic: Bubbles and the Growth and Decay of Securities Regulation*, 38 CONN. L. REV. 393, 418-24 (2006) (describing tendency of reactive regulation to follow financial crises); Heidi Mandanis Schooner, *Regulating Risk Not Function*, 66 U. CIN. L. REV. 441, 480-81 (1998) (finding that “our regulatory structure has generally been reactive to market events, thus focusing on existing products and activities”); Jerry W. Markham, *Banking Regulation: Its History and Future*, 4 N.C. BANKING INST. 221, 221 (2000) (describing bank regulation as “a set of accumulated responses to a long history of financial crises, scandals, happenstance, personalities and compromises”).

Depression. Congress chose to regulate financial intermediaries using traditional categories that reflected the functions, products, and services provided at the time.² The financial markets, however, continue to evolve, with new entities and new markets increasingly replicating what traditional intermediaries do, often at lower cost. Financial products and services have moved from regulated intermediaries (such as banks) to less-regulated entities (such as hedge funds),³ as well as from products and services provided by traditional intermediaries (such as insurance) to lower-cost alternatives, in many cases through the capital markets (such as credit default swaps (“CDS”)).⁴

The result has been growth in financial market competition, as well as a shift in capital-raising and risk-bearing from traditional intermediation to lower-cost alternatives.⁵ New products and services—many of which did not exist as recently as forty years ago—are now offered by new market participants or through the capital markets, often replicating those provided by banks, insurers,

2. See Charles K. Whitehead, *Reframing Financial Regulation*, 90 B.U. L. REV. 1, 16-17 (2010). Categories of financial intermediaries are described in Robert Charles Clark, *The Federal Income Taxation of Financial Intermediaries*, 84 YALE L.J. 1603, 1605-08 & nn.1-21 (1975), and Howell E. Jackson, *Regulation in a Multisector Financial Services Industry: An Exploratory Essay*, 77 WASH. U. L.Q. 319, 322-31 (1999).

3. See Whitehead, *supra* note 2, at 36-37. There is no standard definition of “hedge fund,” although a distinctive feature is an organizational structure that helps align shareholder and manager interests, and the payment to managers of significant performance-related fees that aim to maximize the fund’s risk-adjusted returns. Those returns often rely on substantial borrowings, derivatives, and complex investment strategies. See TECHNICAL COMM. OF THE INT’L ORG. OF SEC. COMM’N, CONSULTATION REPORT, HEDGE FUNDS OVERSIGHT 6-9 (2009), available at <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD288.pdf>. In addition, the hedge fund industry, traditionally under the oversight of the U.S. Securities and Exchange Commission (“SEC”), has largely fallen outside the scope of systemic risk regulation, which has principally been the responsibility of the Federal Reserve and the Treasury Department. See John C. Coffee, Jr. & Hillary A. Sale, *Redesigning the SEC: Does the Treasury Have a Better Idea?*, 95 VA. L. REV. 707, 775-79 (2009); Troy A. Paredes, *On the Decision to Regulate Hedge Funds: The SEC’s Regulatory Philosophy, Style, and Mission*, 2006 U. ILL. L. REV. 975, 1000 (2006).

4. See Whitehead, *supra* note 2, at 4, 19-20; see also *infra* notes 45-56 and accompanying text. A CDS is a type of derivative that permits a counterparty to a swap contract to buy or sell all or a portion of the credit risk tied to a loan or bond. The CDS customer pays the “writer” of the swap a periodic fee in exchange for a contingent payment in the event of a credit default. If a credit event occurs, typically involving default by the borrower, the CDS writer must pay the counterparty an amount sufficient to make it whole or purchase the referenced loan or bond at par. See William K. Sjostrom, Jr., *The AIG Bailout*, 66 WASH. & LEE L. REV. 943, 947-49 (2009); see also MORTON GLANTZ, *MANAGING BANK RISK: AN INTRODUCTION TO BROAD-BASE CREDIT ENGINEERING* ch. 15 (2003); Blythe Masters & Kelly Bryson, *Credit Derivatives and Loan Portfolio Management*, in *HANDBOOK OF CREDIT DERIVATIVES* 43-85 (Jack Clark Francis et al. eds., 1999). CDS are, in substance, economically similar to term insurance policies written against the credit downgrade of the referenced borrower. See Frank Partnoy & David A. Skeel, Jr., *The Promise and Perils of Credit Derivatives*, 75 U. CIN. L. REV. 1019, 1050 (2007).

5. See Ronald J. Gilson & Charles K. Whitehead, *Deconstructing Equity: Public Ownership, Agency Costs, and Complete Capital Markets*, 108 COLUM. L. REV. 231, 243-47 (2008); Merton H. Miller, *Financial Innovation: The Last Twenty Years and the Next*, 21 J. FIN. & QUANTITATIVE ANALYSIS 459, 459-60 (1986) (describing “revolutionary” changes in financial institutions and instruments over the prior twenty years); Peter Tufano, *Financial Innovation*, in *HANDBOOK OF THE ECONOMICS OF FINANCE*, 1A CORPORATE FINANCE 307, 311-12 (George M. Constantinides et al. eds., 2003) (discussing “tremendous innovation” in financial products during the 1980s).

and others.⁶ As a result, problems historically confined to traditional intermediaries have re-emerged in other parts of the financial system,⁷ and in some cases, new risks have arisen that financial regulation must now begin to take into account.⁸ Yet, whether a firm is a bank, insurance company, asset manager, or broker-dealer often continues to be defined using business models that date from the 1930s and 1940s, and those, in turn, often dictate the principal regulations (and associated costs) to which each firm is subject.⁹

This Article argues that, to begin to regulate prospectively, financial regulation must affirmatively reflect change in the financial markets. The Dodd-Frank Act¹⁰ may be one step in the right direction, but in certain critical respects, it fails to do just that. The result is a potential inability to minimize systemic risk in the financial markets, a principal goal of the new regulation.¹¹ Three examples help to illustrate the point:

First, nonbanks now perform bank-like functions, introducing new risks to the financial markets not directly addressed by the Dodd-Frank Act. New means of intermediation, highlighted by the recent financial crisis, are now subject to closer regulatory scrutiny.¹² Yet, other aspects

6. See Whitehead, *supra* note 2, at 18-20. For example, money market funds (“MMFs”) and finance companies are critical to the U.S. payments system, channeling funds to lenders from a wide variety of investors, primarily through the commercial paper market. In combination, MMFs and finance companies perform many of the traditional functions of banks, collecting capital and lending it to institutional and retail borrowers. See *infra* note 38 and accompanying text.

7. For example, as described *infra* at notes 42-44 and accompanying text, bank runs have emerged outside of the banking industry, without the protection of banking regulation.

8. For example, as described *infra* at notes 84-103 and accompanying text, increasing reliance on the capital markets and the introduction of new instruments, like CDS, have resulted in new financial risks.

9. As Jamie Dimon, the Chairman and CEO of J.P. Morgan Chase, has noted, “A lot of the rules and regulations [we have] are closer to the Civil War than they are to today.” Paul Tharp, *Ben Sees Treasury as the Bank Cure*, N.Y. POST, July 9, 2008, at 31.

10. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 619, 124 Stat. 1376 (2010) [hereinafter Dodd-Frank Act] (amending the Bank Holding Company Act of 1956, 12 U.S.C.A. § 1841 (West 2010) (“BHCA”).

11. For example, under the Dodd-Frank Act, the newly-created Financial Stability Oversight Council (“FSOC”) is tasked with identifying risks to U.S. financial stability, either resulting from material financial distress or the failure of a bank holding company or nonbank financial firm, or arising outside the financial marketplace, and responding to emerging threats to the stability of the U.S. financial system. See Dodd-Frank Act §§ 111, 112(a)(1).

12. For example, in early 2010, the SEC amended rules under the Investment Company Act of 1940 that govern MMFs to, among other things, tighten portfolio quality and maturity standards and add liquidity requirements. See Money Market Fund Reform, Release No. IC-29132, 75 Fed. Reg. 10,060 (Mar. 4, 2010), available at <http://www.sec.gov/rules/final/2010/ic-29132fr.pdf>. The amendment followed a crisis in the MMF markets, in fall 2008, when the share price of the Reserve Primary Fund, the nation’s oldest MMF, fell below the presumptive minimum of \$1/share—the first MMF in fourteen years to “break the buck”—sparking a market-wide run by investors, who withdrew a total of approximately \$480 billion in cash. See Christopher Condon, *Bernanke Proposes Less Restrictive Money-Fund Rules*, BLOOMBERG (Mar. 11, 2009, 8:26 AM), http://www.bloomberg.com/apps/news?pid=20601103&sid=aPlgaFOMfy_8&refer=news; Daniel Gross, *The Anatomy of Fear*, NEWSWEEK, Oct. 20, 2008, at 31; Neil Irwin, *Fed Prepared to Prop Up Money-Market*

of this shift—such as the outsourcing of risk management functions, historically regulated within banks and insurance firms—have not received the same attention;¹³

Second, much of financial regulation continues to focus on individual firms, each considered separately, without taking into account the effect of coordinated conduct among market participants. Regulation and standardized market practices may encourage greater uniformity among market participants, increasing the cascading effect of a downturn in asset prices;¹⁴ and

Third, by imposing a static separation between banking and proprietary trading, the Dodd-Frank Act does not properly reflect new relationships within a fluid financial system. New regulation that removes “risky” activities from banks may result in their transfer to less-regulated firms that continue to affect traditional bank functions. Even if the activities are no longer located in banks, they may still affect the banking industry.¹⁵

I address each example below. My goal in this Article is to begin to assess financial regulation against change in the financial markets. In the end, financial regulation may need to be more flexible, permitting financial regulators the ability over time to reflect that change in new regulation and oversight. At the

Funds, WASH. POST, Oct. 22, 2008, at D1; Annys Shin, *Funds Turn to Treasury Guaranty; Money-Market Managers Seek to Boost Confidence*, WASH. POST, Oct. 12, 2008, at F01. A detailed description of what occurred at the Reserve Primary Fund, and the market and regulatory actions afterward, appears in INV. CO. INST., REPORT OF THE MONEY MARKET WORKING GROUP 53-67 (2009), available at http://www.ici.org/pdf/ppr_09_mmmwg.pdf. Breaking the buck was particularly worrisome, since investors had understood that fund advisors would make up any shortfall in the fund, even though there was no express guarantee of share price. See Leslie Wayne, *Investors Lose Money in 'Safe' Fund*, N.Y. TIMES, Sept. 28, 1994, at D1 (listing fifteen MMFs whose advisors covered for shortfalls, rather than allowing fund share prices to fall below \$1). Thus, the drop below \$1/share raised the same concerns that cause a bank run—a loss of confidence over financial stability, causing widespread redemptions across the industry. MMFs were forced to liquidate their portfolios in order to pay investors, contributing to a run-up in the cost to borrowers of issuing commercial paper (which comprised a substantial portion of their investments) and a general freeze on new issuance. See Joe Nocera, *36 Hours of Alarm and Action as Crisis Spiraled*, N.Y. TIMES, Oct. 2, 2008, at A1 (describing the panic that spreads during a credit crisis); Edmund L. Andrews & Michael M. Grynbaum, *Fed Considers Plan to Buy Companies' Unsecured Debt*, N.Y. TIMES, Oct. 7, 2008, at A1 (describing problems that could arise if MMFs abandon commercial paper); see also FRANKLIN R. EDWARDS, *THE NEW FINANCE—REGULATION & FINANCIAL STABILITY* 76-91 (1996). In October 2010, the President's Working Group on Financial Markets published a report on MMFs, including recommendations to reduce the risk of runs on MMF assets. See PRESIDENT'S WORKING GRP. ON FIN. MKTS., MONEY MARKET FUND REFORM OPTIONS 4-6 (2010), available at <http://www.treasury.gov/press-center/press-releases/Documents/10.21%20PWG%20Report%20Final.pdf>. That report, together with a continued focus on MMFs, has prompted further discussion and may result in new recommendations for change in how MMFs are regulated. See, e.g., SEC, *Roundtable Discussion on Money Market Funds and Systemic Risk* (May 10, 2011), <http://www.sec.gov/news/otherwebcasts/2011/mmf-risk051011.shtml> (SEC roundtable on systemic risks posed by MMFs and potential regulatory changes).

13. See *infra* notes 45-54 and accompanying text.

14. See *infra* notes 73-93 and accompanying text.

15. See *infra* notes 122-136 and accompanying text.

same time, I argue, too much flexibility can increase uncertainty in the marketplace, resulting in greater instability during times when the financial markets become troubled.¹⁶

As Part II explains, there is no settled definition of “systemic risk” that can be operationally incorporated into new regulation, although certain aspects are conceptually common to most definitions. Minimizing systemic risk is a principal focus of the Dodd-Frank Act. Yet, the absence of an agreed definition will make it difficult to consistently implement and enforce new rules, potentially weakening their effectiveness.

In Part III, I begin to describe how changes in the financial markets have permitted new market participants to assume functions traditionally performed by intermediaries, such as banks. The result has been the re-appearance of “old” risks in “new” sectors of the financial system, beyond the reach of the applicable regulation.

Part IV then describes how the shift from intermediation to the capital markets has also introduced new risks to the financial system. Greater coordination among market participants may have systemic consequences that extend beyond the historical focus on individual firms that are “too big” or “too interconnected” to fail.

Part V explains how traditional business models fail to properly address risks arising from new activities that span the financial system. Moving risky activities from intermediaries to the capital markets—one result of the Dodd-Frank Act—may distance those activities from banks and other intermediaries, but fail to address their potential impact on the financial markets as a whole.

In Part VI, I describe the basis in the Dodd-Frank Act for a more comprehensive and, potentially, more prospective approach to financial regulation. Going forward, regulators may be able to rely on those provisions to reflect financial market change in new regulations that address systemic risk.

