

THINGS FALL APART: REGULATING THE CREDIT DEFAULT SWAP COMMONS†

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Financial markets are an important national and international infrastructure resource that reflect attributes similar to the those that characterize commons, as described in property law literature. Through a case study examining the credit default swap market, this Article illustrates the analogy between financial markets and a traditional commons. After exploring the attributes of a commons, this Article examines the costs and benefits of the credit default swap market. Similar to a traditional commons, tragedy in financial markets occurs when market participants capture benefits while imposing the costs or negative externalities from their activities on other members of society. Commons scholars' empirical research suggests three traditional approaches to tragedy in a commons—deregulation, privatization, and regulation by a central, external authority.

† Chinua Achebe's 1958 novel *THINGS FALL APART*, which attributes its title to William B. Yeats' poem *The Second Coming*, was the inspiration for the title of this Article. CHINUA ACHEBE, *THINGS FALL APART* xii (1958). Achebe weaves the tale of an affluent, athletic, and arrogant protagonist—Okonkwo—who suffers a sudden reversal of fortune. Okonkwo's physical strength as a formidable wrestler of men and nature is juxtaposed with his character foibles, hubris being chief among them. According to his prudent, hard-working neighbors, Okonkwo "had no respect for the gods . . . his good fortune had gone to his head." *Id.* at 26. Superior physical strength, Okonkwo learns, offers little assurance of victory when men wrestle with gods. The story parallels the attitudes and actions of many market participants leading up to the recent financial crisis.

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This Article argues that the adoption of an alternative regulatory model—a community governance model—offers a better approach to regulation in the credit default swap market. Pursuant to the institutional design principles of the community governance model, this Article proposes the creation of a federally registered self-regulatory organization (“SRO”). Finally, this Article examines the reforms recently adopted in the Dodd-Frank Act. While significantly enhancing transparency and reducing operational, counterparty, and credit risks, the highly-anticipated reform fall short of its promise. A better governance model would introduce agile, comprehensive institutional reforms that enable rather than restrict regulators and would create an SRO exercising regulatory authority to adapt rapidly to address known and emerging risks in the credit default swap market.

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INTRODUCTION

In the wake of the recent financial crisis, many commentators, regulators, and scholars describe credit default swap agreements as devilish innovations, weapons of mass destruction, a tsunami, or simply evil.¹ Credit default swaps are

1. *The Financial Crisis and the Role of Federal Regulators: Hearing Before the H. Comm. on Oversight and Gov't Reform*, 110th Cong. 15 (2008) (written testimony of Alan Greenspan, former Chairman, Federal Reserve Board) [hereinafter Greenspan testimony] (“We are in the midst of a once-in-a-century credit tsunami.”); Warren E. Buffett, Chairman, *Chairman’s Letter*, in BERKSHIRE HATHAWAY INC. 2002 ANNUAL REPORT 3, 15 (2003), available at <http://www.berkshirehathaway.com/2002ar/2002ar.pdf> (describing derivatives in

agreements that, in simplest terms, offer insurance-like protection against the risk of a debtor's default on debt obligations.² Credit default swaps captured the national spotlight following their role in the largest bankruptcy in the history of the United States.³ On September 14, 2008, with an operating history that spanned more than one hundred and fifty years,⁴ Lehman Brothers Holdings, Inc. ("Lehman Brothers") declared bankruptcy.⁵ At the time it filed for bankruptcy protection under Chapter 11,⁶ Lehman Brothers was one of the largest investment banks in the United States and a significant global financial institution.⁷

In the months leading to its bankruptcy filing, Lehman experienced unprecedented losses related to mortgage-backed securities involving subprime residential mortgages.⁸ During the same period, the activity in the credit default swap market reflected suspicions that trouble was brewing at Lehman Brothers and several of the oldest, largest, and most prestigious financial services firms in the country.⁹

Price movements in the credit default swap market signaled market participants' perception that financial institutions with significant investments in the subprime mortgage market or related markets faced devastating, unprecedented losses.¹⁰ The price of credit default swap protection that refer-

2002 as "financial weapons of mass destruction" that present latent but "potentially lethal" dangers); Stephen J. Nelson, *The Evil Credit Default Swaps*, TRADERS MAG. ONLINE NEWS (Oct. 30, 2008), <http://www.tradersmagazine.com/news/102360-1.html> (describing credit default swaps as "evil").

2. See *infra* Part II.A.

3. See *infra* Part II.A.

4. Joe Nocera, *On Wall Street as on Main Street, a Problem of Denial*, N.Y. TIMES, Sept. 16, 2008, at A25.

5. Andrew Ross Sorkin, *Bids to Halt Financial Crisis Reshape Landscape of Wall St.*, N.Y. TIMES, Sept. 15, 2008 [hereinafter Sorkin, *Bids to Halt Financial Crisis*]. Lehman Brothers, the fourth-largest investment bank in the United States, filed for bankruptcy in the United States Bankruptcy Court for the Southern District of New York, in the largest Chapter 11 case in history. Lehman Brothers' filing noted that the firm had, at the time of its filing, debts in the amount of approximately \$613 billion. Voluntary Petition, *In re Lehman Bros. Holdings Inc.*, No. 08-13555 (Bankr. S.D.N.Y. Sept. 14, 2008); Sorkin, *Bids to Halt Financial Crisis*, *supra*.

6. 11 U.S.C. §§ 1101–1174 (2010).

7. Sorkin, *Bids to Halt Financial Crisis*, *supra* note 5.

8. Peter Robison & Yalman Onaran, *Fuld's Subprime Bets Fueled Profit, Undermined Lehman*, BLOOMBERG (Sept. 15, 2008), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aiETiKXNbDVE>.

9. Mark Flannery et al., *Credit Default Swap Spreads as Viable Substitutes for Credit Ratings*, 158 U. PA. L. REV. 2085, 2098–102 (2010).

10. *Id.*

enced Lehman Brothers' ability to satisfy its debt obligations increased because market participants anticipated that Lehman Brothers' exposure to the subprime mortgage market would lead the company to default on its debt obligations and file for Chapter 11 protection.¹¹

Similarly, trading activity in the credit default swap market foreshadowed American International Group's ("AIG") near collapse.¹² Within days of Lehman Brothers' bankruptcy filing, AIG teetered on the brink of bankruptcy, intensifying national interest in these previously obscure, exotic financial instruments—credit default swaps.¹³

Subsequent investigations revealed that Lehman Brothers and AIG both faced massive losses as a result of the investments in the mortgage-backed securities market and the credit derivatives market.¹⁴ Both firms faced a similar deterioration of credit quality coupled with a contemporaneous "run on the firm" sparked by investors' loss of confidence.¹⁵ Trading in the

11. *See id.* at 2101, 2103–04 ("Lehman Brothers (which many market participants perceived as the most likely to fail next) had a fifty-six-basis-point increase in its CDS spread."). In a recent study, Professors Flannery, Onaran, and Partnoy examine the relationship between the rise in demand and the related increase in prices for credit default swaps. *Id.* at 2089–111. Professors Flannery, Onaran, and Partnoy contend that, during the period of 2006–2009, a period described in this Article as the "recent financial crisis," prices increased for credit default swap agreements that offered protection against the risk that debtors with exposure to the subprime mortgage market would default on their debt obligations. *Id.* at 2101–02. The increased prices signaled market participants' anticipation that financial institutions with significant investments in the subprime mortgage market would suffer large losses on these investments. *Id.* For example, in describing the price movement for credit default swap protection for one debtor, New Century Financial, the authors explain that:

[b]y April 2, 2007, when New Century Financial filed for bankruptcy, CDS spreads had increased to a range of thirty-two to thirty-eight basis points from earlier ranges in the low twenties. This increase appears to have reflected new information about the exposure of the investment banks to the risks associated with subprime mortgages.

Id. at 2101.

12. *Id.*; *see also* Gretchen Morgenson, *Behind Biggest Insurer's Crisis, Blind Eye to a Web of Risk*, WALL ST. J., Nov. 3, 2008, at A1 [hereinafter Morgenson, *Blind Eye*]; Matthew Karnitschnig et al., *U.S. to Take Over AIG in \$85 Billion Bailout*, WALL ST. J., Sept. 17, 2008, at A1.

13. *See, e.g.*, Sorkin, *Bids to Halt Financial Crisis*, *supra* note 5.

14. *See id.*

15. In September of 2008, investment banks, hedge funds, and other financial intermediaries who acted as trading counterparties in transactions with AIG began circling the company in anticipation of its default on a \$526 billion credit default swap portfolio. Morgenson, *Blind Eye*, *supra* note 12, at A1. Entreaties for federal government financial intervention interlaced AIG's prayers for salvation and warnings that AIG's insolvency threatened to trigger a daisy-chain of losses

credit default swap market in mid-September of 2008 reflected market participants' belief that AIG and Lehman Brothers' exposure to credit derivatives would lead both institutions to seek bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code.¹⁶ Without federal government or private intervention, insolvency threatened both firms.¹⁷ On September 16, 2008, three days after Lehman filed for bankruptcy protection, the federal government hurriedly extended aid to AIG.¹⁸ By the height of the crisis, federal aid to AIG reached over \$185 billion.¹⁹

Lehman Brothers' bankruptcy and AIG's bailout increased questions regarding the perils associated with investing in credit derivatives.²⁰ Subsequent investigations into the events of September 2008 focused on the role of one class of credit derivatives, credit default swap agreements, and the role that these instruments played in demise of Lehman Brothers and AIG.²¹

Credit default swaps did not trade on formal exchanges but in the over-the-counter market ("OTC").²² Historically, federal regulations did not require OTC market participants to register or record their transaction through the services of a traditional exchange or clearing organization.²³ The lack of disclosure stymied market participants' ability to assess counterparties' exposure to risk in the OTC market and, consequently, their counterparties' credit quality.²⁴ The informal character of the OTC market led to administrative inefficiencies that evolved into equally significant risks.²⁵ For example, time lag in parties' recognition of trading activity or deficient settlement pro-

(and possibly insolvencies) across financial markets. *See Federal Bailout of AIG: Hearings Before the H. Comm. on Oversight and Gov't Reform*, 111th Cong. (Jan. 27, 2010) (written testimony of Timothy F. Geithner, Treasury Secretary) [hereinafter Geithner testimony], available at <http://www.ft.com/cms/78c5a070-0b56-11df-9109-00144feabdc0.pdf>.

16. *See* Karen Brettell & Walden Siew, *Finance Credit Spreads Widen*, REUTERS, Sept. 12, 2008, <http://www.reuters.com/article/idUSN1250520820080912>.

17. *See* Karnitschnig, *supra* note 12; *see also* Morgensen, *Blind Eye*, *supra* note 12.

18. Eric Dash & Andrew Ross Sorkin, *Throwing a Lifeline to a Troubled Giant*, N.Y. TIMES, Sept. 18, 2008, at C1.

19. *See* Joe Nocera, *Hearings That Aren't Just Theater*, N.Y. TIMES, July 3, 2010, at B1 (noting that "taxpayers have put out \$185 billion to prop up A.I.G.").

20. *See id.*

21. *See id.*

22. *See infra* Part II.A.

23. *See infra* Part II.A.

24. *See infra* Part II.C.

25. *See infra* Part II.C.

cedures created uncertainty regarding basic contract terms.²⁶ Because of the opacity that characterizes the market, commentators describe the OTC market as a component of the “shadow banking system.”²⁷

In response to the role of OTC derivatives in the recent financial crisis, Congress recently adopted the Dodd-Frank Wall Street Reform and Consumer Protection Act (the “Act” or the “Dodd-Frank Act”).²⁸ Among other issues believed to contribute to the systemic risks²⁹ that led to the recent financial crisis, the Dodd-Frank Act aims to address the lack of transparency in the OTC derivatives market.³⁰ The Dodd-Frank Act requires market participants to register OTC derivative transactions and use private clearinghouses to settle certain OTC derivative transactions.³¹

26. See *infra* Part II.C.

27. Kenneth W. Dam, *The Subprime Crisis and Financial Regulation: International and Comparative Perspectives*, 10 CHI. J. INT'L L. 581, 604–06 (2010) (describing the shadow banking system as a collection of non-depository institutions, including “broker-dealers, hedge funds and private equity firms” and “unregulated legal entities created as part of the securitization process . . . [that enables] structured investment vehicles (“SIVs”) to engage in lending and investing arrangements that create obligations for a company but do not appear on the company’s balance sheet); see Gillian Tett & Paul J. Davies, *Out of the Shadow: How Banking’s Secret System Broke Down*, FIN. TIMES (Dec 16, 2007), <http://www.ft.com/cms/s/0/42827c50-abfd-11dc-82f0-0000779fd2ac.html> (contrasting shadow banking activity with traditional lending, wherein “the official banks . . . typically forged business by making loans to companies or consumers” and “retained this credit risk on their books, meaning that they were on the hook if loans turned sour”); Charles K. Whitehead, *Reframing Financial Regulation*, 90 B.U. L. REV. 1, 26–28 (2010) (explaining the use of SIVs to hold riskier assets transferred off banks’ balance sheets to reduce the cost of capital).

28. See Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010).

29. See PHILIP DAVIS, DEBT, FINANCIAL FRAGILITY AND SYSTEMIC RISK 117 (1992) (defining systemic risk as “a disturbance in financial markets which entails unanticipated changes in prices and quantities in credit or asset markets, which lead to a danger of failure of financial institutions, and which in turn threatens to spread so as to disrupt the payments mechanism and the capacity of the financial system to allocate capital”); Viral Acharya et al., *Regulating Systemic Risk*, in RESTORING FINANCIAL STABILITY: HOW TO REPAIR A FAILED SYSTEM 283, 284–89 (2009); Steven Schwarcz, *Systemic Risk*, 97 GEO. L. J. 193, 198–204 (2008) [hereinafter Schwarcz, *Systemic Risk*].

30. Press Release, House Fin. Servs. Comm., Dodd-Frank Wall Street Reform and Consumer Protection Act (June 29, 2010), available at http://www.house.gov/apps/list/press/financialsvcs_dem/prfinal_062610.shtml (noting that the Act creates transparency by requiring “data collection and publication through clearing houses or swap repositories to improve market transparency and provide regulators important tools for monitoring and responding to risks”).

31. See *id.*

By adopting the Dodd-Frank Act, Congress sheds light on one corner of the shadow banking system. The Dodd-Frank Act increases transparency and overcomes certain operational risks in the OTC derivatives market.³² While these reforms suggest that Congress has won an important battle, unresolved systemic risks indicate that it is premature to declare victory. The Dodd-Frank Act lacks the comprehensiveness and agility necessary to address the more perilous risks in the credit default swap market.³³

A better governance model would address not only transparency and disclosure concerns in the credit default swap market, but it would also establish the institutional measures needed for regulation to evolve to address undiscovered, yet equally perilous, risks.³⁴ This Article argues that “commons” literature offers guidance for developing a governance model that better reflects normative expectations regarding the rights and responsibilities of sophisticated businesses operating in our intimately inter-connected financial market system.

First described in an essay by Garrett Hardin, the parable of the commons illustrates the benefits and conflicts that arise in connection with public or private use of a valuable, commonly accessible resource.³⁵ Members of the community may simultaneously enjoy the resource, but efforts to exclude community members are often prohibitively difficult or expensive.³⁶ While initially applied to environmental issues, scholars now apply commons theory to a plethora of resource systems that function in a manner similar to a commons.³⁷ Professor Steven Schwarcz recently suggested that modern financial markets and commons share many attributes.³⁸ Financial markets, like commons, are openly accessible, nonrival,

32. See *infra* Part IV.

33. See *infra* Part IV.C.

34. See *infra* Part IV.C.

35. See Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243, 1244–45 (1968) [hereinafter Hardin, *Tragedy*].

36. See *id.*

37. See sources cited *infra* note 71.

38. See Steven L. Schwarcz, *Protecting Financial Markets: Lessons From The Subprime Mortgage Meltdown*, 93 MINN. L. REV. 373, 386 (2008) [hereinafter Schwarcz, *Protecting Financial Markets*] (arguing that financial markets may be perceived as commons because “the benefits of exploiting finite capital resources accrue to individual market participants, each of whom is motivated to maximize use of the resource, whereas the costs of exploitation, which affect the real economy, are distributed among an even wider class of persons. Investors are therefore unlikely to care about disclosure to the extent it pertains to systemic risk.”).

and nonexcludable resources.³⁹ This Article employs a case study examining one of the most infamous products in the OTC derivatives markets—credit default swaps—to draw a more poignant analogy between commons and financial markets. Through a credit default swap market case study, this Article argues that Congress and regulators traditionally employ three governance models (deregulatory, privatization, and regulation) to address commons-like conflicts in financial markets.⁴⁰ These governance models, as well as the concerns that they attempt to address, illustrate the analogy between commons and financial markets.⁴¹

OTC derivatives markets engender social and economic welfare concerns that mirror the concerns that arise in communities that possess commons. In both OTC markets and markets described as commons, conflicts arise because the markets are accessible to many participants, and it is difficult to exclude interested market participants. Market participants may simultaneously extract benefits from the commons.⁴² The ability of market participants to extract and internalize benefits from the commons resource, while shifting the costs of their self-aggrandizing activities to other groups, presents one of the most significant concerns in commons and financial markets.⁴³ This Article introduces a theory of community governance that applies the lessons derived from commons scholars' empirical research to the credit default swap market.⁴⁴

This Article argues that commons scholars offer useful guidance for financial markets regulation.⁴⁵ Missing from traditionally employed models is a nuanced understanding of the institutional design principles that lead to successful, long-term governance of a commons. The community governance model adopted in this Article suggests that incorporating identified institutional design principles into regulatory governance models reduces undesirable consequences—including inappropriate transfers of negative externalities—arising out of market participants' exploitation of commons resources.⁴⁶

39. *See infra* Part I.A.

40. *See infra* Part III.B.

41. *See infra* Part III.B.

42. *See infra* Part I.C.1.

43. *See infra* Part I.C.3.

44. *See infra* Part IV.A.

45. *See infra* Part IV.A.

46. *See infra* Part IV.A.

This Article makes three significant contributions to financial markets regulation scholarship. First, after evaluating the public and private costs and benefits of the use of credit default swaps, this Article explores regulation of credit default swap markets through the lens of commons theory.⁴⁷ This Article then examines provisions of the Dodd-Frank Act addressing the OTC derivatives market and contends that, despite some improvements introduced by the Act, significant concerns persist.⁴⁸ Finally, this Article articulates a better framework for developing long-term solutions to questions of derivatives market regulation and, by extension, financial markets regulation.⁴⁹

This Article proposes an alternative rationale for the regulation of credit default swap markets that appreciates both the benefits and the harms created by these investment products. Considering financial markets as an infrastructure resource that functions like a commons, this Article argues that commons literature offers a valuable means of deconstructing the disconcerting risks created by the credit default swap market.

Adopting the lessons of the commons and applying them to the threat of systemic risk engendered by the credit default swap market, this Article proposes a community governance model to oversee credit default swap markets through the creation of a self-regulatory organization (“SRO”).⁵⁰ Creating a credit default swap SRO offers a better solution to the tragedy of the credit default swap market commons than any of the proposed public or private responses.⁵¹ Moreover, this Article argues that the adoption of the Dodd-Frank Act acknowledges that a community governance model offers valuable contributions.⁵² The Dodd-Frank Act, however, limits the possible application of the model.⁵³ As a result, the grave risks that plagued the credit default swap market prior to the crisis may persist unless Congress supplements the legislation or regulators interpret the legislation to employ a stronger version of the community governance model.⁵⁴

47. *See infra* Part III.

48. *See infra* Part III.B.3.

49. *See infra* Part IV.

50. *See infra* Part IV.

51. *See infra* Part IV.

52. *See infra* Part IV.C.

53. *See infra* Part IV.C.

54. *See infra* Part IV.C.

This Article proceeds as follows: Part I contends that financial markets are similar to infrastructure resources and argues that both may be viewed as examples of “commons.” Part II describes the contours of the credit default swap market and analyzes the evolution of credit default swaps in the absence of direct regulatory oversight. Part III evaluates the application of the three governance models traditionally employed to resolve conflicts in financial markets and concludes that these models fail to address the systemic risks in the credit default swap market and offer limited flexibility for addressing future market concerns. Part IV contends that a community governance model better resolves the concerns related to pervasive risks in the credit default swap market and distinguishes the community governance model from the limited reforms imposed by the Dodd-Frank Act.

I. THE COMMON CHARACTER OF FINANCIAL MARKETS

The original theory of the commons and its early adopters applied the lessons of the commons to the preservation of natural resources.⁵⁵ Theorists then began to explore the application of commons literature to other disciplines, including intellectual property,⁵⁶ taxation,⁵⁷ telemarketing,⁵⁸ healthcare services,⁵⁹ and the administration of the criminal justice system.⁶⁰

55. See, e.g., ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION, 144–46, 149–57, 173–78 (1990) [hereinafter OSTROM, GOVERNING THE COMMONS] (describing destruction of fisheries in Turkey, Nova Scotia, and Sri Lanka); George Cameron Coggins et al., *The Law of Public Rangeland Management I: The Extent and Distribution of Federal Power*, 12 ENVTL. L. 535, 547 (1982); Clark C. Gibson et al., *Explaining Deforestation: The Role of Local Institutions*, in PEOPLE AND FORESTS: COMMUNITIES, INSTITUTIONS AND GOVERNANCE 1, 5–6 (2000) (explaining how treatment of forests as private goods creates a tragedy).

56. See, e.g., LAWRENCE LESSIG, THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD 19–23 (2001); Lee Anne Fennell, *Common Interter Tragedies*, 98 NW. U. L. REV. 907, 918–19 (2004).

57. See Daniel Berkowitz & Wei Li, *Tax Rights in Transition Economies: A Tragedy of the Commons?*, 76 J. PUB. ECON. 369, 370–71 (2000).

58. See Ian Ayres & Matthew Funk, *Marketing Privacy*, 20 YALE J. ON REG. 77, 88 (2003).

59. See Michael Gochfeld et al., *Medical Care as a Commons*, in PROTECTING THE COMMONS: A FRAMEWORK FOR RESOURCE MANAGEMENT IN THE AMERICAS 253, 253 (2001).

60. See A.C. Pritchard, *Auctioning Justice: Legal and Market Mechanisms for Allocating Criminal Appellate Counsel*, 34 AM. CRIM. L. REV. 1161, 1167–68 (1997) (explaining that “because individual criminal defendants do not bear the cost of the appellate process” they tend to appeal frequently even when their

Commons literature offers a unique lens through which one may analyze the social and political conflicts relating to the management and maintenance of important services and resources. Section A of this Part examines the characteristics of the commons and the recent application of the theory of the commons to infrastructure resources. Section B contends that financial markets offer a valuable infrastructure resource and that the characteristics of financial markets allow us to view them as an infrastructure resource that functions in a manner similar to a commons. This analogy inspires a conversation exploring the potential influence that commons literature may offer to resolve tragedies in financial markets.

A. *The Parable of the Commons*

Garrett Hardin introduced the parable of the commons in his famous essay, the *Tragedy of the Commons*.⁶¹ The parable describes a community pasture where herders bring their cattle to graze.⁶² Each herder desires to maximize his welfare and therefore has an incentive to bring additional cattle to graze in the pasture.⁶³ Diverse constituencies compete to influence policies governing the use of the commons. Herders, for example, advance their individual commercial interest in maximizing the commercial gain obtained from grazing activities, while members of the community concerned about the preservation of the pasture seek to limit grazing activity.⁶⁴ When concerns arise regarding the sustainability of the pasture, self-interest prevents the herders from addressing the overuse of the pasture.⁶⁵ Herders continue to introduce cattle until over-grazing

chances of success are low, and as a result, they consume more of the public good of the courts' and counsels' time "than would be optimal from their collective perspective").