II. SYSTEMIC RISK

A principal aim of financial regulation is minimizing systemic risk, although an operational definition of “systemic risk” remains unsettled. That absence can be problematic, raising uncertainty over when new systemic risk regulation should apply and what events can trigger regulatory intervention. In particular, at what point does a financial problem—affecting an institution or a market—become a broader, systemic problem? Absent an agreed definition, new rules may not be consistently implemented or applied, making them less effective in addressing systemic concerns.

Certain aspects of systemic risk are conceptually common to most descriptions. Typically, there is an economic shock—often an external shock—

16. See *infra* note 139 and accompanying text.

affecting one or more financial institutions or markets.¹⁷ As a result, the movement of capital—from suppliers (such as bank depositors) to end-users (such as borrowers)—is interrupted, increasing the cost of capital or decreasing its availability, or both. This, in turn, limits the ability of borrowers to make new investments, resulting in the broader, real economy being affected by problems originating in the financial markets.¹⁸

Understanding transmission is important in analyzing how an isolated problem can become a systemic event. One way is through the direct impact of a downturn. The failure of a bank, for example, can cause it to default on its obligations to others, causing a chain reaction across interconnected firms or markets. Concern over this form of transmission underlies new financial regulation that focuses on institutions—such as Citigroup and American International Group—that are “too big” or “too interconnected” to fail.¹⁹ Another possibility is indirect transmission—when losses incurred by one or more firms, which are clearly in trouble, raise the risk that other, similarly situated firms may also be unstable. Depositors in one bank, for example, may see another bank fall into financial difficulty and, unable to tell whether their bank is in similar trouble, they may withdraw funds—a bank run—even if there is no direct evidence of a problem.²⁰ Indirect transmission can also occur when one firm begins to sell assets—for example, a bank selling assets to raise money to pay depositors who withdraw funds—causing a downward pressure on prices that affects the financial stability of other firms holding the same or similar assets.²¹

Underlying systemic risk is the problem of negative externalities—namely, that the effect of losses resulting from risks borne by financial firms can extend to others in the real economy, such as prospective borrowers.²² Of course, if a

17. See Paul Kupiec & David Nickerson, *Assessing Systemic Risk Exposure from Banks and GSEs Under Alternative Approaches to Capital Regulation*, 48 J. REAL EST. FIN. & ECON. 123, 123 (2004); Steven L. Schwarcz, *Systemic Risk*, 97 GEO. L.J. 193, 201, 204 (2008).

18. For a description of the economic impact of a systemic shock, see Ben S. Bernanke, *Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression*, 73 AM. ECON. REV. 257, 264-65 (1983); Charles W. Calomiris, *Is Deposit Insurance Necessary? A Historical Perspective*, 50 J. ECON. HIST. 283, 284 (1990).

19. See Paredes, *supra* note 3, at 984-85; Schwarcz, *supra* note 17, at 202-04.

20. Although less common today, the United States has had bank runs in the past, providing the basis for the scene in Frank Capra's 1946 film, *IT'S A WONDERFUL LIFE* (Liberty Films 1946), when Bedford Falls township flocked to the struggling Bailey Brothers Building and Loan to get its money back. See also Douglas W. Diamond & Philip H. Dybvig, *Bank Runs, Deposit Insurance, and Liquidity*, 91 J. POL. ECON. 401, 401-04 (1983); Richard J. Herring & Anthony M. Santomero, *What Is Optimal Financial Regulation?* 14-19 (Wharton Fin. Inst. Ctr. Working Paper 00-34, 1999), available at <http://fic.wharton.upenn.edu/fic/papers/00/0034.pdf>. Customers could try to single out individual firms by relying on less costly means, such as reputation, to bridge the information gap. A good reputation, however, takes time to establish and, in any event, may not be reliable if the benefits of default are sufficiently high. See William W. Bratton, Jr., *Corporate Debt Relationships: Legal Theory in a Time of Restructuring*, 1989 DUKE L.J. 92, 139-42 (noting “the limited force of reputation”).

21. One aspect of the mechanics of this spiral is described in more detail in Charles K. Whitehead, *Destructive Coordination*, 96 CORNELL L. REV. 323, 347-51 (2011).

22. For example, the costs of a bank run can be substantial. The bank, its shareholders, and its customers

bank is in trouble or at risk of failing, its managers, shareholders, and depositors can be harmed; but borrowers and others in the real economy can also be affected by a contraction in credit or rise in borrowing costs. As a result, the managers who decide what risks a bank should incur are unlikely to consider the full costs—the costs to society generally—of that decision, and may assume risks that are aimed at maximizing firm value, even though they may not be socially optimal.²³

Into this gap steps financial regulation—helping to restrict the amounts and types of risk-bearing a financial firm can assume. Capital regulation, for example, requires banks to raise certain amounts of capital against potential loan losses, creating a “cushion” against insolvency. Doing so also minimizes the consequences of a banking collapse by reinforcing the financial stability of each individual bank.²⁴ In addition, the guaranty of deposits, such as by the Federal Deposit Insurance Corporation (“FDIC”), helps dampen a customer’s interest in withdrawing funds, thereby lowering the indirect transmission effects of a financially unstable firm.²⁵

are harmed as the bank is forced to sell assets at below-market prices. Other banks may also experience a decline in business, or even a run, as concerns over financial instability spread across the market. Borrowers, as a result, may not be able to obtain funding at the same cost, restricting their ability to invest in new, value-enhancing projects and causing a slowdown in the general economy. See Bernanke, *supra* note 18, at 264-65; Calomiris, *supra* note 18, at 284; see also Whitehead, *supra* note 2, at 15.

23. This is particularly noticeable in the case of financial firms not subject to close regulatory oversight. Like bank managers, hedge fund traders also have an incentive to maximize returns and, in the process, may incur more risk than is socially optimal. See PRESIDENT’S WORKING GRP. ON FIN. MKTS., HEDGE FUNDS, LEVERAGE, AND THE LESSONS OF LONG-TERM CAPITAL MANAGEMENT 31 (1999) (noting that individual firms limit risk-taking to protect themselves, not the system as a whole); Jackson, *supra* note 2, at 335-36.

24. Examples of bank capital requirements appear in Appendix A of Whitehead, *supra* note 2. Thus, financial regulation restricts the amounts and types of risk-bearing that a financial firm can assume, directly by circumscribing the riskiness of a firm’s portfolio and capital structure, and indirectly through rules regarding the firm’s net worth, capital, or surplus that effectively cap its risk-taking activities. See Robert Charles Clark, *The Soundness of Financial Intermediaries*, 86 YALE L.J. 1, 12-16, 23-24 (1976); Jackson, *supra* note 2, at 352-59; Jonathan R. Macey & Geoffrey P. Miller, *Bank Failures, Risk Monitoring, and the Market for Bank Control*, 88 COLUM. L. REV. 1153, 1155, 1165 (1988).

25. FDIC insurance protects depositors against losses up to \$250,000. Banks can also access Federal Reserve funds to temporarily cover shortfalls in liquidity in the event of substantial withdrawals. See Mark E. Van Der Weide & Satish M. Kini, *Subordinated Debt: A Capital Markets Approach to Bank Regulation*, 41 B.C. L. REV. 195, 204-05 (2000). More recently, in light of the credit crisis, the nation’s largest securities firms (including Goldman Sachs and Morgan Stanley) elected to become bank holding companies subject to federal bank regulation. Among other benefits, those firms can now access regular funding that has historically been made available by the Federal Reserve only to banks. See Patrice Hill, *Treasury to Try to Keep Owners in Their Homes; Goldman, Morgan Cleared to Acquire Banks*, WASH. TIMES, Sept. 22, 2008, at A1. The importance of government insurance was powerfully illustrated following the run on MMFs in fall 2008. See *supra* note 12. The Treasury Department responded to widespread customer redemptions by creating a temporary program to guarantee MMF account balances—economically, not unlike bank insurance—which quickly broke the run. See Joe Adler, *Bailout Bill’s FDIC Hike Temporary—For Now; Many View Increase in Coverage as Likely to Be Made Permanent*, AM. BANKER, Oct. 2, 2008, at 1; Steven Sloan, *Money Market Funds Get Third Boost from Fed*, AM. BANKER, Oct. 22, 2008, at 4. The guarantee, which protected balances as of September 19, 2008, expired on September 19, 2009. See Press Release, Dep’t of Treasury, Treasury Announces Expiration of Guarantee Program for Money Market Funds (Sept. 18, 2009), available at <http://www.treasury.gov/press->

More recently, the Dodd-Frank Act created the Financial Stability Oversight Council (“FSOC”), a council of regulators charged with macroprudential financial policies, including identifying and responding to risks in financial firms and markets; enhancing oversight over the financial system as a whole; and harmonizing prudential standards across regulatory agencies.²⁶ The FSOC is also authorized to decide which systemically important financial firms, in addition to banks, should be subject to heightened prudential regulation by the Federal Reserve,²⁷ as well as to recommend prudential standards for activities the FSOC identifies as contributing to systemic risk.²⁸

In addition, the Dodd-Frank Act establishes procedures to determine whether a systemic risk exists—but, again, without clearly defining what “systemic risk” is.²⁹ The vast majority of the Dodd-Frank Act’s systemic risk provisions require implementing regulation. Many give regulators discretion to modify the statutory standards or issue exemptions.³⁰ Consequently, absent a clear definition of systemic risk, those charged with implementing the new rules may have difficulty in coordinating regulation intended to minimize its effects. To date, there has been a particular focus on entities that are too big or too interconnected to fail. Yet, without an agreed definition, it is unclear what metrics should be used to determine which entities are systemically important or when their failure will trigger a systemic problem. The result is the potential for ambiguity, now as well as during future periods of instability. As witnessed by the recent financial crisis, market participants generally react negatively to ambiguity—something that may be particularly problematic during a downturn in the financial markets. The Dodd-Frank Act, therefore, may fail to minimize systemic risk precisely when it is most needed.

center/press-releases/Pages/tg293.aspx.

26. See Dodd-Frank Act §§ 111, 112(a)(2).

27. Firms are included “if the Council determines that material financial distress . . . , or the nature, scope, size, scale, concentration, interconnectedness, or mix of the [firm’s] activities . . . , could pose a threat to the financial stability of the United States.” Dodd-Frank Act § 113(a)(1); see also Authority to Require Supervision and Regulation of Certain Nonbank Financial Companies, 76 Fed. Reg. 64,264, 64,266-69 (proposed Oct. 11, 2011) (to be codified at 12 C.F.R. pt. 1310) [hereinafter FSOC Nonbank Supervision Authority] (describing proposed criteria to be used in determining whether to subject a nonbank financial firm to Federal Reserve Board supervision and standards).

28. As part of its mandate, the FSOC is charged with identifying risks to U.S. financial stability arising from activities in or outside the financial markets. See Dodd-Frank Act § 112. The FSOC must “identify gaps in regulation that could pose risks to” U.S. financial stability, *id.* § 112(a)(2)(G), as well as make recommendations to primary regulators to “apply new or heightened standards and safeguards for financial activities or practices that could create or increase risks” among financial firms and markets, *id.* § 112(a)(2)(K).

29. *Id.* § 203.

30. For example, significant nonbank financial firms may now become subject to new Federal Reserve Board oversight, see *supra* note 27, including capital, leverage, liquidity, concentration, and overall risk management requirements, see Dodd-Frank Act §§ 115, 165. The Board is required, to the extent possible, to take account of significant differences in business and operations when implementing new regulations. See Dodd-Frank Act §§ 115(b)(3), 165(b)(3).

At the same time, the Dodd-Frank Act's ambiguity may also be a strength. By establishing the FSOC, and authorizing it to determine which risks are systemic, over time the Act may permit a greater level of flexibility in how the markets are regulated. Key to that success will be an approach to systemic risk that takes account of change in the financial markets. I describe three such changes in the next three Parts, illustrating the need for a more comprehensive approach to systemic risk regulation than exists today.

III. OLD FUNCTIONS, NEW ACTORS

Intermediation spans gaps in the financial marketplace. For example, within the traditional framing, banks are able to use their special relationship with borrowers to monitor changes in credit quality at relatively low cost. Individual depositors, by contrast, typically do not have the same access to information about borrowers or, in most cases, the time or inclination to obtain it—resulting in an inability to manage credit risk as effectively as banks.³¹ In addition, depositors are interested in liquid investments, whereas borrowers require more certainty—a mismatch between suppliers and consumers of capital. Financial intermediaries are able to transform short-term capital into long-term assets, balancing the interests of both depositors and borrowers.³²

Yet, intermediation creates its own gaps. Banks must address the classic agency gap between shareholders and creditors—their principal creditors being their depositors. Bank managers, looking to maximize value for their shareholders, may take on more risk than is optimal for depositors—who are, at most, simply looking for a fixed return.³³ Depositors have only a limited ability to

31. See Fischer Black, *Bank Funds Management in an Efficient Market*, 2 J. FIN. ECON. 323, 323-24 (1975); Douglas W. Diamond, *Financial Intermediation and Delegated Monitoring*, 51 REV. ECON. STUD. 393, 393-95 (1984); Eugene F. Fama, *What's Different About Banks?*, 15 J. MONETARY ECON. 29, 35-39 (1985); Herring & Santomero, *supra* note 20, at 13.

32. Retail suppliers typically prefer to access their money quickly, favoring short-term investments, like bank deposits, that can be turned into cash on demand. By contrast, borrowers require a source of longer-term capital, with term loans averaging sixty-nine months in maturity. See Philip E. Strahan, *Borrower Risk and the Price and Nonprice Terms of Bank Loans* tbl.1 (Fed. Reserve Bank of N.Y. Staff Report No. 90, Oct. 1999), available at http://www.newyorkfed.org/research/staff_reports/sr90.pdf. Banks are able to balance the two—managing a loan portfolio against the obligation to make depositors whole, using loan proceeds to repay depositors, and smoothing any shortfall with liquid reserves. See Whitehead, *supra* note 2, at 9.