61. See Hardin, *Tragedy*, *supra* note 35, at 1244–45.

62. *Id.* at 1244.

63. *Id.*

64. See *id.* at 1244–45.

65. Herders will not limit their consumption voluntarily. Collective action problems and transaction costs stymie any attempt to preserve the commons. Any one actor seeking to convince others to limit their consumption faces the challenge of persuading each of the other actors with access to the commons to agree to consume less, a strategy that reduces individual wealth-maximization. See MANCUR OLSON, *THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF GROUPS*, 1–2 (2002); PETER C. ORDESHOOK, *GAME THEORY AND POLITICAL THEORY: AN INTRODUCTION* 222 (1986); Harold Demsetz, *Toward a Theory of Property Rights*, 57 *AM. ECON. REV.* 347, 354–55 (1967) (exploring coordination barriers). Later commons theorists rejected many of the assumptions

destroys the pasture, completely depleting the resource.⁶⁶ Hardin concludes that “[f]reedom in a commons brings ruin to all.”⁶⁷

Scholarship examining the commons explores the economic and social benefits, or positive externalities, generated by the use of the commons, as well as costs arising from use, referred to as negative externalities.⁶⁸ To address the conflicts and concerns that a commons presents, scholars deconstruct Hardin’s depiction of the shared resource.

Careful evaluation reveals that commons resources are openly accessible, meaning that there are few limitations on herders’ abilities to access the commons.⁶⁹ No herder may exclude other herders who wish to allow their herds to graze in the pasture; therefore the pasture is nonexcludable. The pasture is nonrival, meaning each herder contemporaneously allows his herd to graze without diminishing others’ ability to enjoy the pasture.⁷⁰ Understanding the characteristics of the commons and identifying instances where resources resemble commons creates an opportunity to explore the application of commons governance theory in these newly discovered commons.

found in neoclassical economic theory. Empirical studies demonstrate that market participants sharing access to openly accessible resources develop and adhere to rules that limit consumption. See OSTROM, *GOVERNING THE COMMONS*, *supra* note 55, at 1–2.

66. See Hardin, *Tragedy*, *supra* note 35, at 1244.

67. *Id.*

68. The term “externality” refers to benefits or costs that result from the exploitation of an economic or social opportunity. Paul A. Samuelson & William D. Nordhaus, *ECONOMICS* 310–15 (14th ed. 1992). The classic illustration of a negative externality depicts an industrial factory that manufactures economically valuable goods. In the process of manufacturing the goods, however, the factory pollutes the air and water of the surrounding community. The benefits of producing the goods, or the profits, flow to the factory owner. The factory, however, emits harmful pollution. Neighbors of the factory breathe the air and drink water from a ground source contaminated by the factory’s pollution. Members of the community incur the costs of the factory’s production, namely, the air and water pollution generated when the factory manufactures goods. We refer to these costs as negative externalities. See generally, R.H. Coase, *The Problem of Social Cost*, 3 *J.L. & ECON.* 1, 15, 41–42 (1960) (proffering solutions such as imposing government tax on the factory or organizing payments by private residents to the factory).

69. See Michael J. Madison et al., *Constructing Commons in the Cultural Environment*, 95 *CORNELL L. REV.* 657, 666 (2010).

70. Brett M. Frischmann & Mark A. Lemley, *Spillovers*, 107 *COLUM. L. REV.* 257, 272–73 (2007) (explaining that nonrival goods “are not naturally scarce” and allow for many to “possess and appreciate [their] benefits . . . without reducing [their] availability”).

B. *Infrastructure Resources as Commons*

Exploring the application of commons to systems and services that facilitate commerce, Professor Carol Rose argues that infrastructure resources are a particular class of commons.⁷¹ Examples of infrastructure resources include communication networks; transportation systems, such as roadways, waterways or highways; and public services.⁷² Infrastructure resources include facilities, systems, and services that support commercial activity. Because of their central role in commerce, infrastructure resources influence social and economic welfare. Highways, a commonly cited example of infrastructure, greatly improve the efficiency of travel for families on vacation, lorries carrying produce from a local farm to a grocer, and commercial trucks transferring goods across entire continents. Infrastruc-

71. See Carol M. Rose, *Big Roads, Big Rights: Varieties of Public Infrastructure and Their Impact on Environmental Resources*, 50 ARIZ. L. REV. 409, 413 (2008) [hereinafter Rose, *Big Roads*]; Brett M. Frischmann, *An Economic Theory of Infrastructure and Commons Management*, 89 MINN. L. REV. 917, 923–24 (2005) [hereinafter Frischmann, *Infrastructure*] (describing infrastructure resources as a type of commons and presenting a nonexhaustive “list of familiar examples [of infrastructure resources] includ[ing]: (1) *transportation systems*, such as highway systems, railways, airline systems, and ports; (2) *communication systems*, such as telephone networks and postal services; (3) *governance systems*, such as court systems; and (4) *basic public services and facilities*, such as schools, sewers, and water systems”). The literature describes commons as having three central characteristics: open access, nonrivalry, and non-excludability. See *id.* at 942–51. Based on the presence of or modification of any of these attributes, scholars may describe the commons as limited, semi-commons, or common-pool resources. See, e.g., Yochai Benkler, *The Political Economy of Commons*, 4 UPGRADE 6, 6–7 (2003) [hereinafter Benkler, *Political Economy of Commons*]; Jay P. Kesav & Rajiv C. Shah, *Deconstructing Code*, 6 YALE J.L. & TECH. 277, 378–80 (2004); Michael J. Madison et al., *The University as Constructed Cultural Commons*, 30 WASH. U. J.L. & POL’Y 365, 371, 387–89 (2009) (describing university intellectual property “pools”); Carol M. Rose, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 MINN. L. REV. 129, 132 (1998) (describing limited common property as “neither entirely individualistic nor entirely public”); Henry E. Smith, *Semicommon Property Rights and Scattering in the Open Fields*, 29 J. LEGAL STUD. 131, 132 (2000) (“A person has private rights to the moving spot of the highway that her vehicle occupies, but a highway is considered to be a ‘commons’ because that is its more significant aspect.”).

72. See e.g. BLACK’S LAW DICTIONARY 851 (9th ed. 2009) (defining infrastructure as “[t]he underlying framework of a system; esp., public services and facilities (such as highways, schools, bridges, sewers, and water systems) needed to support commerce as well as economic and residential development”); see also Frischmann, *Infrastructure*, *supra* note 71, at 923–25.

ture resources comprise the nervous system of the domestic and international economy.⁷³

Infrastructure resources have four noteworthy characteristics. First, infrastructure resources are critical components in economic growth and development.⁷⁴ Second, infrastructure resources often function as public goods and facilitate the production of both public and private benefits. Third, infrastructure resources influence many aspects of social welfare that are integral to the functioning of businesses, universities, non-profit organizations, and governments worldwide.⁷⁵ Infrastructure resources impact commerce, culture, education, government, and healthcare.⁷⁶ Fourth, infrastructure resources create network effects, meaning the use of infrastructure resources initiates a chain of positive demand and supply side benefits.⁷⁷

Like other commons, infrastructure resources are openly accessible, nonexcludable, and nonrival. Infrastructure resources include openly available public resources, services, or spaces.⁷⁸ Infrastructure resources deliver or facilitate the delivery of valuable goods and services to the public and private sectors of the economy.⁷⁹

73. Frischmann, *Infrastructure*, *supra* note 71, 923–24; *see also* Rose, *Big Roads*, *supra* note 71, at 417–23 (describing the historical development of public infrastructure, namely road and transportation improvements, and the corresponding effect on the economy and environment); Yochai Benkler, *Overcoming Agoraphobia: Building the Commons of the Digitally Networked Environment*, 11 HARV. J.L. & TECH. 287, 290 (1998) (proposing that wireless transmissions be regulated as a public commons, similar to the regulation of highway systems and computer networks such as the Internet).

74. *See* Frischmann, *Infrastructure*, *supra* note 71, at 932.

75. *Id.* at 920 (describing influence of the Internet).

76. *See, e.g.*, Richard S. Whitt, *Evolving Broadband Policy: Taking Adaptive Stances to Foster Optimal Internet Platforms*, 17 COMMLAW CONSPECTUS 417, 443 (2009); Brett M. Frischmann & Barbara van Schewick, *Network Neutrality and the Economics of An Information Superhighway: A Reply to Professor Yoo*, 47 JURIMETRICS 383, 427 (2007) (“As an infrastructure resource, the Internet generates significant value as an input into a wide variety of productive activities engaged in by users. The Internet has had a transformative impact on many different social systems, spurring widespread systematic change not only in many different industries but also in many different nonindustrial sectors of our society: It is transforming commerce, community, culture, education, government, health, politics, and science—all information and communications-intensive systems.”).

77. *See* Frischmann, *Infrastructure*, *supra* note 71, at 972.

78. *Id.* at 923–24.

79. Carol Rose, *The Comedy of the Commons: Custom, Commons, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 723 (1986) [hereinafter Rose, *Comedy of the Commons*] (explaining that infrastructure provides a “service to

In addition to being openly accessible, infrastructure resources are nonexcludable: precluding others from enjoying the benefits of the resource is difficult or expensive.⁸⁰ The difficulty excluding others from exploiting the resource creates certain supply-side concerns, including concerns that free riders may capture the benefits of the resource or service without compensating suppliers.⁸¹ The suppliers of the resource or service face losses when free-riders enjoy the benefits of the resource without compensating them for the costs related to supplying the resource or service.⁸² As a result, suppliers may generate less than optimal amounts of the resource or service.⁸³

Finally, infrastructure resources are nonrival resources, meaning that many members of society simultaneously enjoy them.⁸⁴ Ideas and information are examples of nonrivalrous resources that scholars describe as infrastructure resources.⁸⁵ Highways offer a conventional example of a nonrivalrous infrastructure resource.⁸⁶ Social welfare is enhanced by the utility that each user derives from use of a nonrival resource.⁸⁷

Applying the lessons of the commons to infrastructure resources offers insight useful for developing a lasting solution to

commerce [that is] a central factor in defining as 'public' such properties as roads and waterways").

80. See Benkler, *Political Economy of Commons*, *supra* note 71, at 6–7. This principle is one of the most salient characteristics of a commons and emphatically distinguishes commons from private property.

81. By their nature, nonexcludable resources permit free riders to capture benefits from the commons without compensating for the costs that the supplier of the resource incurs. See Robert O. Keohane & Elinor Ostrom, *Introduction to LOCAL COMMONS AND GLOBAL INTERDEPENDENCE, HETEROGENEITY AND COOPERATION IN TWO DOMAINS* 13 (1995).

82. *Id.*

83. Charlotte Hess & Elinor Ostrom, *Ideas, Artifacts, and Facilities: Information as a Common-Pool Resource*, 66 *LAW & CONTEMP. PROBS* 111, 117, 120 (2003) ("Anyone who is included in the community of users benefits from . . . public good[s], whether they contribute or not. . . . [C]ommon-pool resources share with what economists call 'public goods' the difficulty of developing physical or institutional means of excluding beneficiaries. Unless means are devised to keep non-authorized users from benefiting, a strong temptation to free ride on the efforts of others will lead to a suboptimal investment in improving the resource, monitoring use, and sanctioning rule-breaking behavior.").

84. See Keohane & Ostrom, *supra* note 81, at 13.

85. See Frischmann & Lemley, *supra* note 70, at 272 (proffering that ideas "are not naturally scarce" because "[w]e can all possess and appreciate benefits from an idea without reducing its availability").

86. See Rose, *Big Roads*, *supra* note 71, at 417 (arguing that roads constitute one of the most significant infrastructure resources for many reasons, including military dominance[;] the promotion of commerce[;] and the "exchange of ideas, sights, and . . . goods and services").