33. Like other firms, financial intermediaries must address the standard agency cost rivalry that arises between shareholders and creditors. A shareholder's liability is capped at the amount she invested, whereas her return, tied to the intermediary's profits, is potentially unlimited. The intermediary's principal liabilities are comprised of the products it sells—for example, deposits by banks. Repayment amounts are fixed, at a pre-agreed rate or formula, so long as the intermediary does not default. The result is a split in incentives, with shareholders preferring a more risky investment strategy in order to maximize the potential for profits, and creditors interested in simply receiving their pre-agreed return. See Michael Jensen & William Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305, 334-39 (1976); Charles K. Whitehead, *The Evolution of Debt: Covenants, the Credit Market, and Corporate Governance*, 34 J. CORP. L. 641, 641-42 (2009).

monitor bank managers and the riskiness of a bank's portfolio, relying on their ability to withdraw funds on demand to protect themselves against bank insolvency.³⁴ If there are concerns—even unfounded ones—that a bank is unstable, depositors may rush to withdraw money first rather than risk being last in line, resulting in a classic bank run.³⁵ As noted earlier, one response is insurance—for example, FDIC insurance for bank deposits.³⁶ In addition, regulation circumscribes what assets an intermediary can invest in or increases the cost of holding risky assets in an intermediary's portfolio.³⁷ The result, for banks, is higher cost, but historically that cost has been offset by their special franchise—the ability to take deposits and make loans with limited nonbank competition.

That franchise began to erode in the 1970s with the introduction of new products and services—many of them economically similar to those provided by traditional intermediaries, increasing competitive pressure. Banks, for example, began to face new competition from money market funds and finance companies that replicated the balance between suppliers and consumers of capital traditionally struck by banks.³⁸ Regulatory change also made banking less profitable.

34. Banks conceal borrower information from the public, rather than risk its release to competitors. Most depositors, therefore, have only limited data on which to assess the assets in which a bank has invested and, in turn, the credit quality of the bank itself. See Whitehead, *supra* note 2, at 13. Even if information is available, banks, insurers, and other intermediaries can quickly change their risk levels, reflecting the relative liquidity, compared to most businesses, of the assets they hold. See Clark, *supra* note 24, at 14-18. Financial holdings are particularly susceptible to self-dealing compared to less liquid assets, providing one basis for a higher standard of conduct for the directors and officers of financial intermediaries. See, e.g., *Gerdes v. Reynolds*, 28 N.Y.S.2d 622, 653 (Sup. Ct. 1941).

35. See *supra* note 20 and accompanying text.

36. See *supra* note 25 and accompanying text.

37. Financial regulation restricts the amounts and types of risk-bearing that an intermediary can assume, in part, directly through requirements that circumscribe the riskiness of an intermediary's portfolio assets and its capital structure, and indirectly through rules regarding the intermediary's net worth, capital, or surplus that effectively cap its risk-taking activities. Examples of these regulations appear in Appendix B of Whitehead, *supra* note 2.

38. For example, MMFs and finance companies together provide the functional equivalent of deposit-taking and lending by banks. See Jonathan Macey, *Reducing Systemic Risk: The Role of Money Market Mutual Funds as Substitutes for Federally Insured Bank Deposits* 6, 8 (Yale Law Sch., Faculty Scholarship Ser. No. 2020, 2011), available at http://digitalcommons.law.yale.edu/cgi/viewcontent.cgi?article=3100&context=fss_papers (noting that the needs and expectations of MMF investors and commercial depositors are roughly the same, tracking the functional similarity between the two); see also 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, 239-42 (2002) (describing the structure and evolution of MMFs, their comparative advantages over traditional bank deposits, and Congressional attempts to put banks on an equal competitive footing with MMFs). Finance companies lend to business and retail borrowers, relying on MMFs for funding through the sale to them of short-term commercial paper. See Jane W. D'Arista & Tom Schlesinger, *The Parallel Banking System* 7-14 (Econ. Policy Inst., Briefing Paper No. 37, 1993) (noting that the commercial paper market is the essential link between the borrower and depositor aspects of MMF activity). MMFs, in turn, offer investors the convenience of a bank account, including checking services, toll-free telephone numbers, record-keeping, and wire transfers, but with nominally higher returns than bank deposits. See EDWARDS, *supra* note 12, at 73-74; see also Tamar Frankel, *The Scope and Jurisprudence of the Investment Management Regulation*, 83 WASH. U.

For example, the introduction of new regulatory capital requirements in the late 1980s made it more expensive for banks to continue the lending business as they had before, providing one reason for their expansion into new products and services.³⁹

Banks also began to modify their business models, transferring the credit risk of their loans to third parties and, consequently, separating their role as working capital providers from their traditional function as credit risk managers. For example, in loan securitizations, banks competed with securities firms who were not subject to the same regulatory capital charges.⁴⁰ As a result, in order to minimize regulatory cost, banks moved assets off their balance sheets to less-regulated special purpose vehicles, fueling the so-called “shadow banking” system.⁴¹ Recall that, on the bank’s balance sheet, those assets were largely funded by short-term demand deposits.⁴² They continued to be funded on a short-term basis—in many cases, with commercial paper—resulting in the same long-term/short-term relationship outside the bank that traditionally exists within banks.⁴³ That financing relationship also resulted in the same risk of bank runs—but now, because they were done off-balance-sheet, without the protections provided by bank insurance or regulation.⁴⁴

L.Q. 939, 943 (2005) (noting that MMFs, which were not subject to the interest rate caps placed on banks, were able to offer higher interest rates to customers and, at the same time, offer services consistent with traditional banks). Unlike bank deposits, MMF accounts are normally not protected by federal government insurance (although the Treasury Department created a temporary program to guarantee MMF account balances following the run on MMFs in fall 2008). Instead, investors historically relied on regulations that limited portfolio assets to short-term, highly liquid, and relatively low-risk debt instruments. See Money Market Funds, 17 C.F.R. § 270.2a-7(c)(3)-(4) (2011) (outlining criteria relating to portfolio quality and diversification that MMFs must satisfy); see also INV. CO. INST., *supra* note 12, at 31-39 (describing regulation of MMFs). Investors also relied on the implicit assurance that an MMF’s managers would prevent the fund’s assets from falling below par, \$1/share. See *supra* note 12. Together, MMFs and finance companies began to mirror the traditional balance struck by banks, resulting in a substantial shift in liquid household assets from the banking sector to the capital markets. See EDWARDS, *supra* note 12, at 73-74; D’Arista & Schlesinger, *supra*, at 3-4, 7-14.

39. See James R. Smoot, *Bank Operating Subsidiaries: Free at Last or More of Same?*, 46 DEPAUL L. REV. 651, 654-60 (1997); Charles K. Whitehead, *What’s Your Sign?—International Norms, Signals, and Compliance*, 27 MICH. J. INT’L L. 695, 721-25 (2006).

40. See Whitehead, *supra* note 33, at 657-59.

41. See Floyd Norris, *High and Low Finance; No Way to Make a Loan*, N.Y. TIMES, Oct. 19, 2007, at C1; Timothy F. Geithner, President and CEO, Fed. Reserve Bank of N.Y., Reducing Systemic Risk in a Dynamic Financial System, Remarks at The Economic Club of New York, New York City (June 9, 2008), available at <http://www.newyorkfed.org/newsevents/speeches/2008/tfg080609.html>; see also Aaron Unterman, *Innovative Destruction—Structured Finance and Credit Market Reform in the Bubble Era*, 5 HASTINGS BUS. L.J. 53, 59 (2009). As former Citigroup Chairman and CEO Charles Prince told Rep. Barney Frank, off-balance sheet financing was necessary because on-balance sheet financing “would have put Citigroup at a disadvantage with Wall Street investment banks that were more loosely regulated and were allowed to take far greater risks.” See Nelson D. Schwartz & Julie Creswell, *What Created This Monster?*, N.Y. TIMES, Mar. 23, 2008, at BU1, BU7.

42. See *supra* note 32 and accompanying text.

43. See Standard & Poor’s, *Structured Investment Vehicle Criteria*, <http://www.standardandpoors.com/prot/ratings/articles/en/us/?assetID=1245319310762> (last visited Nov. 3, 2011).

44. A good example is Bear Stearns’ meltdown in spring 2008. That collapse was similar to a bank

Increasingly, banks also relied on new financial instruments—such as CDS—to transfer the credit risk of a bank’s loan portfolio to other entities, which could manage that risk without extending loans themselves.⁴⁵ Beginning in the

run—but involving a securities firm, not a bank, borrowing through the capital markets from investors who were sophisticated institutions, not retail depositors. See GARY B. GORTON, *SLAPPED BY THE INVISIBLE HAND: THE PANIC OF 2007*, at 55-62 (2010). Like a bank, Bear Stearns relied on short-term credit to fund longer-term investments, including subprime assets, a common practice across Wall Street. See Markus K. Brunnermeier, *Deciphering the Liquidity and Credit Crunch 2007-2008*, 23 J. ECON. PERSP. 77, 80 (2009). Creditors relied on collateral (including subprime assets) to protect against a decline in Bear Stearns’ credit quality. See GORTON, *supra*, at 33-37. To be more exact, the collateralized loans to Bear Stearns were made through sale and repurchase, also known as “repo,” transactions. In a typical trade, a securities dealer (the “repo seller”) sells securities to an investor (the “repo buyer”) for cash. The repo buyer’s object is not to invest in the securities; rather, it expects to receive a return from the repo seller for the use of its cash. Accordingly, as part of the trade, the repo seller also agrees with the repo buyer to repurchase the same or equivalent securities at some future time, frequently overnight, at a repurchase price above the price at which the repo buyer first bought the securities. Economically, the transaction is equivalent to a secured loan—with the repo buyer lending cash to the repo seller against the underlying securities as collateral. See Jeanne L. Schroeder, *A Repo Opera: How Criimi Mae Got Repos Backwards*, 76 AM. BANKR. L.J. 565, 570-72 (2002). Beginning in 2007, the value of Bear Stearns’ assets began to drop as investors came to believe that underwriting standards and loan quality had eroded. Only a few days earlier, research analysts had commented that Bear Stearns held enough liquid assets and sufficient borrowing capacity to stay in business for almost two years. That liquidity suddenly dried up—in a classic bank run—as creditors became troubled over Bear Stearns’ exposure to credit derivatives and subprime loans. See Ben S. Bernanke, Chairman, Bd. of Governors of the Fed. Reserve Sys., Speech at the Federal Reserve Bank of Kansas City’s Annual Economic Symposium: Reducing Systemic Risk (Aug. 22, 2008), available at <http://www.federalreserve.gov/newsevents/speech/bernanke20080822a.htm>. As asset prices declined further, lenders were unwilling to roll-over or extend credit, or required Bear Stearns to post additional collateral—tantamount, in either case, to depositors withdrawing money from a bank. In order to repay its lenders, Bear Stearns was forced to sell less liquid assets at fire sale prices. The drop in value affected the price of similar assets held by others, causing Bear Stearns’ balance sheet problems to be transmitted across the market. See GORTON, *supra*, at 25-27, 55-60; Brunnermeier, *supra*, at 82-84, 88; see also Tobias Adrian & Hyun Song Shin, *Liquidity and Financial Contagion*, BANQUE DE FRANCE, FIN. STABILITY REV.—SPECIAL ISSUE ON LIQUIDITY, No. 11, Feb. 2008, at 2-3, available at http://www.banque-france.fr/gb/publications/telechar/rsf/2008/etud1_0208.pdf.

45. A bank traditionally has managed the risks of its loan portfolio more effectively than its depositors could. The principal risk, that a borrower will default on its loan, was addressed through portfolio diversification, as well as relationships that helped the bank monitor and enforce loan covenants. As portfolio risk management improved, bank lenders sought to transfer risk to firms that were better able to manage it, starting with loan syndication and then moving to lower cost alternatives, such as loan trading and derivatives. See Robert C. Merton, *Operation and Regulation in Financial Intermediation: A Functional Perspective*, in OPERATION AND REGULATION OF FINANCIAL MARKETS 17, 23 (Peter Englund ed., 1993); Whitehead, *supra* note 33, at 655-58. Today, lenders can separate their role as working capital providers from their traditional job as risk managers, in the process introducing a new category of market participants who are willing to invest in the credit of a referenced borrower without extending loans themselves. See JOHN B. CAOUILLE ET AL., *MANAGING CREDIT RISK: THE NEXT GREAT FINANCIAL CHALLENGE* 311-12 (1998); GLANTZ, *supra* note 4, at 532; Angus Duncan, *Loan-only Credit Default Swaps: The March to Liquidity*, COM. LENDING REV., Sept.-Oct. 2006, at 19-20; Bernadette A. Minton et al., *How Much Do Banks Use Credit Derivatives to Reduce Risk?*, 35 J. FIN. SERVS. RES. 6, 7 (2009); see also Hamish Risk, *Loan Credit-Default Swaps Surge as Hedge Funds Hunger for Yield*, BLOOMBERG (Aug. 22, 2006), http://www.bloomberg.com/apps/news?pid=20601087&sid=a4fg_8Gw37Fw&refer=home (noting that “[w]hen investors can’t get the loans, they’re increasingly using credit-default swaps”). Increasingly, that new market is comprised of hedge funds. See U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-07-716, *CREDIT DERIVATIVES: CONFIRMATION BACKLOGS INCREASED DEALERS’ OPERATIONAL RISKS, BUT WERE SUCCESSFULLY ADDRESSED AFTER JOINT REGULATORY ACTION 6 n.8* (2007), available at <http://www.gao.gov/new.items/d07716.pdf> (citing British Bankers’ Association report that “top five end-users

1980s, sparked by changes in regulation⁴⁶ and heightened market competition,⁴⁷ banks became increasingly sophisticated in how they managed loan portfolio risk.⁴⁸ At the same time, partly in order to diversify their credit exposure, banks began to buy and sell loans—resulting in an increase in private credit liquidity.⁴⁹

of credit derivatives are banks and broker-dealers (forty-four percent), hedge funds (thirty-two percent), insurers (seventeen percent), pension funds (four percent), and mutual funds (three percent)"); Daniel Fisher, *A Dangerous Game*, FORBES, Oct. 16, 2006, at 40 (citing Greenwich Associates analysis that fifty-eight percent of CDS are traded by hedge funds); Janet Morrissey, *Credit Default Swaps: The Next Crisis?*, TIME, Mar. 17, 2008, available at <http://www.time.com/time/business/article/0,8599,1723152,00.html> (noting that an original CDS can be traded fifteen or twenty times).

46. See KERRY COOPER & DONALD R. FRASER, BANKING DEREGULATION AND THE NEW COMPETITION IN FINANCIAL SERVICES 195-217 (1984); ROBERT E. LITAN, WHAT SHOULD BANKS DO? 33-59 (1987); Allen N. Berger et al., *The Transformation of the U.S. Banking Industry: What a Long, Strange Trip It's Been*, 1995 BROOKINGS PAPERS ON ECON. ACTIVITY 55, 127 (1995).

47. See COOPER & FRASER, *supra* note 46, at 2-17; LOWELL L. BRYAN, BREAKING UP THE BANK: RETHINKING AN INDUSTRY UNDER SIEGE 22-28 (1988); Berger et al., *supra* note 46, at 68-70; Franklin Allen & Anthony M. Santomero, *What Do Financial Intermediaries Do?*, 25 J. BANKING & FIN. 271, 279-82 (2001).

48. New technologies were developed to measure risk and diversification across loan portfolios—enabling banks to assess loans on a credit-by-credit basis and decide which assets to buy and sell, and at what price, in order to optimize a loan portfolio's return-to-risk relationship. Thus, by 2002, a credit portfolio model developed by KMV, LLC, a quantitative risk management firm founded in 1989, had become the most widely used in the banking industry. See 2000 *Hall of Fame*, DERIVATIVES STRATEGY, <http://www.derivativesstrategy.com/magazine/archive/2001/0301feal.asp> (last visited Oct. 22, 2011); CHARLES SMITHSON ET AL., RESULTS FROM THE 2002 SURVEY OF CREDIT PORTFOLIO MANAGEMENT PRACTICES 6-7 (2002), available at http://www.isdadocs.org/c_and_a/pdf/2002-cpm-survey.pdf. The KMV model is described in STEPHEN KEALHOFER & JEFFREY R. BOHN, PORTFOLIO MANAGEMENT OF DEFAULT RISK (rev. 2001), available at <http://www.moodysanalytics.com/~media/Insight/Quantitative-Research/Portfolio-Modeling/93-15-11-Portfolio-Management-of-Default-Risk.ashx>. Other methods have also been developed to measure a loan portfolio's risk and return characteristics. See CAOUILLE ET AL., *supra* note 45, at 285-99.

49. The loan sales market—principally comprised of a syndicated loan market and a secondary trading market—developed in terms of both aggregate size and universe of investors. The market for syndicated loans grew from \$137 million in 1987 to over \$1 trillion today. See Amir Sufi, *Information Asymmetry and Financing Arrangements: Evidence from Syndicated Loans*, 62 J. FIN. 629, 629 (2007). Loan trading also grew, from \$8 billion in 1991 to \$176.3 billion in 2005. See Steven Drucker & Manju Puri, *On Loan Sales, Loan Contracting, and Lending Relationships*, 22 REV. FIN. STUD. 2835-36 (2009). Investors now include pension funds, hedge funds, insurance companies, specialty finance companies, and foreign institutions. See Joseph G. Haubrich & James B. Thomson, *The Evolving Loan Sales Market* 3 (Fed. Reserve Bank of Cleveland, July 15, 1993), available at <http://www.clevelandfed.org/research/commentary/1993/0715.pdf>; Lori B. Appelbaum, Brian Foran & Bradley C. Glick, *Global Investment Research: Rising LBO Bank Loan Risk, Banks Holding Little of It* 3-5 (Goldman, Sachs & Co., May 31, 2007). The leveraged buyout wave of the mid-1980s also prompted the growth of syndicated loans as a lower cost means to raise debt capital, as well as the creation of a secondary market for the trading of loan assets. See Robert P. Bartlett III, *Taking Finance Seriously: How Debt Financing Distorts Bidding Outcomes in Corporate Takeovers*, 76 FORDHAM L. REV. 1975, 2011-20 (2008). In a syndicated loan, one or more "lead banks" negotiate the terms of the loan with the borrower and sell portions to others at the time of origination. See Glenn Yago & Donald McCarthy, *The U.S. Leveraged Loan Market: A Primer* 14-22 (Milken Inst., Oct. 2004), available at http://www.milkeninstitute.org/pdf/loan_primer_1004.pdf. Interests in a loan, whether or not syndicated, can also be sold in the secondary market, which is dominated by riskier borrowers and nonbank investors. See William H. Widen, *Lord of the Liens: Towards Greater Efficiency in Secured Syndicated Lending*, 25 CARDOZO L. REV. 1577, 1585-90 (2004); Yago & McCarthy, *supra*, at 23-28, 35-37; Drucker & Puri, *supra*, at 2835; see also Sufi, *supra*, at 632-34. Bank lenders, therefore, can transfer loans at the time of origination, as well as sell all or part of a loan at a later date. The new liquidity enabled banks to minimize credit cost by diversifying exposure across a range of borrowers. Greater liquidity, for

Syndicating or trading loans, however, required the purchaser to invest in the working capital component of the loans. An investor in a \$100 million slice of a \$1 billion loan, for example, would need to commit to, or put up, the full \$100 million in capital. Consequently, a credit derivatives market also grew⁵⁰—permitting the transfer of only the credit risk related to a loan or portfolio of loans, and separating the working and risk capital components of those assets.⁵¹ A broader universe of potential purchasers could now enter the private credit market, investing in only the credit risk of a loan portfolio without making a working capital commitment. Bank managers no longer needed to manage the credit risk that was transferred—in effect, outsourcing that portion of the risk management function, in many cases to hedge funds, which became significant traders in the credit derivatives market.⁵² Unlike the traditional model, where risk was managed by an intermediary, new market participants also bought and sold credit risk in the capital markets—making outsourcing particularly troublesome, since it was not always clear who the end-manager of the outsourced risk was.⁵³

example, resulted in increased diversification among leveraged loan investors who, on average, committed only \$5 million to a single deal during the most recent private equity wave. See Appelbaum et al., *supra*, at 3-5; Serena Ng & Henry Sender, *Easy Money: Behind Buyout Surge, A Debt Market Booms; CLOs Spark Worries of Volatility and Risk; Loan Standards Loosen*, WALL ST. J., June 26, 2007, at A1. Likewise, banks that participated in the loan market could hold less capital against riskier loans and more profitable loan portfolios. See Sinan Cebenoyan & Philip E. Strahan, *Risk Management, Capital Structure and Lending at Banks*, 28 J. BANKING & FIN. 19, 38 (2004).

50. The global credit derivatives market was estimated to be \$180 billion (notional amount) in 1996. See ROSS BARRETT & JOHN EWAN, BBA CREDIT DERIVATIVES REPORT 2006, at 5 (2006), available at <http://www.bba.org.uk/publications/entry/bba-credit-derivatives-report-2006/books-reports-subscriptions/>. A decade later, between 2004 and 2007, more than \$210 billion in collateralized loan obligations were issued (up from \$51 billion over the preceding four years); and by the end of 2007, an estimated \$62 trillion in notional amount of CDS were traded (up from \$632 billion in 2001). See David Mingle, *Credit Derivatives: An Overview* 11 (2007 Fin. Mkts. Conf., Fed. Reserve Bank of Atlanta, May 2007), available at http://www.frbatlanta.org/news/conferen/07fmc/07FMC_mingle_present.pdf; Gretchen Morgenson, *First Comes the Swap. Then It's the Knives.*, N.Y. TIMES, June 1, 2008, at BU1. A description of credit derivative instruments appears in GLANTZ, *supra* note 4, at 531-49; Masters & Bryson, *supra* note 4, at 43-85.

51. Credit derivatives separate the funding obligation of a loan or bond from the credit risk of the borrower. Thus, using a CDS, a bank can buy or sell all or a portion of a borrower's credit risk without transferring the loan or bond itself, typically enabling it to more efficiently manage and diversify exposure. See *supra* note 45 and accompanying text. Since the credit derivatives market is largely private, and since some borrowers are reluctant to see interests in their loans sold to others, it is unclear how often lenders use derivatives to hedge their credit risk. However, total volumes of credit derivatives have continued to grow, and there are indications that their use to diversify credit risk is becoming more common. See Viral V. Acharya & Timothy C. Johnson, *Insider Trading in Credit Derivatives*, 84 J. FIN. ECON. 110, 137 (2007); Partnoy & Skeel, *supra* note 4, at 1034; Henry T.C. Hu & Bernard Black, *Debt, Equity, and Hybrid Decoupling: Governance and Systemic Risk Implications*, 14 EUR. FIN. MGMT. 663, 674 (2008); Darrell Duffie, *Innovations in Credit Risk Transfer: Implications for Financial Stability* 4-5 (BIS Working Paper No. 255, 2008); DEBTWIRE, *North American Distressed Debt Market Outlook 2008*, at 14 (2008), available at <http://us.debtwire.com/pdf/north-american-distressed-debt-2008.pdf>.

52. See *supra* note 45 and accompanying text.

53. In fact, due to the sale and resale of CDS, the risk is most likely shared among a group of investors who offset each others' exposure and so make individual monitoring largely unfeasible. For example, at the time of its bankruptcy, there were approximately \$72 billion in notional amount of CDS tied to Lehman

Risk-taking, in turn, was managed by hedge fund traders who could assess the costs and benefits of those risks without considering the broader system-wide impact of a failure—raising the same negative externalities addressed by bank regulation, but now within the capital markets.⁵⁴ In effect, new instruments enabled banks to transfer a core function from an industry subject to close, prudential supervision to one that, to a great extent, was beyond regulatory oversight—resulting in an overall increase in financial risk-bearing.

The Dodd-Frank Act addresses regulatory cost disparity, in some areas more successfully than others. For example, the Act imposes the leverage and risk-based capital requirements applicable to banks to certain systemically important nonbank firms, including those designated by the FSOC as requiring prudential Federal Reserve oversight.⁵⁵ Those changes are likely to help limit the pressure on banks to adopt financing structures that skirt formal regulatory oversight.

Yet, the Dodd-Frank Act does little to directly address the outsourcing of credit risk management to hedge funds. The Act expands hedge fund regulation by, among other things, eliminating the private adviser exemption from the Investment Advisers Act of 1940 and, with some exceptions, by requiring private fund advisers to register with the SEC.⁵⁶ As a practical matter, however, those new requirements are unlikely to have a substantial effect on hedge fund activities. In order to attract pension fund investors, many of the largest advisers were already SEC-registered before the Dodd-Frank Act was passed.⁵⁷ In addition, based on current resources, the SEC estimates it will not be able to audit

Brothers, with estimates of up to \$400 billion in total notional amount linked to it. On a net basis, however, only \$5.2 billion was ultimately paid out. Part of the difference reflected trading among market participants, with offsetting trades shrinking the amount of actual risk that was covered by outstanding swaps. See Gordon Platt, *Credit Default Swaps Market Outstandings Shrink as Dealers Tear Up Offsetting Agreements*, GLOBAL FIN. MAG., Dec. 2008, at 68.

54. For banks, prudential regulation helps manage the amount of risk incurred, and the FDIC guarantee eases customer concerns over deposited assets. Many of the new risk-holders, however, are not subject to regulation that limits risk-taking, nor are their investors or counterparties protected by a government safety net. Absent that protection, and during times of financial distress, short-term creditors may refuse to roll-over their loans or require the posting of additional collateral (similar to what occurred to Bear Stearns, see *supra* note 44), increasing the likelihood of a bank-like run. See Tomas Garbaravicius & Frank Dierick, *Hedge Funds and Their Implications for Financial Stability* 56-63 (Eur. Cent. Bank Occasional Paper Ser. No. 34, Aug. 2005), available at <http://www.ecb.int/pub/pdf/scpops/ecbocp34.pdf>.

55. See *supra* note 27 and accompanying text.

56. See Dodd-Frank Act § 619 (amending the BHCA by adding § 13); see also Exemptions for Advisers to Venture Capital Funds, Private Fund Advisers With Less Than \$150 Million in Assets Under Management, and Foreign Private Advisers, 76 Fed. Reg. 69,646 (July 6, 2011) (to be codified at 17 C.F.R. pt. 275); Rules Implementing Amendments to the Investment Advisers Act of 1940, 76 Fed. Reg. 42,950 (July 19, 2011) (to be codified at 17 C.F.R. pts. 275, 279).

57. About seventy percent of hedge fund assets were managed by advisers that had voluntarily registered with the SEC. See *After Dodging Many Bullets, Hedge Funds Are Back in Regulators' Sights*, KNOWLEDGE@WHARTON (Mar. 18, 2009), <http://knowledge.wharton.upenn.edu/article.cfm?articleid=2185> (noting that many hedge funds were willing to voluntarily register with the SEC in order to attract institutional investor funds).

a registered investment adviser more than once every eleven years.⁵⁸ To be sure, information the SEC gathers can be provided to the FSOC; and, in principle, that should assist efforts to assess systemic risk.⁵⁹ The principal regulator, however, remains the SEC, with a rules-based (rather than prudential) approach to overseeing the industry.⁶⁰

Hedge funds, therefore, are unlikely to become subject to prudential oversight. Rather, the new regulation treats hedge funds as part of the capital markets, without—so far—acknowledging their effective role as extensions of the traditional banking model. The FSOC, with the vote of seven of its ten members, could impose additional Federal Reserve regulation on systemically important nonbank financial firms.⁶¹ The focus, however, appears to be on individual firms that are “too big” or “too interconnected” to fail—unlikely to include many hedge funds—without considering the broader, systemic effects of outsourcing a traditional bank function, like credit risk management, to a less-regulated industry.