87. See *supra* note 76.

the tragedies engendered in commons. The recent financial crisis illustrates the types of tragedies that commons scholars endeavor to address *ex ante*. The next Section explores the analogies between a traditional commons and the obscure, metaphorical pasture created by the global financial markets.

C. *Financial Markets: A Common Infrastructure Resource*

Exploring the similarities between infrastructure resources and commons offers a new paradigm of analysis to address conflicts in the management and maintenance of infrastructure resources. This Section applies the argument that infrastructure resources function like commons to one of society's most critical infrastructure resources—financial markets.

1. The Financial Market Commons

Financial markets and traditional commons share many similar attributes.⁸⁸ These similarities are underexplored in both commons and financial markets regulation literature.⁸⁹ Described as capital and credit markets, streams of commerce, and trade and payment systems, financial markets are a resource that facilitates commercial activity.⁹⁰ Similar to roads and waterways, financial markets are openly accessible. While certifications, professional credentials, and licensing or payment of licensing fees may limit access to an individual or entity's ability to offer financial services, any eligible, qualified person or entity may participate in the industry.⁹¹ Financial markets are nonexcludable; market participants are not able to exclude others from obtaining all the benefits of the development and proliferation of financial markets.⁹² Finally, while

88. See Schwarcz, *Protecting Financial Markets*, *supra* note 38, at 386.

89. Kristin N. Johnson, *Financial Markets: Exploring Common Solutions* (Nov. 10, 2010) (unpublished manuscript) (on file with the author).

90. This article uses the terms "financial markets," "credit and capital markets," and "commerce" interchangeably. See, e.g., *infra* note 112.

91. For example, in order to act as a securities broker or dealer one must register with the Securities Exchange Commission ("SEC"). See, e.g., Securities Exchange Act of 1934 § 15(b)(7), 15 U.S.C. § 78o (2006). If the SEC denies an application to register, the applicant has a due process right to contest the SEC's decision. Federal statutes require the SEC to give notice to the applicant and conduct a formal proceeding at which the applicant can contest the SEC's decision. 15 U.S.C. § 78o(b)(4) (2006).

92. Excludability refers to "the difficulty of restricting those who benefit from the provision of a good or service" to an intended group of beneficiaries. ELINOR

financial markets are characterized as competitive,⁹³ the services that they offer are nonrival, meaning no single beneficiary may capture and privately consume all of the gains or benefits associated with the provision of financial services.⁹⁴ Among other services, financial market participants offer strategies for the investment, custody, and transfer of capital or assets.⁹⁵ Many users may enjoy these services contemporaneously without detracting from others' abilities to benefit from the same services.

2. Financial Markets as an Infrastructure Resource Commons

Financial market participants provide services that offer important benefits.⁹⁶ Financial markets function in a manner

OSTROM, UNDERSTANDING INSTITUTIONAL DIVERSITY 23 (2005). Financial services intermediaries offer services such as basic deposit services, custody services, and payment systems; these services benefit clients who consume financial services, as well as broader groups in society who receive the benefits that the enhanced efficiency of sophisticated deposit, custody, and payment delivery systems create. For a discussion of the benefits of financial markets and financial development, see Ross Levine, *Financial Development and Economic Growth: Views and Agenda* 2, 5–29 (World Bank Policy Research Working Paper No. 1678, 1999), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=604955 (explaining that empirical and theoretical analysis supports the conclusion that “development in financial markets and institutions is a critical and inextricable part of the [economic] growth process”).

93. See Whitehead, *supra* note 27, at 16–21 (describing how competition and product innovation resulted in an increasing diversity of services and service providers in the financial services industry). For a description of the influence of technology on the competitiveness of securities markets, see Chris Brummer, *Stock Exchanges and the New Markets for Securities Laws*, 75 U. CHI. L. REV. 1435, 1436 (2008) (describing the competition among exchanges) and Jerry Markham & Daniel J. Harty, *For Whom the Bell Tolls: The Demise of Exchange Trading Floors and the Growth of ECNS*, 33 J. CORP. L. 865, 866 (2008) (describing the introduction of electronic communications networks (“ECNs”) and how “[c]ompetition from ECNs . . . forced the [New York Stock Exchange] and the Chicago futures exchanges to demutualize, consolidate and reduce the role of their trading floors, while expanding their own electronic execution facilities”).

94. Rivalry refers to the “the degree to which one person’s consumption of a resource affects the potential of the resource to meet the demands of others.” Frischmann, *Infrastructure*, *supra* note 71, at 945.

95. See, e.g., Kristin N. Johnson, *From Diagnosing the Dilemma to Divining the Cure: Regulating Financial Markets*, 39 SETON HALL L. REV. 1299, 1306 (2010) (describing the diversified financial services offered by one financial services intermediary).

96. See RICHARD SCOTT CARNELL, ET AL., *THE LAW OF BANKING AND FINANCIAL INSTITUTIONS* 36, 48 (2009) (describing financial intermediaries as including “depository institutions, life insurance companies, mutual funds and

similar to infrastructure resources, demonstrating each of the four characteristics of infrastructure resources described above. First, like transportation systems or communication networks, financial market participants contribute services critical to economic growth and development. Financial market participants, specifically banks or depository institutions, play a central role in the maintenance of the national money supply.⁹⁷ Financial markets offer intermediary services for the custody and transfer of currency and assets. A broad array of services comprise the system of activities referred to as “financial markets,” including lending, foreign currency exchange, cash and asset deposits, custody and transfers, payment systems, and exchanges.⁹⁸ Financial markets facilitate the flow of capital to sources seeking capital and consequently enable the efficient operation of the domestic and international economy.⁹⁹ Integrated cash and asset management, custody, and transfer systems are essential to the development and maintenance of sophisticated, modern financial markets.¹⁰⁰

Second, financial markets are integral to the production of commercial goods, public goods, and social services. Many businesses and individuals regularly rely upon financial institutions to provide short-term loans when the individual or business experiences temporary cash management difficulties.¹⁰¹ The financial markets influence commercial or finan-

pension funds” and explaining that “financial intermediaries offer important benefits”); *see also* Levine, *supra* note 92, at 2.

97. *See* CARNELL, *supra* note 96, at 48–50.

98. *See generally id.* at 35–45.

99. *See* Jeffrey Wurgler, *Financial Markets and the Allocation of Capital*, 58 J. FIN. ECON. 187, 187 (2000) (finding that developed financial markets increase investments in growing industries); *see also* Ross Levine & Sara Zervos, *Stock Markets, Banks, and Economic Growth*, 88 AM. ECON. REV. 537, 537 (1998) (finding that stock market liquidity and banking development correlate with capital accumulation and productivity); Richard J. Herring & Anthony M. Santomero, *The Role of the Financial Sector in Economic Performance* 68 (Ctr. for Bus. & Policy Studies, Working Paper No. 95-08, 1991) (“An efficient financial system facilitates the optimal allocation of resources. It expands the consumption possibility of each citizen and makes funds available to entrepreneurs and government alike.”); Floyd Norris, *Glimpsing Some Signs of Revival*, N.Y. TIMES, Jan. 16, 2009, at B1 (“History demonstrates conclusively that a modern economy cannot grow if its financial system is not operating effectively.” (quoting Ben S. Bernanke, Chairman, Federal Reserve Board)).

100. *See generally* Franklin Allen & Elena Carletti, *The Roles of Banks in Financial Systems*, in THE OXFORD HANDBOOK OF BANKING 37, 37–57 (2010); *see also* Levine & Zervos, *supra* note 99, at 538.

101. *See generally* Geithner testimony, *supra* note 15 (describing concerns during the recent financial crisis about market disruption arising from the failure of

cial transactions that impact both the smallest and the largest, most complex business transactions in the country.¹⁰²

Third, as demonstrated by the recent crisis, financial markets have a profound influence on social welfare. Through lending and underwriting arrangements, financial market participants control the availability of credit for borrowers large and small.¹⁰³ Across a diverse spectrum of industries (manufacturing, agricultural, communications, and healthcare, etc.), these indispensable financial services improve the efficiency of the national economy.¹⁰⁴

Like other infrastructure resources, financial markets engender network effects.¹⁰⁵ According to the theory of network effects, for certain goods an increase in the number of users enhances (1) the benefits that each individual user derives from use of the good and (2) the utility of the network to all of the users of the good.¹⁰⁶ We refer to the good that creates network effects as the “network good.”¹⁰⁷

“financial institutions that Americans rely on to protect their savings, help finance their children’s education, and help pay their bills” and “[t]he institutions and markets that businesses rely on to make payroll, build inventories, fund new investments, and create new jobs”).

102. *See id.*

103. *See, e.g.,* Christian A. Johnson, *Holding Credit Hostage For Underwriting Ransom, Rethinking Bank Antitying Rules*, 64 U. PITT. L. REV. 157, 172–79 (2002).

104. *See* Geithner testimony, *supra* note 15 (noting that financial institutions protect savings, finance education, help pay bills, build inventories, fund new investments, and create jobs).

105. The theory of network effects is commonly applied in intellectual property and antitrust literature; an emerging body of scholarship recently applied the theory of network effects to securities markets. *See* Ianis Kokkoris & Rodrigo Olivares-Caminal, *Some Issues on Cross-Border Stock Exchange Mergers*, 29 U. PA. J. INT’L L. 455, 476 (2007) (listing stock exchanges among examples of markets where network effects are important); *see also* Robert B. Ahdieh, *Making Markets: Network Effects and the Role of Law in the Creation of Strong Securities Markets*, 76 S. CAL. L. REV. 277, 288 (2003) (“Equities markets are thus a classic network, in which the value of the good—a given stock, the market in that stock, and . . . the market generally—increases with each incremental expansion in the size of its network (i.e., the network of traders).”); *see generally* Ian Domowitz, *Liquidity, Transaction Costs, and Reintermediation in Electronic Markets*, 22 J. FIN. SERVS. RES. 141 (2002); Ian Domowitz, *Electronic Derivatives Exchanges: Implicit Mergers, Network Externalities, and Standardization*, 35 Q. REV. ECON. & FIN. 163 (1995) [hereinafter Domowitz, *Electronic Derivatives Exchanges*].

106. Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CAL. L. REV. 479, 483 (1998) (explaining that under the theory of network effects, “the [u]tility that a user derives from consumption of a good increases with the number of other agents consuming the good”) (quoting Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424, 424 (1985)); Kokkoris & Olivares-Caminal, *supra* note 105, at 475–76; Brett Frischmann, *Privatization and Commercialization of the Internet Infrastructure: Rethinking Market Intervention into Government and Government*

A network good's value is positively correlated to an increase in the number of users.¹⁰⁸ The existence of the network creates a positive consumption externality for network users.¹⁰⁹ Facebook, a social networking Internet website,¹¹⁰ illustrates the positive consumption benefits that arise from network effects. Each user enjoys information access through the social network via the Internet. Facebook becomes increasingly valuable as more users choose to be linked to the same resource.¹¹¹ If activity on Facebook declines, the network becomes less valuable to each user.

Many aspects of financial markets demonstrate network effects, or the positive externalities that arise from increased consumption of identical or compatible goods. To illustrate the presence of network effects in financial markets, this Article focuses on capital markets, particularly national stock exchanges. Market participants register, record, clear, and settle trades in secondary market transactions on securities exchanges.¹¹² According to one commentator, "the existence of network effects is readily apparent in securities markets' basic functions."¹¹³

Intervention into the Market, 2 COLUM. SCI. & TECH. L. REV. 1, 34–35 (2001) (noting that value of internet increases with interconnection of more users).

107. Ahdieh, *supra* note 105, at 289; Lemley & McGowan, *supra* note 106, at 488–89.

108. Kokkoris & Olivares-Caminal, *supra* note 105, at 475.

109. *Id.* at 476.

110. See *Facebook Factsheet*, FACEBOOK, <http://www.facebook.com/press/info.php?factsheet> (last visited Nov. 10, 2010) ("Facebook is a social utility that helps people communicate more efficiently The company develops technologies that facilitate the sharing of information").

111. See *id.*; Kokkoris & Olivares-Caminal, *supra* note 105, at 475; Lemley & McGowan, *supra* note 106, at 491.

112. See Andreas M. Fleckner, *Stock Exchanges at the Crossroads*, 74 *FORDHAM L. REV.* 2541, 2549–50 (2006); see also Kokkoris & Olivares-Caminal, *supra* note 105, at 463 ("A capital market is a market within a financial system that provides a range of investment and financing tools. Capital markets can be considered as both primary capital markets (for an initial issuance of securities) and secondary capital markets (for the trading of securities previously issued). Moreover, capital markets operate with either equity securities (i.e., shares of a company, be it by means of an initial issuance or initial public offering ("IPO"), or by subsequent purchases and sales in the secondary market) or debt securities (e.g., bonds or other listed debt instruments).").

113. Ahdieh, *supra* note 105, at 288 ("Equities markets are thus a classic network, in which the value of the good—a given stock, the market in that stock, . . . the market generally—increases with each incremental expansion in the size of its network (i.e., the network of traders)."); see also Kokkoris & Olivares-Caminal, *supra* note 105, at 476. Commentators have long recognized stock exchanges as examples of networks that exhibit the positive consumption externalities asso-

Historically, securities traders, acting as agents for shareholders, gathered on the trading floor. Today, traders use electronic communication networks (“ECN”) to engage in securities trading and other market transactions.¹¹⁴ In securities markets, increasing the number of traders affiliated with an exchange or the subscribers to an ECN generates significant positive externalities.¹¹⁵

Liquidity is among the most celebrated externalities associated with securities exchange networks.¹¹⁶ Liquidity, as the term applies to a security that trades on a securities exchange, refers to the ease with which a securities broker may promptly execute a customer’s order to acquire or dispose of a security.¹¹⁷ With respect to an exchange, liquidity refers to a traders’ ability to quickly identify a counterparty willing to take the opposite position in a particular transaction.¹¹⁸ As the number of brokers executing transactions on the same exchange increases, a broker’s ability to identify counterparties in a timely manner increases, and the time required to execute transactions decreases.¹¹⁹ Exchange trading also generates other positive externalities such as price discovery and reduced transaction costs.¹²⁰ The positive size and consumption externalities related to securities markets illustrates the presence of network effects in financial markets.

Size externalities, however, may also lead to negative network effects. In a developing securities exchange, early market entrants may exploit lead-time advantages.¹²¹ Early entrants may advantageously tip the market in favor of their proprie-

ciated with network effects. *See id.* (citing Nicolas Economides, *Network Economics with Application to Finance*, 2 FIN. MKT. INST. & INSTRUMENTS 89, 93 (1993)).

114. *See* Brummer, *supra* note 93, at 1460; *see also* Ethiopis Tafara & Robert J. Peterson, *A Blueprint for Cross-Border Access to U.S. Investors: A New International Framework*, 48 HARV. INT’L L.J. 31, 54 (2007).

115. Carmine Di Noia, *Competition and Integration Among Stock Exchanges in Europe: Network Effects, Implicit Mergers and Remote Access*, 7 EUR. FIN. MGMT. 39, 41 (2001) (“Exchanges can be considered as networks in which the greater the number of customers, the higher the utility for everyone.”).

116. Kokkoris & Olivares-Caminal, *supra* note 105, at 477–78.

117. *Id.* at 478.

118. *Id.* at 478–81.

119. *See* Ahdieh, *supra* note 105, at 287 (“As more sellers and potential purchasers appear, more bid and ask orders follow, closing the bid-ask spread, and providing more ready convertibility of the stock to cash, i.e., liquidity.”); *see also* Domowitz, *Electronic Derivatives Exchanges*, *supra* note 105, at 168 (“[T]he driving force behind exchange structure is the liquidity effect. This, in turn, is driven by the size and scope of the network of traders making the adoption decision.”).

120. *See* Ahdieh, *supra* note 105, at 284–90.

121. Kokkoris & Olivares-Caminal, *supra* note 105, at 475–79.

tary trading and settlement standards by ensuring that market participants are familiar with their procedures and technology.¹²² As market participants become familiar with the early entrant's standard, competitors seeking to lure business away from early entrants must persuade users to switch. Market participants who switch experience switching costs, such as learning a new technology, which makes competition with early entrants less appealing.¹²³

Once the market tips toward the standard set by the early entrants, described as the "tipping effect," early entrants' advantages dissuade competitors from investing in the development of alternative networks.¹²⁴ Tipping effects may stymie technological improvements that occur in markets characterized by competition.¹²⁵ Daunted by the advantages enjoyed by early entrants and the expense and difficulty of persuading users to adopt different standards, competitors may acquiesce to the early entrants' dominance.¹²⁶

Reduced competitiveness and delayed development of securities-market technology illustrate negative externalities commonly experienced by securities exchanges. In the broader, more complex web of the financial market commons, more alarming negative externalities arise. Because financial markets are a national infrastructure resource, the negative externalities or market failures that impact financial markets threaten the vitality of the domestic and global economy.

3. Tragedy in the Financial Market Commons

The tragedy described in Hardin's hypothetical commons arises when commons users fail to internalize the negative ex-

122. *Id.*

123. See also Ahdieh, *supra* note 105, at 306–07 (discussing "tipping" as a barrier to entry in market transition).

124. See William H. Page & John E. Lopatka, *Network Externalities*, in ENCYCLOPEDIA OF LAW AND ECONOMICS 952, 960 (1999), available at <http://encyclo.findlaw.com/0760book.pdf> ("A market that settles on a single standard is said to have 'tipped.'").

125. See Kokkoris & Olivares-Caminal, *supra* note 105, at 478–81.

126. Nicolas Economides, *Network Economics with Application to Finance*, 2 FIN. MKT. INST. & INSTRUMENTS 89, 93 (1993) ("[F]irms may be very reluctant to change their way of operation, especially if they have to pay the costs of transition. The self-reinforcing nature of networks creates switching costs for the existing customers. The existence of positive critical mass often means that in the presence of one network, a differently-organized one may not even exist."). See also Ahdieh, *supra* note 105, at 317–18 n.175 (quoting Economides, *supra*); Kokkoris & Olivares-Caminal, *supra* note 105, at 477 (quoting Economides, *supra*).

ternalities associated with their activities.¹²⁷ These users capture and privately retain benefits while transferring the costs related to their activities to other constituencies. Tragedy results when commons users effectively transfer these costs to others.

While there are many types of risk that accompany financial market activities, systemic risk poses a uniquely onerous threat.¹²⁸ Systemic risk in the financial markets is a negative externality that may arise in connection with sophisticated financial institutions' use of capital and credit markets.¹²⁹ The potential threat of a "true systemic breakdown, collapsing the world's financial systems like a row of dominoes" evokes fears of national and international economic recession, or worse, depression.¹³⁰

Scholars argue that the risk that paralyzed credit and capital markets during the recent crisis exemplifies a market failure triggered by systemic risk.¹³¹ In describing the recent financial crisis, pundits and the media vilify segments of financial markets because of negative externalities created, but not internalized, by financial market participants.¹³² Many critics argue that the OTC derivatives industry, particularly the credit default swap market, is significantly responsible for creating the precipitating conditions that led to the recent crisis.¹³³ Arguably, credit default swap users failed to internalize risks and created negative externalities that fueled systemic risk.

Part II examines the role of credit default swaps in the recent financial crisis and the failure of market participants to internalize risks related to their activities. The resulting tragedy is analogous to the concerns that arise in the commons.

127. See Hardin, *Tragedy*, *supra* note 35, at 1244 (presenting the view that when many people benefit from a good but do not experience proportionate burdens, overuse will occur because consumers fail to internalize the harmful effects of their consumption).

128. See Steven L. Schwarcz, *Markets, Systemic Risk, and the Subprime Mortgage Crisis*, 61 SMU L. REV. 209 (2008).

129. *Id.* at 212–13.

130. *Id.* at 209.

131. See Martin Hellwig, *Systemic Risk in the Financial Sector: An Analysis of the Subprime-Mortgage Financial Crisis* 6 (Max Planck Institute for Research on Collective Goods, MPI Collective Goods Preprint Working Paper No. 2008/43, 2008).

132. Gretchen Morgenson, *Naked Came the Speculators*, N.Y. TIMES, Aug. 10, 2008, at BU1 [hereinafter Morgenson, *Naked Came the Speculators*].

133. See generally *supra* note 1 and accompanying text; Morgenson, *Naked Came the Speculators*, *supra* note 132, at BU1.

II. DOUBLE, DOUBLE TOIL AND TROUBLE? CREDIT DEFAULT SWAPS AND THE FINANCIAL MARKET COMMONS

Increasingly, swap agreements are found among the investments in the portfolios of hedge funds, private equity funds, institutional investors, investment managers, financial institutions, and other eligible market participants. Proponents laud credit default swap agreements because they enable businesses with complex investment portfolios to execute customized hedging and risk management strategies. Critics assail credit default swaps, arguing that market participants use these investment agreements solely to engage in speculation, and as a result, the instruments have little, if any, social or economic value. Section A describes the mechanics and the exponential development of the credit default swap market. Section B considers advocates' arguments that credit default swaps offer valuable social and economic benefits. Section C explores the dangers presented by the credit default swap market from its inception to the recent adoption of the Dodd-Frank Act. Section D examines the role credit default swaps played in the near collapse of a significant financial institution—AIG.

A. *The Ominous Ballooning of the Credit Default Swap Market*

Market participants execute credit default swap transactions through private, bilateral arrangements in the OTC markets. Prior to the implementation of the Dodd-Frank Act, credit default swap transactions and other OTC transactions faced limited recording and reporting requirements. Consequently, an opaque shroud veiled the credit default swap market and the broader OTC derivatives market. The lack of transparency veiled risks that grew in tandem with the size of the credit default swap market. An introduction to the mechanics of credit default swaps and the market's explosive growth during the last two decades clarifies the role that these obscure financial products played in creating systemic risk concerns during the recent financial crisis.

1. The Origins of Credit Default Swaps

There are four categories of derivative agreements—futures,¹³⁴ forwards,¹³⁵ options,¹³⁶ and swaps.¹³⁷ While derivative agreements originated in ancient times,¹³⁸ swaps are nas-

134. Both futures and forward contracts arrange for the delivery of specified goods at an agreed price on a future date. Roberta Romano, *A Thumbnail Sketch of Derivative Securities and Their Regulation*, 55 MD. L. REV. 1, 7 (1996); Charles R.P. Pouncy, *The Scierter Requirement and Wash Trading in Commodity Futures: The Knowledge Lost in Knowing*, 16 CARDOZO L. REV. 1625, 1628 (1995) (“The term ‘futures’ is an abbreviation of the phrase, ‘contract for future delivery,’ and refers to executory contracts requiring the delivery or receipt of a standardized quality and quantity of a commodity to a specific location, by a date certain, and for a stated price.”). Futures and forward contracts eliminate the potential fluctuation in market prices that may arise between the date of the execution of an agreement by counterparties and the date on which goods are delivered. Romano, *supra*, at 8–9. Futures are, however, distinct from forward contracts in two significant ways. First, the subject goods of futures agreements are standardized, meaning that the goods are fungible within the same class. *Id.* at 10. In addition, futures contracts have standard terms and conditions. *Id.* at 10–11. As a result of these two attributes, futures contracts trade easily on formal exchanges. *Id.* at 12. In contrast, forward contracts are private, bilateral agreements that may have highly-customized terms and trade in the informal over-the-counter market. *Id.* at 8.