In some cases, the Dodd-Frank Act raises the cost of traditional banking. For example, Section 619 of the Dodd-Frank Act, commonly known as the “Volcker Rule” (for former Federal Reserve Chairman Paul Volcker, who is credited as its chief architect),⁶² requires bank holding companies to fundamentally restructure or divest their proprietary trading, hedge fund, and private equity businesses.⁶³

58. See SEC, DIV. OF INV. MGMT., STUDY ON ENHANCING INVESTMENT ADVISER EXAMINATIONS 14 (2011), available at <http://www.sec.gov/news/studies/2011/914studyfinal.pdf> (study of examination and enforcement resources for investment advisers required by Dodd-Frank Act § 914).

59. Section 404 of the Dodd-Frank Act directs the SEC to require private fund advisers to maintain records and file reports, including information necessary for the FSOC to assess systemic risk. See Dodd-Frank Act § 404; see also Reporting by Investment Advisers to Private Funds and Certain Commodity Pool Operators and Commodity Trading Advisors on Form PF, 76 Fed. Reg. 71,128 (Nov. 16, 2011) (to be codified at 17 C.F.R. pts. 4, 275, 279), available at <http://www.sec.gov/rules/proposed/2011/ia-3145.pdf>.

60. See Coffee & Sale, *supra* note 3, at 775-79 (noting that the SEC’s focus on rules-based regulation leaves it ill-suited to adapt to changes in the financial markets).

61. See *supra* note 27 and accompanying text.

62. See *infra* note 122 and accompanying text.

63. See *infra* notes 122-31 and accompanying text. In general, the Volcker Rule prohibits a banking entity from “engag[ing] in proprietary trading” or “acquir[ing] or retain[ing] any equity, partnership, or other ownership interest in or sponsor[ing] a hedge fund or private equity fund,” Dodd-Frank Act § 619 (amending the BHCA by adding § 13(a)(1)), subject to certain exceptions. Certain proprietary trading activities are still permitted under the Rule, Dodd-Frank Act § 619 (adding § 13(d)(1) to the BHCA)—including trading in U.S. government securities, *id.* § 619 (adding § 13(d)(1)(A) to the BHCA), market-making, *id.* § 619 (adding § 13(d)(1)(B) to the BHCA), and hedging to mitigate risk, *id.* § 619 (adding § 13(d)(1)(C) to the BHCA)—although the full scope of the permitted activities remains to be finalized. See FIN. STABILITY OVERSIGHT COUNCIL, STUDY & RECOMMENDATIONS ON PROHIBITIONS ON PROPRIETARY TRADING & CERTAIN RELATIONSHIPS WITH HEDGE FUNDS & PRIVATE EQUITY FUNDS 16-17 (2011), <http://www.treasury.gov/initiatives/Documents/Volcker%20sec%20%20619%20study%20final%201%2018%2011%20Org.pdf> [hereinafter FSOC Study] (study of the Volcker Rule mandated by the Dodd-Frank Act, including a recommendation that the agencies charged with clarifying terms in the Volcker Rule provide definitions consistent with Congressional intent). The Rule also authorizes regulators to carve-out trading activities if they “promote and protect the safety and soundness of” the firm and U.S. financial stability. Dodd-Frank Act § 619

Anticipating greater costs, much of the proprietary trading business is leaving banks and bank affiliates to move elsewhere—in many cases to hedge funds⁶⁴ that may take on greater risk within a less-regulated sector of the financial industry.⁶⁵ In addition, the Swap Pushout Rule will place additional restrictions on a bank's swaps business that nonbanks do not face.⁶⁶ Insured depository institutions will be required to push dealing in certain swaps out of their banking units and into separately capitalized affiliates, although that requirement will not apply to

(amending the BHCA by adding § 13(d)(1)(J)). An otherwise permitted activity, however, is still prohibited if it will result in “a material conflict of interest” with clients or “a material exposure to high-risk assets or high-risk trading strategies.” *Id.* § 619 (adding § 13(d)(2)(A)(i)-(ii) to the BHCA). Permitted activities may be subject to additional capital requirements and other limitations if determined to be “appropriate to protect the safety and soundness” of the firms engaged in such activities. *Id.* § 619 (adding § 13(d)(3) to the BHCA). The Rule also limits similar activities by certain systemically important nonbank financial institutions. *See* 156 CONG. REC. S5894 (daily ed. July 15, 2010) (statement of Sen. Jeff Merkley) (describing the rationale behind the Dodd-Frank Act, including subjecting nonbank financial institutions to oversight by the Federal Reserve Board); *see also* Definitions of “Predominantly Engaged in Financial Activities” and “Significant” Nonbank Financial Company and Bank Holding Company, 76 Fed. Reg. 7731, 7732-33 (proposed Feb. 11, 2011) (to be codified at 12 C.F.R. pt. 225). The limitation on proprietary trading and investing in any hedge fund or private equity fund will be implemented through capital requirements and quantitative limits imposed by the Federal Reserve Board. *See* Dodd-Frank Act § 619 (amending the BHCA by adding § 13(a)(2), (b)(2)).

64. Proprietary traders from Goldman Sachs and Morgan Stanley have already moved to hedge funds. *See* Sam Jones, *More Goldman Traders to Exit for Funds*, FIN. TIMES (Jan. 9, 2011), <http://www.ft.com/intl/cms/s/0/1d8d8836-1c39-11e0-9b56-00144feab49a.html#axzz1YncojVXa> (reporting that senior members of Goldman Sachs' last big proprietary trading team left to launch a private hedge fund); Aaron Lucchetti, *Morgan Stanley Team to Exit in Fallout from Volcker Rule*, WALL ST. J., Jan. 11, 2011, at C1, available at <http://online.wsj.com/article/SB10001424052748703779704576073841615141836.html> (reporting that Morgan Stanley's proprietary trading unit will leave Morgan Stanley to form an independent trading firm); *see also* *Private Equity Groups Diversify*, FIN. TIMES (Dec. 20, 2010), <http://www.ft.com/cms/s/0/aa371bae-0c61-11e0-8408-00144feabdc0.html#axzz1BbbTf1cN> (reporting that private equity firms are capitalizing on the forced divestiture of proprietary trading units by purchasing stakes in newly-created funds launched by those units).

65. Financial market participants have raised similar concerns. *See* Francesco Guerrera & Gillian Tett, *Goldman President Warns on Bank Rules*, FIN. TIMES (Jan. 26, 2011), <http://www.ft.com/cms/s/0/f9753506-2990-11e0-bb9b-00144feab49a,s01=1.html#axzz1F56PbpaL> (reporting the view of a senior executive at Goldman Sachs that increased regulation of banks may decrease financial stability as risky activities move from banks to hedge funds and other less-regulated entities); Francesco Guerrera, *Monsters that Lurk in the Shadows of Wall St.*, FIN. TIMES (Mar. 7, 2011), <http://www.ft.com/cms/s/0/72503e60-48dd-11e0-af8c-00144feab49a.html#axzz1G0q8jHUQ> (quoting Vikram Pandit, Citigroup CEO, as warning, “Shifting risk into unregulated or differently regulated sectors won't make the banking system safer.”). FDIC Chairperson Sheila Bair made the same point about the Swap Pushout Rule in an April 30, 2010, letter to Senators Christopher Dodd and Blanche Lincoln. *See* *Sheila Bair Letter to Dodd and Lincoln Re: Derivative Regulations*, THE BIG PICTURE (May 3, 2010, 11:15 AM), <http://www.ritholtz.com/blog/2010/05/55714/> (arguing that forcing banks to move activities to less-regulated entities might reduce financial stability because those entities would be subject to lower levels of regulation and oversight). Federal Reserve Chairman Ben Bernanke raised the same concern in a May 12, 2010, letter to Senator Dodd. *See* Letter from Ben Bernanke, Chairman, Fed. Reserve Bd., to Sen. Christopher Dodd (May 12, 2010), available at <http://blogs.wsj.com/economics/2010/05/06/bernanke-letter-to-dodd-opposing-amendments-to-audit-the-fed/>.

66. The Dodd-Frank Act provides that no federal assistance, including access to Federal Reserve funding and FDIC insurance, may be provided to a “swaps entity,” which includes a swaps dealer, commonly referred to as the “Swap Pushout Rule.” Dodd-Frank Act § 716(a)-(b). The effect of the Swap Pushout Rule is to “push out” the swaps trading business from many commercial banks, even though—unlike the Volcker Rule, which prohibits proprietary trading altogether—swaps trading is still permitted by bank affiliates. *Id.* § 716(c).

hedging activities or dealing in swaps based on reference assets that a national bank is permitted to own.⁶⁷ Presumably those rules were as much aimed at Goldman Sachs and other broker-dealers, which are now subject to banking regulation, as at traditional banks—responding to public anger over Wall Street excess and a concern over the use of taxpayer money to fund risky trading activities.⁶⁸ Yet, by imposing additional costs, there is a real risk that the Dodd-Frank Act will motivate new attempts to minimize regulatory oversight, the same motivations that created the less-regulated shadow banking system. If the Dodd-Frank Act hurts bank profitability, then like the period leading up to the financial crisis, bank and other financial firm managers—who, in an effort to satisfy shareholder demands, must continue to meet quarterly earnings targets—will have incentives to assume new risks and minimize the costs of new regulation.

More fundamentally, change in how the financial markets operate has not been fully reflected in the new regulations. Even if the Dodd-Frank Act helps minimize regulatory disparity among market participants, there may continue to be a push towards the capital markets. Some have argued that the shift has been driven by regulatory arbitrage.⁶⁹ No doubt, a principal push by banks to move assets into the shadow banking system was capital regulation.⁷⁰ There are, however, efficiencies beyond regulatory arbitrage that make the capital markets attractive. The organizational efficiencies of hedge funds, for example, are well documented. Their compensation structure and the need for hedge fund managers to continuously raise new capital make it likely that hedge funds will operate more efficiently—with lower agency costs than those borne by traditional intermediaries.⁷¹ In addition, risk can be broadly dispersed through the capital

67. *Id.* § 716(d). The cost of trading for affected banks is likely to increase due to new regulation that, among other things, takes into account the financial strength of the newly-created swaps entity. *Id.* § 716(k).

68. Traders, it was argued, would benefit from the low-cost, government-subsidized funding of short-term, “speculative activities” that were “far better suited for other areas of the financial markets.” Paul Volcker, Op-Ed, *How to Reform our Financial System*, N.Y. TIMES, Jan. 31, 2010, at WK11, available at <http://www.nytimes.com/2010/01/31/opinion/31volcker.html?pagewanted=all> (arguing that, due to their importance to the general economy, banks should not bear the additional risks associated with proprietary trading); see also Letter to the Editor, *Congress Should Implement the Volcker Rule for Banks*, WALL ST. J., Feb. 22, 2010, at A18, available at <http://online.wsj.com/article/SB10001424052748703983004575074123680183534.html> (arguing, in a letter authored by five former U.S. Treasury Secretaries in support of the Volcker Rule, that commercial banks’ access to public support should limit their ability to “engage in essentially speculative activity unrelated to essential bank services”). Government subsidies include the ability to access Federal Reserve funds to temporarily cover shortfalls in liquidity. In addition, FDIC insurance protects depositors against losses up to \$250,000. See *supra* note 25 and accompanying text.

69. See Frank Partnoy, *Financial Derivatives and the Costs of Regulatory Arbitrage*, 22 J. CORP. L. 211, 227-28 (1997) (describing use of derivatives to arbitrage financial regulation).

70. See *supra* note 41 and accompanying text. By 2007, the shadow banking system had total assets of roughly \$6.5 trillion—compared to \$4 trillion for the then-five major securities firms and \$6 trillion for the top five U.S. bank holding companies. See Geithner, *supra* note 41. Professor Gorton also describes the substantial rise in off-balance sheet financing in GORTON, *supra* note 44, at 50-54.

71. Hedge funds are typically organized as limited partnerships and may include provisions that restrict management discretion or otherwise grant investors specific rights, including the regular distribution of free

markets. Rather than being borne by a single firm, risk can be transferred, in whole or in part, to others who may be better able to manage or bear that risk than the originator.⁷² Thus, a bank—wholly apart from regulatory differences—may have an incentive to transfer risks and assets into the capital markets if new market participants, like hedge funds, are able to assume them at lower cost.

The result has been a blurring of the lines that traditionally separate the financial markets. That blurring has occurred in two principal respects: between different business models (such as between banks and hedge funds), and between traditional intermediaries and markets (such as between banks and the capital markets). Both changes are likely to continue to the extent they reflect relative efficiencies in the marketplace. New regulation, therefore, can no longer simply be tied to particular business models. It must also be flexible enough to account for changes that arise as the financial markets continue to evolve.

IV. BEYOND “TOO BIG” OR “TOO INTERCONNECTED” TO FAIL

To date, a principal focus of financial regulation—including the Dodd-Frank Act—has been on individual firms.⁷³ Bank capital regulation, for example, imposes minimum capital requirements on individual banks, reinforcing stability by ensuring soundness on a bank-by-bank basis.⁷⁴ Yet, if financial services continue to shift toward the capital markets, we may begin to ask whether a focus by regulators on only entities is sufficient. In other words, should the focus on systemic risk be limited to individual firms that are “too big” or “too interconnected” to fail, or should regulators also consider whether there are new risks, reflecting the shift toward new markets, that also need to be taken into account?

cash flow to a fund’s investors. Advisors also often invest their own money in the funds they manage. See Larry E. Ribstein, *Partnership Governance of Large Firms*, 76 U. CHI. L. REV. 289, 301-02 (2009). In addition, a hedge fund advisor’s poor performance may result in liquidation of the fund or difficulty in raising capital for successive funds. See Hourman B. Shadab, *The Law and Economics of Hedge Funds: Financial Innovation and Investor Protection*, 6 BERKELEY BUS. L.J. 240, 262 (2009). Hedge fund advisors also typically charge performance fees for gains in fund performance, but are not required to rebate fees for losses. Public mutual fund advisors, by contrast, may only charge performance fees where gains and losses have a symmetric effect on compensation. See 15 U.S.C. § 80b-5(a)(1) (2006); 17 C.F.R. § 275.205-3 (2011); see also Steven M. Davidoff, *Black Market Capital*, 2008 COLUM. BUS. L. REV. 172, 206-10; Robert C. Illig, *The Promise of Hedge Fund Governance: How Incentive Compensation Can Enhance Institutional Investor Monitoring*, 60 ALA. L. REV. 41, 70-77 (2008).

72. See Franklin Allen & Douglas Gale, *Financial Markets, Intermediaries, and Intertemporal Smoothing*, 105 J. POL. ECON. 523, 525-26 (1997); Merton, *supra* note 45, at 23; Whitehead, *supra* note 33, at 655-58.

73. See MARKUS BRUNNERMEIER ET AL., *THE FUNDAMENTAL PRINCIPLES OF FINANCIAL REGULATION* 1-3 (2009), available at <http://www.princeton.edu/~markus/research/papers/Geneva11.pdf>; ANDREW CROCKETT, *MARRYING THE MICRO- AND MACRO-PRUDENTIAL DIMENSIONS OF FINANCIAL STABILITY* 3 (2000), available at <http://www.bis.org/review/r000921b.pdf> (noting the “quintessential micro-prudential dictum . . . that ‘financial stability is ensured as long as each and every institution is sound’”).

74. See Whitehead, *supra* note 21, at 346.

To date, the response to systemic risk has been greater regulation—through, among other things, increasing the capital requirements to which regulated firms are subject. Regulation is certainly a part of the solution. A failure, however, to take account of the shift toward the capital markets can also have systemic consequences. Financial risk management, for example, has grown over the last two decades, driven in part by the widespread adoption of “value-at-risk” (“VaR”) measures to assess portfolio riskiness.⁷⁵ When first developed, VaR was a specialized tool known only to a closed universe of risk managers.⁷⁶ It quickly became a recognized standard, widely regarded as the Stradivarius of risk management tools.⁷⁷ There are, as many have noted following the financial crisis, a number of problems with VaR—the most obvious being that VaR does not fully reflect the riskiness of a portfolio, with “black swan” events falling outside its measure.⁷⁸ But sophisticated risk managers have long been aware of those limitations and have taken them into account when deciding how to adjust portfolio risk.⁷⁹ What has been more intriguing is the widespread use of VaR. In particular, VaR has been incorporated into some of the financial industry’s core

75. See GLYN A. HOLTON, VALUE-AT-RISK—THEORY AND PRACTICE 19 (2003) (noting that VaR is “not quite a household word, but is familiar to most financial professionals”); INT’L MONETARY FUND, FINANCIAL MARKET TURBULENCE—CAUSES, CONSEQUENCES, AND POLICIES 54 (2007) [hereinafter IMF, TURBULENCE], available at <http://www.imf.org/External/Pubs/FT/GFSR/2007/02/pdf/text.pdf> (stating that VaR is “the primary quantitative measure of market risk within most financial institutions”); Markus Leippold, *Don’t Rely on VaR*, EUROMONEY, Nov. 2004, at FA2, FA2 (stating that the “buzz phrase” in the financial industry is VaR).

76. See IMF, TURBULENCE, *supra* note 75, at 54.

77. See HOLTON, *supra* note 75, at 18-19. VaR was developed by J.P. Morgan in the 1980s before being made public (under the RiskMetrics brand name) at no charge in 1994. See KEVIN DOWD, BEYOND VALUE AT RISK: THE NEW SCIENCE OF RISK MANAGEMENT 18 (1998); Till Guldemann, *The Story of RiskMetrics*, RISK, Jan. 2000, at 56, 58. Within six years after it was released, over 100,000 physical copies of J.P. Morgan’s technical manual had been distributed, and over 1,000 online copies were being downloaded every month. See JORGE MINA & JERRY YI XIAO, RETURN TO RISKMETRICS: THE EVOLUTION OF A STANDARD I (2001), available at <http://www.dofin.ase.ro/acodirlasu/lect/riskmgdofin/rrmfinal.pdf>. By 2001, over 5,000 firms around the world had adopted RiskMetrics’ version of VaR as a standard measure of market risk. See Henry T.C. Hu, *The New Portfolio Society, SEC Mutual Fund Disclosure, and the Public Corporation Model*, 60 BUS. L. 1303, 1346 (2005).

78. VaR estimates the maximum potential loss a portfolio can suffer over x period of time at y probability (“confidence level”) under normal circumstances. See DOWD, *supra* note 77, at 38-39. It does not, however, predict the magnitude of losses during the remaining period (the “tail” of the distribution), which may be considerable. See Jeremy Berkowitz & James O’Brien, *How Accurate Are Value-at-Risk Models at Commercial Banks?* 4-5 (Fed. Reserve Bd., Div. Res. & Stat. & Monetary Aff., Fin. & Econ. Disc. Ser. No. 2001-31, July 2001); Darryll Hendricks, *Evaluation of Value-at-Risk Models Using Historical Data*, FRBNY ECON. POL’Y REV., Apr. 1996, at 39, 51-53; see also Roger Lowenstein, *Long-Term Capital: It’s a Short-Term Memory*, N.Y. TIMES, Sept. 7, 2008, at BU1. As a result, two portfolios can have similar VaRs, even though one, for example, is projected to lose up to \$4 million during the remaining period (the tail) and the other could lose up to \$40 million (or greater) during the same period. See Jón Danielsson, *The Emperor Has No Clothes: Limits to Risk Modelling*, 26 J. BANKING & FIN. 1272, 1289-90 (2002); Darrell Duffie & Jun Pan, *An Overview of Value at Risk*, 4 J. DERIVATIVES 7, 11-13 (1997); Leippold, *supra* note 75, at FA2-FA3.

79. See Michael C. Macchiarola, *Beware of Risk Everywhere: An Important Lesson from the Current Credit Crisis*, 5 HASTINGS BUS. L.J. 267, 286 (2009).

risk management regulations, reflecting its position as an industry best practice.⁸⁰ For example, it has been used, according to regulation, to calculate bank capital requirements, as well as, in the United States, to calculate the capital requirements of some of the world's largest securities firms⁸¹ and over-the-counter derivatives dealers.⁸²

A key function of regulation is promoting coordination. Bank capital regulation, for example, requires that a bank maintain a minimum capital level—focusing on each bank individually but, in aggregate, reinforcing the stability of the entire banking industry.⁸³ The Basel Capital Accord (the “Accord”), first adopted in 1988, called for regulators to impose a minimum capital level on internationally active banks pegged at eight percent of risk-weighted assets.⁸⁴

80. See Jón Daniélfsson et al., *Incentives for Effective Risk Management*, 26 J. BANKING & FIN. 1407, 1408-09 (2002); Jón Daniélfsson & Jean-Pierre Zigrand, *Equilibrium Asset Pricing with Systemic Risk*, 35 ECON. THEORY 293, 294 (2008) (noting that statistical risk models used to determine bank capital and risk are the “cornerstone” of financial regulation).

81. Securities firms that were part of a group whose holding company managed risk on a group-wide basis, and which consented to group-wide SEC supervision, were eligible to compute capital charges using an alternative formula that incorporates VaR. See Net Capital Requirements for Brokers or Dealers, Rules 15c3-1(a)(7), 15c3-1e(d), 17 C.F.R. §§ 240.15c3-1(a)(7), 240.15c3-1e(d) (2011). The five firms that adopted the alternative calculation (Bear Stearns, Goldman Sachs, Lehman Brothers, Merrill Lynch, and Morgan Stanley) are no longer independent companies or have become bank holding companies subject to Federal Reserve oversight. See John C. Coffee, Jr., *Analyzing the Credit Crisis: Was the SEC Missing in Action?*, N.Y. L.J. (Dec. 5, 2008), <http://www.law.com/jsp/cf/PubArticleCC.jsp?id=1202426495544>. All five of their successors, however, continue to rely on Rule 15c3-1e to compute regulatory capital for SEC purposes. See, e.g., JPMorgan Chase & Co., Quarterly Report (Form 10-Q) for the Period Ended June 30, 2010, at 63 (Aug. 6, 2010) (after acquiring Bear Stearns); The Goldman Sachs Group, Inc., Quarterly Report (Form 10-Q) for the Period Ended Mar. 31, 2010, at 73 (May 10, 2010); Merrill Lynch & Co., Inc., Quarterly Report (Form 10-Q) for the Period Ended June 30, 2010, at 77 (Aug. 6, 2010) (after being acquired by Bank of America); Morgan Stanley, Quarterly Report (Form 10-Q) for the Period Ended Mar. 31, 2010, at 64 (May 8, 2010). Lehman Brothers was acquired by Barclays Capital, a non-U.S. financial services firm, which obtained temporary relief from the SEC to continue to calculate capital charges pursuant to Rule 15c3-1e for the Lehman Brothers positions it purchased. See Order Granting Temporary, Conditional Relief from the Net Capital Rule for Barclays Capital, Inc., Securities Exchange Act of 1934, Release No. 58612, 94 SEC Docket 503 (Sept. 22, 2008), available at <http://www.sec.gov/rules/other/2008/34-58612.pdf>.

82. See Net Capital Requirements for Brokers or Dealers, Rule 15c3-1f(e), 17 C.F.R. § 240.15c3-1f(e) (2011); see also OTC Derivatives Dealers, Exchange Act Release No. 34-40594, 63 Fed. Reg. 59,362 (Oct. 23, 1998), available at <http://www.sec.gov/rules/final/34-40594.htm>.

83. See *supra* note 74 and accompanying text.

84. See Patricia A. McCoy, *Musings on the Seeming Inevitability of Global Convergence in Banking Law*, 7 CONN. INS. L.J. 433, 439 (2001). The Accord was adopted by the Basel Committee on Banking Supervision. The Basel Committee, established in 1975 by the central bank governors of the G10 countries under the auspices of the Bank for International Settlements, is comprised of central bankers and regulators from the world's principal financial markets. Its purpose is to foster international cooperation on supervisory standards, practices, and guidelines for banks. Committee decisions are made by consensus, and its pronouncements are non-binding on members. Nevertheless, the Basel Committee has strongly influenced the gradual convergence in global banking regulation and supervision. Chief among its successes has been the creation of uniform bank capital requirements, embodied (as amended from time to time) in the Basel Accord. See Whitehead, *supra* note 39, at 720-25. The Accord's evolving approach to managing risk is summarized in James Fanto, *Anticipating the Unthinkable: The Adequacy of Risk Management in Finance and Environmental Studies*, 44 WAKE FOREST L. REV. 731, 736-37 (2009).

Since capital is costly, setting a higher level in one country would have given banks in other countries a competitive advantage. Yet, permitting banks to compete, without restriction, would have depressed capital levels, increasing the risk of global financial distress. The Accord facilitated cooperation among competing jurisdictions—principally U.S., U.K., and Japanese regulators—by committing them to level the global playing field and helping minimize a potential race to the bottom.⁸⁵

The intersection between risk management and regulation, however, creates a paradox. A basic presumption underlying much of financial risk management is that we live in a world of rational individuals, each separately seeking to maximize her own wealth.⁸⁶ A risk manager is understood to seek strategies that minimize her portfolio's riskiness, but does so without affecting market prices or the value of others' holdings.⁸⁷ Both concepts presume that financial actors buy and sell financial assets independently—a bedrock premise of many of the tools used to manage financial risk.⁸⁸ In the same way, financial risk management presumes “randomness”—that changes in a security's price, whether up or down, are unrelated to prior or subsequent changes or to changes in the prices of other securities.⁸⁹ Asset prices follow a “random walk” that cannot be individually predicted. In aggregate, however, those changes in price form a normal distribution, against which portfolio managers can gauge the impact of market change on a portfolio's profitability.⁹⁰

85. See Enrico Colombatto & Jonathan R. Macey, *A Public Choice Model of International Economic Cooperation and the Decline of the Nation State*, 18 *CARDOZO L. REV.* 925, 935-44 (1996); Stavros Gadinis, *The Politics of Competition in International Financial Regulation*, 49 *HARV. INT'L L.J.* 447, 502-03 (2008); Richard H. McAdams, *Beyond the Prisoners' Dilemma: Coordination, Game Theory, and Law*, 82 *S. CAL. L. REV.* 209, 238-39 (2009); Whitehead, *supra* note 39, at 720-25. The conflict that existed among national regulators and between regulators and banks is summarized in ETHAN B. KAPSTEIN, *GOVERNING THE GLOBAL ECONOMY* 113-28 (1994).

86. Recall Adam Smith's well-known description:

[Every individual] generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. By preferring the support of domestic to that of foreign industry, he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention.

ADAM SMITH, *AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS* 194 (Edwin Cannan ed., Random House, Inc. 1937) (1776).

87. See Danfellsen, *supra* note 78, at 1274.

88. For a more detailed description of VaR, and its presumption of independence, see Whitehead, *supra* note 21, at 340, 362-64.

89. See Peter H. Huang, *Securities Price Risks and Financial Derivative Markets*, 21 *NW. J. INT'L L. & BUS.* 589, 590-91 (2001). VaR, for example, assumes that day-to-day fluctuations in returns are random. See LINDA ALLEN ET AL., *UNDERSTANDING MARKET, CREDIT, AND OPERATIONAL RISK—THE VALUE AT RISK APPROACH* 8-9 (2004).

90. See M.G. BULMER, *PRINCIPLES OF STATISTICS* 115-16 (1979); FRANK H. KNIGHT, *RISK, UNCERTAINTY AND PROFIT* 236, 241 (1921).