135. See Romano, *supra* note 134, at 6.

136. In an option agreement, the option holder has the right, but not the obligation, to buy or sell an asset referenced in the agreement at a stated price (the “strike price”) on or before a predetermined future date. *Id.* at 40–41. For this right, the option holder pays a fee. *Id.* The option becomes more or less valuable as the market price for the referenced asset fluctuates. *Id.* For example, the value of an option to buy an asset increases dramatically as soon as the market price of the asset rises above the strike price. *Id.* at 42.

137. For a description of swaps, see *infra* notes 141–144 and accompanying text. See also Romano, *supra* note 134, at 42.

138. See ROBERT E. WHALEY, DERIVATIVES: MARKETS, VALUATION, AND RISK MANAGEMENT 11–13 (2006) (“Derivatives . . . have actually been around for thousands of years. The earliest written example is contained in the Code of Hammurabi, a body of laws written by Hammurabi who reigned as king of Babylon from 1795 to 1750 BCE. . . . Another example of early derivatives use appears in Aristotle’s *Politics* (350 BCE). Aristotle tells the story of Thales, a philosopher . . . who, based on studying the winter sky, predicted an unusually large olive harvest.”) (citations omitted).

Scholars have chronicled the continued development of the derivatives markets over the last several centuries. See, e.g., Mark D. West, *Private Ordering at the World’s First Futures Exchange*, 98 MICH. L. REV. 2574, 2580 (2000) (“[I]ssuing rice receipts that entitle the bearer to rice from the lords’ agent-managed Osaka warehouses . . . could ensure a steady income stream from their otherwise seasonal and weather-dependent product.”); MIKE DASH, TULIPOMANIA, 187–95 (1999) (describing an asset price bubble involving extraordinary contract prices for tulip bulbs in the seventeenth century). In the mid-1800s in the United States, futures contracts offered critical protection for grain farmers and agricultural product dealers against adverse movements in prices between planting, harvest, and sale. See Jonathan Lurie, *Private Associations, Internal Regulation*

cent adaptations of traditional derivative contracts.¹³⁹ Credit default swaps are among the several classes of swap agreements.¹⁴⁰

Scholars reference the currency swap transaction involving International Business Machines Corporation (“IBM”) and the World Bank as one of the earliest uses of contemporary swap agreements.¹⁴¹ Through a series of transactions, each party to the currency swap agreement aims to hedge the risks in its portfolio arising from fluctuations in the foreign currency markets.¹⁴²

Derivative contracts are so described because each type of derivative agreement derives its value from an asset referenced in the contract (the “reference asset”).¹⁴³ Based on the characteristics of the reference asset, swaps may be classified as financial swaps, which reference equity securities; debt securities or securities indexes; currency swaps, which reference currency exchange rates; interest rate swaps, which reference

and Progressivism: The Chicago Board of Trade, 1880–1923, as a Case Study, 16 AM. J. LEGAL HIST. 215, 219 (1972). In *Irwin v. Williar*, 110 U.S. 499 (1884), the United States Supreme Court delivered an opinion applying contract law to derivatives contracts.

139. See *infra* notes 141–142 and accompanying text.

140. See Jongho Kim, *From Vanilla Swaps to Exotic Credit Derivatives: How to Approach the Interpretation of Credit Events*, 13 FORDHAM J. CORP. & FIN. L. 705, 727–28 (2008).

141. While there is some debate regarding the timing of the first modern swap agreement, scholars generally agree that the execution of a swap agreement between the World Bank and IBM was one of the earliest and most significant transactions in the development of the swap market. See, e.g., Charles R.P. Pouncy, *Contemporary Financial Innovation: Orthodoxy and Alternatives*, 51 SMU L. REV. 505, 529–30, 529 n.153 (1998) (discussing the significance of the World Bank/IBM transaction, noting that scholars debate the appearance of the first swap transaction, and concluding that the dispute may rest on “semantics”).

142. See *id.*; see also Christian A. Johnson, *Banking, Antitrust, and Derivatives: Untying the Antitying Restrictions*, 49 BUFFALO L. REV. 1, 11 (2001).

143. The underlying or reference asset for commodity swaps typically include agricultural products (such as corn, soybeans, wheat, pork, cattle, butter, milk, cocoa, coffee, corn, orange juice, and sugar) or raw materials (such as crude oil, gasoline, heating oil, natural gas, coal, propane, gold, silver, platinum, copper, aluminum, and palladium). The reference asset for a financial swap generally involves foreign currencies, bonds, stocks, and other investment products. See generally Norman Menachem Feder, *Deconstructing Over-the-Counter Derivatives*, 2002 COLUM. BUS. L. REV. 677, 681–82 (2002); Willa E. Gibson, *Are Swap Agreements Securities or Futures?: The Inadequacies of Applying the Traditional Regulatory Approach to OTC Derivatives Transactions*, 24 J. CORP. L. 379, 383–88 (1999).

interest rates; or commodity swaps, which reference commodities or commodities indexes.¹⁴⁴

Credit default swaps are privately negotiated, bilateral agreements.¹⁴⁵ Credit default swaps are a class of swap agreements¹⁴⁶ that typically references debt obligations such as a specific debt security (a “single name product”); a group or index of debt securities (a “basket product”); or collateralized loan agreements, collateralized debt obligations, or related indexes.¹⁴⁷ In a credit default swap agreement, one party (the “protection buyer”) seeks to reduce its risk exposure related to a referenced debt asset by entering into an agreement with another party (the “protection seller”); the protection seller agrees to enter into the credit default swap agreement because she seeks to gain exposure to the likelihood that the issuer of the reference asset (the “reference entity”) will default on the reference asset.¹⁴⁸ The protection buyer pays periodic premiums to the protection seller for this insurance-like arrangement.¹⁴⁹ In the event that the reference entity defaults on its obligations related to the reference asset, the protection buyer may require the protection seller to purchase the reference asset for face value, or some percentage of face value agreed upon in the credit default swap agreement, less the market value of the security.¹⁵⁰ In short, credit default swap agreements involve a transfer of the risk that the issuer of a reference asset will default and the reference asset will decline in value.¹⁵¹

For example, imagine a bondholder who owns a \$10 million bond (reference asset) issued by General Motors (reference ent-

144. See Gibson, *supra* note 143, at 382–88; Armando T. Belly, *The Derivative Market in Foreign Currencies and the Commodity Exchange Act—The Status of Over-the-Counter Futures Contracts*, 71 TUL. L. REV. 1455, 1466–70 (1997); Note, *Tax Treatment of Notional Principal Contracts*, 103 HARV. L. REV. 1951, 1952–54 (1990).

145. See Frank Partnoy & David A. Skeel, Jr., *The Promise and Perils of Credit Derivatives*, 75 U. CIN. L. REV. 1019, 1021–22 (2007).

146. See Gibson, *supra* note 143, at 382–88.

147. See generally WHALEY, *supra* note 138, at 679–80, 687–88 (discussing various types of debt obligations that a credit default swap agreement may reference, including credit-linked notes, collateralized debt obligations, and debt securities).

148. Arvind Rajan, *A Primer on Credit Default Swaps*, in THE STRUCTURED CREDIT HANDBOOK 17, 17 (2007) (“A credit default swap . . . is a contract in which the buyer of default protection pays a fee, typically quarterly or semiannually, to the seller of default protection on a reference entity, in exchange for a payment in case of a defined credit event such as default.”).

149. *Id.*; see also Michael Lewitt, *Wall Street’s Next Big Problem*, N.Y. TIMES, Sept. 16, 2008, at A29.

150. See Partnoy & Skeel, *supra* note 145, at 1021–22.

151. *Id.*

ity) that matures in five years. Until the bond matures, the bondholder will cross her fingers and hope that General Motors continues to satisfy its principal and interest payment obligations. A credit default swap agreement allows the bondholder to buy protection against a decline in the value of the bond if General Motors defaults on its payment obligations. The bondholder (protection buyer) may enter into a credit default swap with an eligible counterparty (protection seller). Under the terms of the agreement, the bondholder will make a periodic payment based on the face value of the bond and the percentage of risk transferred to the protection seller. General Motors' default or failure to make a principal or interest payment set out in the bond indenture (a credit event) triggers termination of the credit default swap agreement. The protection seller pays the protection buyer the face value of the bond or the difference between face value and the market price for the bond after General Motors defaults.

While this example describes a single-name credit default swap, market participants frequently engage in a diverse array of credit default swap transactions. Financial institutions, attracted to the market by the large fees generated by brokering these arrangements, rapidly adapted the agreements to enable market participants to employ them in connection with a variety of debt instruments. The volume and diversity of credit default swap transactions increased in tandem.¹⁵² In 2001, the estimated notional amount of the credit default swap market was approximately \$919 billion; by 2005, the notional amount of the market had grown to nearly \$17 trillion and reached \$30 trillion by the end of 2009.¹⁵³

In the years leading to the financial crisis, credit default swap agreements traded in the OTC market where counterparties engaged directly, transacting with one another without the services or public disclosures involved in trading securities on an exchange or other formal trading platform.¹⁵⁴ Whereas the

152. See Patricia A. McCoy et. al., *Systemic Risk Through Securitization: The Result of Deregulation and Regulatory Failure*, 41 CONN. L. REV. 1327, 1337 (2009).

153. INT'L SWAPS & DERIVATIVES ASS'N, ISDA MARKET SURVEY, NOTIONAL AMOUNTS OUTSTANDING AT YEAR-END, ALL SURVEYED CONTRACTS, 1987–PRESENT (2010), available at <http://www.isda.org/statistics/pdf/ISDA-Market-Survey-annual-data.pdf>.

154. While some derivative contracts originate and trade in a secondary market for which there is a formal exchange, credit default swaps trade in OTC markets. See Partnoy & Skeel, *supra* note 145, at 1019.

listing requirements for exchanges and federal securities regulations require recording and, in certain instances, reporting of ownership of exchange-listed securities,¹⁵⁵ OTC markets historically lacked similar regulatory oversight.¹⁵⁶ According to Commodity Futures Trading Commission Chairman Gary Gensler, the lack of transparency in the OTC market resulted in market participants being “unable to adequately judge the risks they were assuming.”¹⁵⁷ The interplay between the obscurity in the credit default swap market and the market’s rapidly increasing size combined with relaxed credit underwriting standards in the residential mortgage market to create the perfect storm of systemic risk.

2. Exponential Growth in the Credit Default Swap Market

The credit default swap market initially grew slowly.¹⁵⁸ The size of the credit default swaps market grew from a negligible volume of private contracts at the market’s inception in the 1980s to a market with a notional value of over \$57 trillion just before the height of the recent financial crisis in the fall of 2008.¹⁵⁹ The size of the credit default swap market rivals the size of the market for international debt bonds and notes outstanding, which was \$25.3 trillion for the same period.¹⁶⁰ The traditionally illiquid character of debt markets, in large part,

155. Regulation 13(d) under the Exchange Act of 1934 requires market participants who purchase and sell securities that trade on a national exchange to disclose their ownership position with respect to stocks for which the market participants may be deemed to act as beneficial owners. 17 C.F.R. § 240.13d-1 (2010). Beneficial ownership arises when a person acquires voting or investment power over that stock. *Id.* § 240.13d-3(a).

156. See *infra* Parts III.B and IV.B–C.

157. *Financial Crisis Inquiry Commission*, 111th Cong. 8 (July 1, 2010) (statement of Gary Gensler, Chairman, Commodity Futures Trading Commission) available at <http://www.cftc.gov/PressRoom/SpeechesTestimony/opagensler-48.html> [hereinafter Gensler testimony I] (“Since 1981, over-the-counter derivatives have traded out of sight of market regulators and out of sight of the American public.”). Prior to the adoption of the Dodd-Frank Act, no formal registration or recording requirements applied to OTC transactions.

158. See Eamonn K. Moran, *Wall Street Meets Main Street: Understanding the Financial Crisis*, 13 N.C. BANKING INST. 5, 42 (2009) (describing the initial development of the credit default swap market).

159. BANK FOR INT’L SETTLEMENTS, QUARTERLY REPORT: STATISTICAL ANNEX, INTERNATIONAL BANKING AND FINANCIAL MARKET DEVELOPMENTS at A103 tbl. 19 (Dec. 2008).