The concern is that, by standardizing how each trader's portfolio is measured, different traders may now respond to the same event in a similar way. Each of them may rely on VaR-based calculations to adjust their risk by selling assets, causing a drop in asset prices, prompting further sales, and so forth. In other words, imposing the same requirements on each individual firm may result in greater uniformity of action—with firms increasingly acting in unison and, in turn, influencing asset prices and the trading activities of others. The result can be a cascading decline in value, with greater coordination—driven by financial regulation—impairing each firm's ability to manage risk exposure on its own.⁹¹ In short, although regulation can help reduce systemic risk, it *itself* can become a systemic risk through its ability to increase coordination and reinforce drops in the financial markets. Thus, during the recent financial crisis, as the subprime markets soured, many traders appeared to react to the downturn in much the same way—revaluing their portfolios and then selling assets into a falling market. No doubt, some portion of the activity reflected market-wide concern over pricing and the fear of holding a dwindling asset. Some portion, however, may have also reflected similar risk management strategies and models, prompted by regulatory requirements that encouraged the adoption of the same risk management tools.⁹² The result of that widespread use may have been an increase in the severity of the market downturn, with the decline in asset prices in 2007 likely affected by investors who chose to unwind their positions at the same time.⁹³

The key takeaway is that systemic risk—beyond the definition appearing at the beginning of this Article—is not necessarily tied to entities that are too big or too interconnected. The risks can be more dispersed, in particular where otherwise independent firms begin to act in unison. During the recent financial crisis, that appears to have been reinforced by VaR's incorporation into financial regulation. No one firm affected asset prices but, collectively, they increased the systemic consequences of a downturn in the financial markets. In effect, greater

91. See Whitehead, *supra* note 21, at 347-50.

92. In that respect, the adoption of similar risk management tools may reinforce a tendency among independent managers to herd. A manager, for example, may be unwilling to ignore a rise in VaR if she believes others, using the same risk measure, have adjusted their portfolios in response. See Avinash Persaud, *Sending the Herd Off the Cliff Edge: The Disturbing Interaction Between Herding and Market-Sensitive Risk Management Practices*, 2 J. RISK FIN. 59, 61-63 (2000); David S. Scharfstein & Jeremy C. Stein, *Herd Behavior and Investment*, 80 AM. ECON. REV. 465, 465-66 (1990) (noting that “an unprofitable decision is not as bad for reputation when others make the same mistake”); see also IMF, *TURBULENCE*, *supra* note 75, at 71 (portfolio managers may adjust portfolios in light of greater volatility, rather than risk explaining to regulators why they exceeded their VaR limits). It may be particularly difficult for her to disregard a “risky” VaR, in light of its widespread use, even if she later becomes aware of new (or contradictory) information. See Chris Guthrie et al., *Inside the Judicial Mind*, 86 CORNELL L. REV. 777, 787-89 (2001). That tendency is reinforced by VaR models that react in the same way—evidencing greater risk—when there is a downturn in the market. See IMF, *TURBULENCE*, *supra* note 75, at 53; David E. Allen et al., *Modelling and Forecasting Dynamic VaR Thresholds for Risk Management and Regulation 2-5* (Sch. Acct., Fin. & Econ. & FIMARC Working Paper No. 0503, 2005), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=926270.

93. See Whitehead, *supra* note 21, at 352-53.

systemic regulation can have its own negative externalities, in this case, by triggering market-wide coordination that reinforced a downturn in the value of financial assets. What this suggests is that, as similar risks become dispersed across the marketplace, a focus on only individual entities can miss systemic problems that arise from market-wide decisions stemming, in this example, from a common response to a drop in price.⁹⁴

But should we be concerned? After all, the U.S. Government bailout of financial firms was of very large or interconnected entities and not smaller firms or those more closely tied to the capital markets, such as hedge funds. Thus, notwithstanding the shift toward the capital markets, perhaps a greater reliance on non-traditional firms poses lower levels of systemic risk.

That may be the case to the extent hedge funds can be ring-fenced from traditional intermediaries. Yet, if ring-fencing is ineffective, risk-taking by non-traditional firms may also affect the stability of banks and other traditional intermediaries. As described before, banks can now transfer credit risk to new market participants, and hedge funds can assist in managing it.⁹⁵ Thus, activities that were subject to close prudential regulation in banks are now subject to less extensive regulation in the hedge fund industry.⁹⁶

Some portion of a bank's exposure to a counterparty can be managed through the use of collateral. Nevertheless, as witnessed by AIG Financial Products, a reliance on collateral may not always be sufficient—and, in any event, it does not take account of the broader impact of a downturn in the hedge fund industry arising from risks taken on by the new risk managers.⁹⁷ The role of central clearing parties ("CCPs") may also help limit direct credit exposure. A standardized derivative trade between two parties could be cleared and settled through a CCP—in effect, making the CCP the middleman in the trade and minimizing credit exposure between the two of them.⁹⁸ A greater reliance on the capital markets, however, introduces new risks beyond direct credit exposure. Since risk can now be transferred, a more general freeze-up in the credit derivatives markets—unrelated to any one entity—may pass through to those intermediaries that rely on derivatives to outsource risk management.

Banks and hedge funds, therefore, are somewhat tied at the hip. Dislocation

94. Whitehead, *supra* note 21, at 346-52.

95. Bank-hedge fund relationships may become increasingly concentrated as hedge funds continue to restructure and consolidate. See MATTEO TONELLO & STEPHAN RABIMOV, THE 2010 INSTITUTIONAL INVESTMENT REPORT: TRENDS IN ASSET ALLOCATION AND PORTFOLIO COMPOSITION 49-50 (2010), available at <http://www.conferenceboard.ca/documents.aspx?did=3890> (describing losses and resulting consolidation in the hedge fund industry following the financial crisis).

96. See *supra* notes 45-54 and accompanying text.

97. See Sjostrom, *supra* note 4, at 952-61; Whitehead, *supra* note 2, at 23-24.

98. Each party transfers its CDS position to the CCP after a trade is agreed, potentially minimizing their counterparty credit exposure. Of course, CDS trades that continue to be handled directly will still be subject to the risk of counterparty default. See Darrell Duffie & Haoxiang Zhu, *Does a Central Clearing Counterparty Reduce Counterparty Risk?*, 1 REV. ASSET PRICING STUD. 95, 95-96 (2011).

in one industry may create problems in the other,⁹⁹ with aggregate bank returns to date appearing to have had a more significant impact on hedge funds than vice versa.¹⁰⁰ Part of the reason may have been due to banks engaging in proprietary trading that competed with hedge funds.¹⁰¹ Another part may have resulted from banks providing fee-based services to hedge funds that declined when the hedge fund industry slowed.¹⁰² The ability of banks to transfer credit risk to hedge fund managers may provide a third link. Doing so has enabled banks to pursue a traditional bank function—namely, the extension of loans—at lower cost.¹⁰³ Yet, by relying on CDS, a downturn in the hedge fund industry may now affect the ability of banks to continue to do so or to do so at the same cost.

There is, in fact, a real risk of an industry-wide slowdown among hedge funds. Recent evidence suggests that, under some circumstances, hedge funds may perform in the same way, irrespective of their management styles, causing an overall decline in hedge fund performance at the same time. Specifically, if there is a reduction in funding—for example, due to creditors’ concerns over the value of assets that hedge funds post as collateral¹⁰⁴—managers may be forced to reduce leverage and, in turn, trade fewer assets, creating a decline in liquidity. That decline can cause funding to drop even further, prompting a downward spiral across the industry that affects most managers in the same way.¹⁰⁵

The concern over market-wide coordination extends beyond risk management tools. Standard-form contracts are widely used in the financial markets, like those created by the International Swaps and Derivatives Association (“ISDA”).¹⁰⁶ All parties can benefit from standardization, since regularity in contracting lowers the costs of repeated trades.¹⁰⁷ Network externalities also flow from common use, reducing uncertainty over meaning and

99. See Nicholas Chan et al., *Systemic Risk and Hedge Funds*, in *THE RISKS OF FINANCIAL INSTITUTIONS* 235, 318, 326 (Mark Steven Carey & René M. Stulz eds., 2007).

100. See Monica Billio et al., *Econometric Measures of Systemic Risk in the Finance and Insurance Sectors* 3 (Nat’l Bureau of Econ. Res., Working Paper No. 16223, 2011), available at http://www.stern.nyu.edu/cons/groups/content/@wcm/@stern.nyu.edu/@faculty-research/@volatility/documents/webasset/con_030991.pdf (noting that financial innovation, like securitization, and the emergence of new business relationships between banks and hedge funds have resulted in a closer interrelationship between them).

101. See Chan et al., *supra* note 99, at 90; Billio et al., *supra* note 100, at 3.

102. See Chan et al., *supra* note 99, at 90.

103. See *supra* note 49 and accompanying text.

104. See Garbaravicius & Dierick, *supra* note 54, at 43-45 (noting that hedge funds, due to high levels of leverage, can quickly suffer significant losses, resulting in the forced liquidation of holdings).

105. See Nicole M. Boyson et al., *Hedge Fund Contagion and Liquidity Shocks*, 65 J. FIN. 1789, 1814-15 (2010).

106. See Stephen J. Choi & G. Mitu Gulati, *Contract as Statute*, 104 MICH. L. REV. 1129, 1140-41 (2006).

107. See Caroline Bradley, *Private International Law-Making for the Financial Markets*, 29 FORDHAM INT’L L.J. 127, 165-70 (2005); Sean M. Flanagan, *The Rise of a Trade Association: Group Interactions Within the International Swaps and Derivatives Association*, 6 HARV. NEGOT. L. REV. 211, 232-33, 236-37 (2001); David G. Oedel, *Private Interbank Discipline*, 16 HARV. J.L. & PUB. POL’Y 327, 391-94 (1993).

how terms are to be implemented.¹⁰⁸ ISDA's Credit Support Annex ("CSA") is one example.¹⁰⁹ The CSA defines the credit support obligations of derivatives counterparties who agree to be bound by its terms.¹¹⁰ Although the CSA can be amended, there is an overall bias in favor of adopting the default standard, in part because it reflects a market-wide consensus that is preferable to negotiating *ad hoc* provisions.

CDS typically rely on ISDA documents, including the CSA.¹¹¹ As it has for swaps generally, the use of standard language has reduced transaction costs and expanded the scope of the CDS market.¹¹² Likewise, the CSA has lowered the cost to swaps dealers of entering into contracts with new counterparties. In 1994, when the CSA was introduced, the principal swaps dealers managed approximately \$4.7 billion in collateral.¹¹³ Privately-negotiated support arrangements involved significant time and expense to structure and negotiate.¹¹⁴ Consequently, the major swaps dealers concentrated their business on firms that had investment-grade credit ratings.¹¹⁵ The CSA helped streamline the credit process. At the end of 2008, collateral deposited under CSAs totaled about \$4 trillion, an 850-fold increase over 1994—with approximately sixty-five percent of all derivatives being subject to CSAs or other collateral arrangements.¹¹⁶ Approximately fifty percent of CSAs are entered into with hedge funds and institutional investors, followed by corporations, banks, and others.¹¹⁷

Under a CSA, CDS sellers are required to post collateral based on their prospective payment obligations. For hedge funds, as pledgors, the typical requirement is that collateral be posted for 100 percent of their potential obligation. In some cases, additional collateral may be required as a buffer against the risk of future default.¹¹⁸ A rise in the cost of CDS, above the seller's

108. See Michael Klausner, *Corporations, Corporate Law, and Networks of Contracts*, 81 VA. L. REV. 757, 761, 774-75 (1995).

109. See ISDA, CREDIT SUPPORT ANNEX (1994) [hereinafter CSA] (subject to New York law).

110. See ISDA, USER'S GUIDE TO THE 1994 ISDA CREDIT SUPPORT ANNEX 1 (1994).

111. See BARCLAYS CAPITAL, COUNTERPARTY RISK IN CREDIT MARKETS 3 (2008), available at <http://www.noelwatson.com/blog/content/binary/BarCapCounterparty.pdf>.

112. See Partnoy & Skeel, *supra* note 4, at 1025-26.

113. See U.S. GEN. ACCOUNTING OFFICE, GAO/GGD 94-133, FINANCIAL DERIVATIVES—ACTIONS NEEDED TO PROTECT THE FINANCIAL SYSTEM 156 (1994).

114. See Nina Hval, *Credit Risk Reduction in the International Over-the-Counter Derivatives Market: Collateralizing the Net Exposure with Support Agreements*, 31 INT'L LAW. 801, 809 (1997).

115. Roberta Romano, *A Thumbnail Sketch of Derivative Securities and Their Regulation*, 55 MD. L. REV. 1, 51 (1996).

116. ISDA MARGIN SURVEY 2009 3, 7 (2009), available at http://www.isda.org/c_and_a/pdf/ISDA-Margin-Survey-2009.pdf.

117. *Id.* at 8.

118. The CSA requires the party with a swap payment obligation (the "pledgor") to transfer collateral to the counterparty with the net credit exposure (the "secured party") in order to minimize credit risk. Mechanically, the secured party must calculate the amount it is entitled to receive and then notify the pledgor by a pre-agreed time. The pledgor must then post the collateral with (or for the account of) the secured party by the

premium, often indicates a greater probability that a credit event will occur, requiring the seller to post additional collateral.¹¹⁹ CDS costs surged following Lehman Brothers' collapse in September 2008, reflecting market-wide concern over the stability of other firms.¹²⁰ The result was a significant increase in the amount of collateral required to be posted. Within a single day, pursuant to the CSA, CDS sellers (many of them hedge funds) were required to post a total of \$140 billion in new collateral. To raise money, they sold other assets, contributing to a substantial decline in securities prices around the world.¹²¹ Like VaR-based regulation, the use of the CSA promoted uniformity in the derivatives markets, causing CDS sellers to react to the increase in CDS prices in the same way and at the same time, driving prices lower and, in turn, requiring additional sales in order to raise further funds.

The VaR and CSA examples suggest the need for a different approach to financial regulation, beyond focusing on individual firms. New rules that address market-wide risks—such as those resulting from greater uniformity—can help fill gaps in today's regulatory framework. Failing to do so can result in negative externalities, reinforcing downturns in the financial markets. Thus, new regulation requires a system-wide perspective, taking account of dispersed risks that can still affect the marketplace generally.

V. STATIC MODELS, FLUID MARKETS

The Dodd-Frank Act prohibits any bank or bank affiliate from engaging in proprietary trading or investing in or sponsoring a hedge fund or private equity fund, subject to certain exceptions.¹²² It also provides for additional capital requirements, quantitative limits, and other restrictions to be imposed on systemically important nonbank financial firms, supervised by the Federal

close of business on the next business day. See CSA, *supra* note 109, at paras. 3, 4(a)(4)(B)-(C), 11(c)(iii); see also Christian A. Johnson, *Derivatives and Rehypothecation Failure: It's 3:00 p.m., Do You Know Where Your Collateral Is?*, 39 ARIZ. L. REV. 949, 957-58 (1997).

119. Sjostrom, *supra* note 4, at 951.

120. *Causes and Effects of the Lehman Brothers Bankruptcy: Hearing Before the H. Comm. on Oversight & Gov't Reform*, 110th Cong. 13-14 (Oct. 6, 2008) (statement of Professor Luigi Zingales, University of Chicago Graduate School of Business), available at http://faculty.chicagobooth.edu/luigi.zingales/research/papers/zingales_long.pdf.

121. See Carrick Mollenkamp et al., *Lehman's Demise Triggered Cash Crunch Around Globe*, WALL ST. J., Sept. 29, 2008, at A1.

122. The Volcker Rule defines a "hedge fund" and a "private equity fund" broadly to be any entity that would be an investment company, as defined in the Investment Company Act of 1940, but for section 3(c)(1) or 3(c)(7) of that Act, or any similar funds as the appropriate federal banking agencies, the SEC, or the CFTC may, by rule, determine what should be treated as a hedge fund or private equity fund. Dodd-Frank Act § 619 (amending the BHCA by adding §13(h)(2)). The limitation on investing in or sponsoring a hedge fund or private equity fund has three principal purposes: to ensure banking entities cannot circumvent the Volcker Rule, to confine private fund activities to customer-related services, and to eliminate incentives for banks to bail out funds they sponsor or in which they have significantly invested. See FSOC STUDY, *supra* note 63, at 56.

Reserve, that engage in such activities.¹²³ The prohibition—known as the “Volcker Rule”—reflects the populist view that, during the period leading up to the financial crisis, proprietary trading distracted banks from their obligations to clients, as well as from their core function of providing long-term credit to families and businesses.¹²⁴ The Volcker Rule, in effect, was motivated by a desire to force banks to return to a traditional banking model—to create a static regulatory divide between commercial and investment banking, thereby insulating traditional bank functions, such as taking deposits and making loans, from proprietary trading.¹²⁵

To provide greater definition, the FSOC was directed to undertake a study of the Volcker Rule, including recommendations regarding its implementation (the “FSOC Study”).¹²⁶ The FSOC Study was published on January 18, 2011,¹²⁷ and implementing regulations were first released for comment on October 11, 2011.¹²⁸ A key feature of the proposal is defining “proprietary trading.”¹²⁹ The proposed regulations generally parallel the Dodd-Frank Act, which adopted a sweeping definition—where a bank engages as principal for a “trading account . . . in any transaction to purchase or sell, or otherwise acquire or dispose of, any security, any derivative, any contract of sale of a commodity for future delivery, . . . any option on [any of the foregoing], or any other security or financial instrument” as determined by the appropriate federal regulator.¹³⁰ “Trading account,” in turn, is defined as “any account used for acquiring or taking positions in securities and [financial] instruments . . . for the purpose of selling in the near term (or

123. See *supra* notes 27-30 and accompanying text.

124. See DAVID SKEEL, *THE NEW FINANCIAL DEAL* 86-87 (2011) (noting that, due to changes in market practices and technology, proprietary trading has become crucial to investment banking). Investment banking revenues had moved away from traditional underwriting and were increasingly tied to trading and principal investments. See FIN. CRISIS INQUIRY COMM’N, *FINAL REPORT OF THE NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES* 65-66 (2011), available at <http://www.gpoaccess.gov/fcic/fcic.pdf>.

125. See Charles K. Whitehead, *The Volcker Rule and Evolving Financial Markets*, 1 HARV. BUS. L. REV. 39, 42-43 (2011).

126. Dodd-Frank Act § 619 (amending the BHCA by adding § 13(b)(1)); see also FSOC Study, *supra* note 63, at 8-9 (describing the statutory mandate and objectives of the FSOC Study).

127. The full text of the FSOC Study can be found at the hyperlink *supra* note 63.

128. See Prohibitions and Restrictions on Proprietary Trading and Certain Interests in, and Relationships with, Hedge Funds and Private Equity Funds, Release No. 34-65545, 76 Fed. Reg. 68,846 (proposed Nov. 7, 2011) [hereinafter Proposed Volcker Regulations], available at <http://www.gpo.gov/fdsys/pkg/FR-2011-11-07/pdf/2011-27184.pdf>.

129. See Matthew Richardson et al., *Large Banks and the Volcker Rule*, in *REGULATING WALL STREET: THE DODD-FRANK ACT AND THE NEW ARCHITECTURE OF GLOBAL FINANCE* 181, 201-04 (Thomas F. Cooley et al. eds., 2011) (noting that a number of normal banking activities involve banks trading for their own account, even though the activities are ultimately intended to meet client needs).

130. Dodd-Frank Act § 619 (amending the BHCA by adding § 13(h)(4)); see Proposed Volcker Regulations, *supra* note 128, at 68,848.

otherwise with the intent to resell in order to profit from short-term price movements)” and other accounts the regulators may identify.¹³¹

As noted before, in light of the Volcker Rule’s breadth, much of proprietary trading has begun to move from banks to less-regulated businesses—in many cases, to hedge funds. Risk-bearing by hedge funds can be mitigated if traders become subject to a market discipline that takes account of the full cost of their activities. The financial markets, however, are unlikely to do so, focusing on investor returns rather than on the broader consequences of hedge fund failure. Hedge funds, therefore, are likely to incur greater risk than their bank counterparts.¹³²

Simply ring-fencing hedge funds may be difficult.¹³³ Although direct counterparty exposure can be limited if standardized swaps are centrally cleared, doing so does not address the impact on banks if hedge funds, as a group, are unable to manage bank-originated risk or can do so only at higher cost. The result can be a drop in available credit if banks, no longer able to rely on hedge funds, must limit the amount of new loans they can extend.¹³⁴

Consequently, even if proprietary trading is no longer located *in* banks, it may still be conducted by less-regulated entities that *affect* banks and, more importantly, the traditional bank functions the Volcker Rule is intended to insulate. Worse still, it may have the unintended consequence of causing hedge funds to increase risk-taking at a time when banks have come to rely on them to help manage credit exposure. No doubt, some portion of the shift away from traditional intermediaries has simply reflected differences in regulation—a regulatory arbitrage, as new products and services are created in order to minimize cost.¹³⁵ Yet, arbitrage alone does not fully explain the shift. Many less-regulated firms are able to manage risk more efficiently than traditional intermediaries, providing a lower-cost alternative.¹³⁶ The Volcker Rule, therefore, fails to fully take account of change—and the trajectory of change—in the financial markets. To be effective, new financial regulation must reflect new relationships in the marketplace. For the Volcker Rule, those relationships include a growing reliance by banks on new market participants to conduct traditional bank functions.

131. Dodd-Frank Act § 619 (amending the BHCA by adding § 13(h)(6)); see Proposed Volcker Regulations, *supra* note 128, at 68,848.

132. See *supra* notes 64-65 and accompanying text.

133. See *supra* notes 95-97 and accompanying text.

134. See *supra* notes 98-103 and accompanying text.

135. See Partnoy, *supra* note 69 and accompanying text.

136. See Peter A. Diamond, *The Role of a Stock Market in a General Equilibrium Model with Technological Uncertainty*, 57 AM. ECON. REV. 759, 770 (1967) (noting that market mechanisms, because of uncertainty and the possibility for rapid change, are more well-suited to efficiently allocate resources than nonmarket mechanisms); Gilson & Whitehead, *supra* note 5, at 243-47 (describing the capital markets’ response to increasing demand for risk mitigation instruments).

VI. A FLEXIBLE RESPONSE

Evolution of the financial markets has been driven, in part, by regulatory arbitrage and, in part, by lower-cost means of providing similar products and services. Some portion of the change was reflected in the new regulation, principally in areas that received significant public attention during the financial crisis. The Dodd-Frank Act, for example, looks to level the playing field among market participants and impose new regulation on new instruments, such as CDS, that lower the cost of traditional risk management. In the process, the Dodd-Frank Act has also introduced new costs to the financial system, most likely prompting new arbitrage opportunities. In addition, there continue to be market incentives for traditional functions to move from intermediaries to the capital markets. The result may be the transfer of risk from a banking industry subject to close, prudential supervision to an industry that is more loosely regulated and, potentially, will assume more risk than is socially optimal.

The Dodd-Frank Act, therefore, fails to fully regulate new products and services and, in some cases, it may even act as a catalyst for further change. That is unsurprising in a financial system that continues to evolve. Reflecting this likelihood, the Dodd-Frank Act leaves open to the FSOC the ability to regulate (or recommend the regulation of) new risks that the FSOC identifies.¹³⁷ Future FSOC deliberations, therefore, may include a more holistic approach to regulating the financial markets and, in the process, take into account shifts in capital-raising and risk-bearing. Reflecting those changes may, in turn, help set the stage for a more forward-looking approach to financial regulation, addressing “old” risks that arise in new situations and “new” risks that arise as financial instruments, participants, and markets continue to evolve. Stated differently, the financial markets have become more flexible, and so now may be the regulatory response.

Consistent with this flexibility, some politicians, regulators, and academics (most notably, Nobel laureate Robert Merton) have advocated a functional approach to regulation, in which equivalent functions are regulated in the same way, irrespective of the institutions performing them. Institutions change over time, they argue, but the core functions will stay the same.¹³⁸ There is certainly an appeal to regulating like functions in the same way. Among other benefits, doing so would ensure that financial supervision is comparable across the financial markets and that customers would receive equivalent protection, irrespective of the intermediary through which they invest. A function-only approach, however, is incomplete precisely because it fails to take account of differences in the

137. See *supra* note 28 and accompanying text.

138. See, e.g., Merton, *supra* note 45, at 21-27; Robert C. Merton, *Financial Innovation and the Management and Regulation of Financial Institutions*, 19 J. BANKING & FIN. 461, 466-70 (1995); Robert C. Merton & Zvi Bodie, *Design of Financial Systems: Towards a Synthesis of Function and Structure*, 3 J. INV. MGMT. 1, 13 (2005).

institutions performing them. Different structures, and varying agency and other costs, may make differences in regulation appropriate, even if the underlying functions are the same. Instead, regulators must begin to focus on the principal problems that regulation is intended to address, but considered in light of changes in the financial markets, the appearance of new market participants, and gaps in regulation the recent crisis has exposed.¹³⁹

Even then, if history is a guide, market participants will continue to change their behavior in response to new regulation. Efforts to simply freeze the division among financial intermediaries—such as the Volcker Rule—are likely to simply be outflanked, as evidenced by the inability of financial regulation to keep up with market change over the last thirty years. The likelihood of further change also reinforces the concern over the absence, so far, of an operational definition of systemic risk. At what point will new products or markets raise systemic concerns? Providing guidance in advance will be necessary in order to avoid inconsistent or ambiguous regulation that, if not sensitive to change in the financial markets, may increase the impact of a downturn. Worse still, uncertainty—by not cabinining the definition of “systemic risk” and leaving open the possibility of further regulation—may increase marketplace instability during downturns at a time when participants are particularly concerned over government intervention.

What this suggests is that flexible regulation can be an important response to market change, but it must be balanced by clear guidance regarding future action—in particular, an indication of when regulators and new regulation will enter the marketplace. For market participants, some comfort can be taken from the extraordinary vote required for further FSOC action. It may, however, also be accomplished through the FSOC itself—by providing formal “rules of the road” which regulator and market participants can rely on in planning for the future. The FSOC has provided some guidance by setting out the procedures through which a systemic event can be identified.¹⁴⁰ Further guidance on the definition of systemic risk itself would be similarly beneficial.

VII. CONCLUSION

This Article assessed financial regulation against change in the financial markets, relying on three examples. The first focused on change in the lines that divide financial intermediaries and other market participants. Nonbanks can now perform bank-like functions, introducing new risks to the financial system that

139. See CONG. OVERSIGHT PANEL, SPECIAL REPORT ON REGULATORY REFORM 29 (Jan. 2009), available at <http://www.un.org/ga/president/63/commission/regulatoryreform.pdf> (noting that “[f]unctional regulation can mean applying the same principles and not necessarily producing identical regulatory outcomes”).

140. FSOC Nonbank Supervision Authority, *supra* note 27, at 64,268-70.

are not directly addressed by the Dodd-Frank Act. The second considered the shift from intermediaries to markets, and the potential effect of new regulation and market standards on coordination. Greater uniformity among market participants can increase the cascade effect of a downturn in asset prices. The last example addressed new regulation that imposes a static divide between banking and proprietary trading. Removing risky activities from banks may result in their transfer to less-regulated firms that, in light of change in the financial markets, will continue to have an effect on traditional bank functions.

The examples illustrate the difficulty of regulating a changing financial system. New regulation is likely to prompt further change in market activities, requiring a more flexible approach to oversight that permits financial regulators to respond over time. The Dodd-Frank Act provides a process for the FSOC to coordinate that change. Nevertheless, too much flexibility may increase uncertainty in the marketplace, resulting in greater instability during times when the financial markets become troubled. The FSOC's greatest challenge, therefore, may be to balance the need for a flexible approach to regulation against the market's interest in greater certainty. As a first step, the FSOC needs to consider an operational definition of systemic risk that takes into account change in the financial markets. How that is accomplished is likely to be a cornerstone of any new effort to regulate the financial system prospectively.