160. *Id.* at A85 tbl. 11.

drives the popularity of credit default swaps.¹⁶¹ In addition, financial intermediaries earn lucrative fees for their originating and trading activities in the credit default swap market.¹⁶²

Increasing innovation also contributed to the credit default swap market's growth.¹⁶³ Initially, market participants generally used credit default swaps to manage their own exposure to risk.¹⁶⁴ Through innovation, market participants adapted credit default swap agreements to create different methods for shifting risk or permitting market participants to gain risk exposure.¹⁶⁵ For example, innovators created a credit default swap agreement that did not require the protection buyer to own the reference asset mentioned in the credit default swap agreement. Market participants describe these agreements as "uncovered" (meaning the protection buyer is not merely using the credit default swap agreement to cover a reference asset in the market participant's portfolio) or naked credit default swaps.¹⁶⁶

Critics describe naked credit default swap agreements as bets or gambling arrangements because the protection buyer does not experience a loss if the referenced entity defaults.¹⁶⁷ The belief that credit default swaps are largely used as tools for gambling and speculation inspired legislative proposals calling for a prohibition against credit default swaps.¹⁶⁸ At least one

161. Robert S. Neal & Douglas S. Rolph, *An Introduction to Credit Derivatives*, in THE HANDBOOK OF CREDIT DERIVATIVES 3, 3–4, 10–12 (1999).

162. See *International Finance: Regulators See Orderly CDS Market*, WALL ST. J., Mar. 10, 2009, at C2 ("Issuers of credit-default swaps charge fees in exchange for protection from unforeseen credit events, such as a bankruptcy or ratings downgrade. If such an event should occur, the issuer must pay up.").

163. See Timothy Geithner, President and Chief Exec. Officer of the Fed. Reserve Bank of N.Y., Credit Market Innovations and Their Implications, Address Before the 2007 Credit Markets Symposium (Mar. 23, 2007), available at <http://www.newyorkfed.org/newsevents/speeches/2007/gei070323.html> [hereinafter Geithner, Credit Market Innovations].

164. Partnoy & Skeel, *supra* note 145, at 1024–25.

165. See Geithner, Credit Market Innovations, *supra* note 163 (noting the effects of credit market innovation on spreading risk).

166. See Morgenson, *Naked Came the Speculators*, *supra* note 132, at BU1.

167. See, e.g., Lynn Stout, *Why We Need Derivatives Regulation*, N.Y. TIMES DEALBOOK BLOG (Oct. 7, 2009, 4:30 PM), <http://dealbook.blogs.nytimes.com/2009/10/07/dealbook-dialogue-lynn-stout/> (describing credit default swap agreements as "bets").

168. See Credit Default Swap Prohibition Act of 2009, H.R. 3145, 111th Cong. (2009) (proposal by Congresswoman Maxine Waters seeking to implement a ban on credit default swaps); see also Shannon D. Harrington & John Glover, *Credit-Default Swaps May Incite Regulators Over Insider Trading*, BLOOMBERG (Oct. 10, 2006), <http://www.bloomberg.com/apps/news?pid=21070001&sid=aAMb0.6cgOLs>.

scholar suggests that the disparity between the volume of bonds referenced as the underlying asset in credit default swap agreements and the volume of the correlating bonds issued by the reference entity demonstrates that a significant volume of the credit default swap agreements are naked credit default swaps.¹⁶⁹

Other commentators argue the size of the credit default swap market in comparison to the market for bonds referenced in those agreements establishes that speculators dominate the credit default swap market.¹⁷⁰ These commentators argue that by betting on the probability of the specified reference entity's default on its debt obligations, speculators manipulate pricing for debt securities and credit default swaps through their activities in the credit derivatives market.¹⁷¹

The magnitude of the credit default swap market coupled with the discrete number of large financial institutions and financial market intermediaries participating in the credit default swap market engenders a perilous situation.¹⁷² Scholars and commentators describe the credit default swap market as having unique significance because of the web of agreements that tie systemically important financial services businesses together. During the recent financial crisis, the market had become “[t]oo [i]nterconnected [t]o [f]ail.”¹⁷³

While reasonable minds may debate the precise definition of systemic risk, by all accounts, a systemic risk is grave, pervasive, and threatening to the function and stability of many

169. See *Regulatory Reform and the Derivatives Market: Hearing Before the S. Comm. on Agric., Nutrition, and Forestry*, 111th Cong. 134 (2009) (statement of Lynn Stout, Paul Hastings Professor of Corporate and Securities Law, University of California Los Angeles School of Law) [hereinafter Stout testimony] (“When the notional value of a derivatives market is more than four times larger than the size of the market for the underlying, it is a mathematical certainty that most derivatives trading is speculation, not hedging.”).

170. See, e.g., Jeffrey Manns, *Rating Risk After the Subprime Mortgage Crisis: A User Fee Approach for Rating Agency Accountability*, 87 N.C. L. REV. 1011, 1037 (2009); Morgenson, *Naked Came the Speculators*, *supra* note 132, at BU1.

171. See Stout testimony, *supra* note 169, at 133–34; Morgenson, *Naked Came the Speculators*, *supra* note 132, at BU1.

172. See Eric A. Posner & Adrian Vermeule, *Crisis Governance in the Administrative State: 9/11 and the Financial Meltdown of 2008*, 76 U. CHI. L. REV. 1613, 1623 (2009).

173. Anupam Chander & Randall Costa, *Clearing Credit Default Swaps: A Case Study in Global Legal Convergence*, 10 CHI. J. INT’L L. 639, 640 (2010); Roberta S. Karmel, *The Future of the Securities and Exchange Commission as a Market Regulator*, 78 U. CIN. L. REV. 501, 521 (2009).

aspects of the economy.¹⁷⁴ The role of credit default swaps in the recent financial crisis, and the market disruption that ensued, offers a poignant example of a financial product igniting domestic and international systemic risk. Before reaching the risks that these instruments engender, the next Section explores the benefits associated with credit default swaps.

B. The Benefits of Credit Default Swaps

Similar to the parable of the commons, the market for credit default swaps engenders externalities. Since the inception of the recent financial crisis, the negative externalities associated with the credit default swap market—credit risks, operational risks, and systemic risks—are a frequent topic for discussion.¹⁷⁵ It may not be accurate, however, to conclude that credit default swaps offer no social or economic value beyond enriching speculators. A fair analysis of the credit default swap market reveals that the market engenders both positive and negative externalities. Before exploring the many criticisms of the credit default swap market, this Section examines the benefits that credit default swaps generate: enhanced risk management through hedging and increased liquidity.

1. Risk Management Through Hedging

One of the most frequently cited benefits of credit default swap agreements is that the agreements allow market participants to transfer, share, or exchange risk.¹⁷⁶ Credit default swaps enable market participants to manage risk by hedging or offsetting their exposure to the risk of loss that is inherent in lending arrangements such as credit facilities or the acquisition of debt securities.¹⁷⁷ In equity securities markets, market participants have long exercised the ability to offset risk expo-

174. For a review of the varying definitions of systemic risk, see Schwarcz, *Systemic Risk*, *supra* note 29, at 196–204. See also Timothy Geithner, President and Chief Exec. Officer of the Fed. Reserve Bank of N.Y., The Current Financial Challenges: Policy and Regulatory Implications, Remarks Before the Council on Foreign Relations Corporate Conference in New York City (Mar. 6, 2008), available at <http://www.ny.frb.org/newsevents/speeches/2008/gei080306.html>.

175. See, e.g., Partnoy & Skeel, *supra* note 145, at 1032–42 (discussing potential problems with credit default swaps); Henry T.C. Hu & Bernard Black, *Debt, Equity and Hybrid Decoupling: Governance and Systemic Risk Implications*, 14 EUR. FIN. MGMT. 663, 681–83 (2008).

176. Neal & Rolph, *supra* note 161, at 10–12.

177. See Feder, *supra* note 143, at 682.

sure; offsetting risk of loss in credit markets was quite difficult prior to the introduction of credit default swaps.¹⁷⁸ Multiple commentators have described credit default swaps as an instrument that *completes* credit markets because the instruments allow market participants to offset exposure to risk of loss.¹⁷⁹

When a pension fund portfolio manager, for example, agrees to lend fifty million dollars to an orange grove, she hopes that there will be great harvests each year that the loan remains outstanding. If the pension fund manager enters into a credit default swap with a credible counterparty to cover 10 percent of the investment risk exposure, the pension fund manager offsets five million dollars of her exposure to the risk that the orange grove may fail to repay its obligations.

Credit default swap agreements permit lenders to hedge against the risk of a borrower's default on the principal or interest payments due on a loan or bond.¹⁸⁰ By allowing lenders and bondholders to share their credit risk with others, credit default swap agreements alter the structure of the lending market. Credit default swaps separate the risk of loss that a creditor faces upon entering into a debt investment and redistributes the risk among the creditor and its credit default swap counterparties.¹⁸¹ As a result of the redistribution, risk is not concentrated in the same manner that risk is concentrated between a single borrower and a single lender engaged in a traditional credit arrangement. If the borrower defaults and the

178. Credit markets were traditionally thought to be illiquid because, prior to the development of credit default swaps, there were few readily available methods for lenders to offset risk exposure. See, e.g., Partnoy & Skeel, *supra* note 145, at 1024–25, 1027 (discussing how credit default swaps increase liquidity in credit markets).

179. See, e.g., Partnoy & Skeel, *supra* note 145, at 1027; see also M. Todd Henderson, *Credit Derivatives are Not “Insurance”*, 16 CONN. INS. L.J. 1, 8 (2009) (describing a simple example of how a credit default swap can help complete a credit market).

180. See, e.g., Partnoy & Skeel, *supra* note 145, at 1021 n.2; Whitehead, *supra* note 27, at 4–5 (“[B]anks relied on new instruments—like credit default swaps—to outsource risk management to less-regulated entities, including hedge funds, which could then invest in and manage the credit risk of a bank’s loan portfolio without extending loans themselves.”) (acronym omitted).

181. Specifically, credit derivatives can help diversify the credit risk of a portfolio to reduce the volatility of potential returns. See Partnoy & Skeel, *supra* note 145, at 1024.

lender has entered into a credit default swap agreement, the creditor is less susceptible to the attendant risk of loss.¹⁸²

Former Chairman of the Federal Reserve Alan Greenspan initially praised the credit default swap market because use of credit default swaps offered a sophisticated method for managing risks.¹⁸³ According to Greenspan, financial institutions become more resilient and less vulnerable to systemic risk when credit risk is disaggregated from a single borrower-lender model.¹⁸⁴ If many market participants share the risk of loss associated with a single borrower or debt issuer, then the borrower or debt issuer's default or failure to repay is more easily ab-

182. Pointing to examples of extensive losses in financial markets, such as those caused by the Worldcom and Enron debacles, former Chairman of the Federal Reserve Board Alan Greenspan noted that banks that had used derivatives to hedge their losses reduced the shock that the market experienced upon the discovery of the fraud. See ALAN GREENSPAN, *THE AGE OF TURBULENCE: ADVENTURES IN A NEW WORLD* 371–72 (2007). Greenspan notes that many market participants welcomed the growth of credit default swap agreements: “[a] market vehicle for transferring risk away from these highly leveraged loan originators can be critical for economic stability, especially in a global environment.” *Id.* at 371. *But see* Greenspan testimony, *supra* note 1, at 46 (acknowledging significant mistakes in interpreting the appropriate limitations on liquidity and leverage by financial institutions). Greenspan acknowledged these mistakes to Representative Henry A. Waxman:

Mr. GREENSPAN. I found a flaw in the model that . . . defines how the world works, so to speak.

Chairman WAXMAN. In other words, you found that your view of the world, your ideology, was not right, it was not working.

Mr. GREENSPAN. Precisely. That's precisely the reason I was shocked, because I had been going for 40 years or more with very considerable evidence that it was working exceptionally well.

Id.

183. Alan Greenspan, Chairman, Fed. Reserve Bd., Risk and Financial Stability, Remarks Before the Federal Reserve Bank of Chicago's Forty-First Annual Conference on Bank Structure (May 5, 2005), available at <http://www.federalreserve.gov/boarddocs/speeches/2005/20050505/default.htm>.

184. *Id.* (acknowledging that at the 2003 conference he had “argued that the growing array of derivatives and the related application of more sophisticated methods for measuring and managing risks had been key factors underlying the remarkable resilience of the banking system, which had recently shrugged off severe shocks to the economy and the financial system”). Since the recent financial crisis began, however, Greenspan has abandoned his praise of credit default swaps and recanted his previous position. See Greenspan testimony, *supra* note 1, at 46; see also Brendan Sapien, Note, *Financial Weapons of Mass Destruction: From Bucket Shops to Credit Default Swaps*, 19 S. CAL. INTERDISC. L.J. 411, 439 (2010) (noting that Greenspan had admitted that “[c]redit default swaps . . . have some serious problems”); *60 Minutes: The Bet That Blew Up Wall Street* (CBS television broadcast Oct. 26, 2008), available at <http://www.cbsnews.com/video/watch/?id=4546583n>.

sorbed across the group of creditors; no one borrower can annihilate a single lender.¹⁸⁵

The financial crisis and Greenspan's statements recanting his earlier position have led some to attack the argument that transferring risk enhances financial market stability. Critics argue that market participants engage in the credit default swap market solely to speculate about movements in the prices of the referenced debt investment.¹⁸⁶ Understanding these claims regarding speculation turns, in large part, on the definition of speculation. Many market participants use credit default swaps to achieve their desired risk profile preferences.¹⁸⁷ Each plain vanilla credit default swap agreement involves a protection buyer who owns the reference asset identified in the agreement and who seeks to hedge his or her risk of loss.¹⁸⁸ The characterization of credit default swaps as insurance products supports the conclusion that a market exists for traditional risk management and hedging uses of credit default swaps.¹⁸⁹

Moreover, market participants use naked credit default swaps for a variety of purposes, including but not limited to

185. See Partnoy & Skeel, *supra* note 145, at 1023.

186. See *supra* notes 170–171 and accompanying text.

187. JANET M. TAVAKOLI, CREDIT DERIVATIVES: A GUIDE TO INSTRUMENTS AND APPLICATIONS 8 (1998) (“The key to [derivatives] investment management is to minimize risk while maximizing return. In theory, for every risk appetite there is an ‘efficient frontier’ of returns. This is sort of the demilitarized zone (DMZ) of investment management. Below the DMZ one is safe—too safe to win the war against inflation. . . . Credit derivatives are a tool to help move the DMZ farther into risky territory without taking more casualties.”).

188. J. Scott Colesanti, *Laws, Sausages, and Bailouts: Testing the Populist View of the Causes of the Economic Crisis*, 4 BROOK. J. CORP. FIN. & COM. L. 175, 196 (2010). (“These new financial instruments . . . enhance the ability to differentiate risk and allocate it to those investors most able and willing to take it.” (quoting a March 1999 speech by Alan Greenspan)); see also GILLIAN TETT, FOOL'S GOLD: HOW THE BOLD DREAM OF A SMALL TRIBE AT J.P. MORGAN WAS CORRUPTED BY WALL STREET GREED AND UNLEASHED A CATASTROPHE 3–22 (2009) (detailing the origin, growth, and abuse of credit default swaps between 1994 and 2008).

189. See Gregory R. Duffee & Chunsheng Zhou, *Credit Derivatives in Banking: Useful Tools for Managing Risk?*, 48 J. MONETARY ECON. 25, 29 (2001) (“Credit-default swaps can be thought of as insurance against the default of some underlying instrument.”); see also *Hearing to Review the Role of Credit Derivatives in the U.S. Economy Before the H. Comm. on Agric.*, 110th Cong. 79–83 (2008) (statement of Eric R. Dinallo, Superintendent, Insurance Department, State of New York); ANTÚLIO N. BOMFIM, UNDERSTANDING CREDIT DERIVATIVES AND RELATED INSTRUMENTS ch. 6.1 (2005); Schwarcz, *Systemic Risk*, *supra* note 29, at 181. *But see* Henderson, *supra* note 179, at 6 (“[T]he simple fact that credit derivatives sometimes result in risk sharing or transfer does not justify bringing these contracts and the parties to them within the ambit of insurance law.”).

speculation.¹⁹⁰ The challenges of achieving a “perfect hedge” may complicate efforts to characterize all of the activities captured within a broad definition of “speculation” as inherently “good” or inherently “bad.” To categorically determine that all financial market activities in the credit default swap market constitute speculation is to misperceive speculation ignores the value of hedging and related diversification strategies and defines speculation too broadly.

When a market participant who owns \$500,000 in General Motors bonds cannot identify a counterparty who will agree to enter into a plain vanilla credit default swap, the market participant may enter into a naked credit default swap for a substitute reference asset. Likely, the substitute reference asset is a debt security that is reasonably well correlated in terms of price movement and probability of default to the General Motors bonds that the market participant holds in her portfolio. The market participant may not own bonds issued by the substitute reference entity. Yet, through the naked credit default swap agreement identifying the reference asset that is highly correlated to the General Motors bond in the protection buyer’s portfolio, the market participant aims to create an imperfect hedge that will offset its exposure to a default by General Motors. The market participant’s decision to enter into a naked credit default swap agreement may constitute speculation, but she engages in speculation in order to capture otherwise unavailable hedging or risk-reduction benefits.

As this example demonstrates, isolating activities that constitute hedging from activities that constitute speculation may prove challenging.¹⁹¹ The protection buyer in the above example entered into a speculative naked credit default swap because the market participant was unable to identify a counterparty willing to enter into a plain vanilla swap naming the specified General Motors bonds as the reference asset. As evidenced by the economic losses in the recent crisis, there are indisputable reasons to express skepticism about the use of speculation in financial markets. There are, however, uses of speculation that may be acceptable and, therefore, merit con-

190. Saule T. Omarova, *The Quiet Metamorphosis: How Derivatives Changed the “Business of Banking”*, 63 U. MIAMI L. REV. 1041, 1089 n.195 (2009); Morgenson, *Naked Came the Speculators*, *supra* note 132, at BU1.

191. CHRISTINE HELLIAR ET AL., AN INVESTIGATION INTO THE MANAGEMENT OF INTEREST RATE RISK IN LARGE U.K. COMPANIES ch. 2.3 (2005) (“The difference between hedging and speculation, is . . . not always distinguishable.”).

sideration. Many financial products faced similar skepticism in the early years of their development. For instance, not so long ago, equity and debt securities, commodities, and derivatives that traded on exchanges endured criticism that each of these markets was merely a forum for gambling and speculation.¹⁹²

2. Increased Liquidity in the Market for the Reference Asset and the Credit Markets

Market participants also boast that credit default swaps enhance liquidity.¹⁹³ Market participants traditionally perceive credit markets as illiquid because it is difficult for creditors to offset exposure to the risk that a debtor may default on its principal or interest payments during the life of a loan or the term of a bond.¹⁹⁴ Credit default swap agreements increase liquidity by allowing the protection buyer to offset its credit risks and lower its risk exposure.¹⁹⁵

The liquidity argument suggests that the ability to transfer risk encourages market participants, such as lenders, to lend.¹⁹⁶ By most accounts, implementing a hedging strategy that permits market participants “to transfer or assume credit risk via credit derivatives facilitates risk management and the

192. Theresa A. Gabaldon, *John Law, with a Tulip, in the South Seas: Gambling and the Regulation of Euphoric Market Transactions*, 26 J. CORP. L. 225, 229 (2001); Thomas Lee Hazen, *Rational Investments, Speculation, or Gambling?—Derivative Securities and Financial Futures and Their Effect on the Underlying Capital Markets*, 86 NW. U. L. REV. 987, 988 & n.5 (1992) (suggesting that speculative investing is viewed as a form of gambling).

193. See Michael Mackenzie, *Credit Derivatives Survive a Series of Stress Tests as Demand for the Hedging Instrument Grows*, WALL ST. J., Jan. 21, 2002, at C13.

194. Neal & Rolph, *supra* note 161, at 87–90 (discussing the three predominant forms of credit default swaps—credit swaps, receivable puts, and total return swaps—and noting that credit default swaps increase liquidity by allowing the protection buyer to offset its credit risks and lower exposure).

195. GREENSPAN, *supra* note 182, at 371 (“Being able to profit from the loan transaction but transfer credit risk is a boon to banks and other financial intermediaries which, in order to make an adequate rate of return on equity, have to heavily leverage their balance sheets by accepting deposit obligations and/or incurring debt.”); see also Brad Bailey, *Trading Credit Derivatives: The New Frontier*, FIN. TECH. NETWORK (Aug. 7, 2006), <http://www.financetech.com/featured/showArticle.jhtml?articleID=191801379>.

196. See Beverly Hirtle, *Credit Derivatives and Bank Credit Supply*, FED. RESERVE BANK OF NEW YORK STAFF REPORTS 4 (Feb. 2007), available at http://www.ny.frb.org/research/staff_reports/sr276.pdf. Hirtle states that “[i]n theory, credit derivatives allow parties to take on credit risk without doing any actual lending, or to do lending without assuming any credit risk.” *Id.* Being able to lend without assuming any credit risk should, theoretically, encourage more lending.

optimal use of the bank capital.”¹⁹⁷ Because credit derivatives allow banks to hedge risk or transfer risk, some posit that the banks become more willing to lend.¹⁹⁸ As the capital available for borrowing increases, the costs of borrowing decrease, benefitting debtors seeking borrowing opportunities.¹⁹⁹

On the one hand, a reduction of risk that encourages lending at lower rates seems beneficial. On the other hand, significant concerns arise if one mistakenly interprets risk reduction activities as a guarantee or a permanent elimination of risk of loss. Market participants’ mistaken presumptions of the elimination of risk of loss, critics argue, encourages excessive risk taking.²⁰⁰ As a result of the losses experienced in the recent crisis, some market participants and regulators agree that the industry should implement policies reinforcing the importance of accurately assessing the risk of loss coverage attained by using a credit default swap.²⁰¹

The benefits created by credit default swaps present noteworthy concerns. Any effort to address these concerns effectively requires market participants to capture the gains associated with these investment products while reducing the negative externalities that arise in connection with the use of credit default swap markets. The persistent dangers, however, in the credit default swap market generate even more disconcerting challenges. Many market participants experienced distress during the recent financial crisis because they had not anticipated the breadth and depth of the dangers of participating in the credit default swap market.²⁰² The next Section dis-

197. *Id.*

198. A. Sinan Cebenoyan & Philip E. Strahan, *Risk Management, Capital Structure and Lending at Banks*, 28 J. BANKING & FIN. 19, 19–21 (2001), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=293378 (examining the risk management benefits of the loan sales market and positing that recently developed, sophisticated credit-risk management measures are healthy and likely to increase the availability of bank credit, but cautioning against the anticipation that banks will employ these strategies to reduce risk).

199. See John W. Uhlein, *Breakdown in the Mortgage Securitization Market: Multiple Causes and Suggestions for Reform*, 60 SYRACUSE L. REV. 503, 506 (2010).

200. See Brian J.M. Quinn, *The Failure of Private Ordering and the Financial Crisis of 2008*, 5 N.Y.U. J. L. & BUS. 549, 593 (2009).

201. Hal S. Scott, *The Reduction of Systemic Risk in the United States Financial System*, 33 HARV. J.L. & PUB. POL’Y 671, 683–84 (2010).

202. For example, AIG lost “more than \$10 billion in 2007 and \$14.7 billion in the first six months” of 2008 because of losing positions in credit default swap contracts. Justin Fox, *Why the Government Wouldn’t Let AIG Fail*, TIME (Sept. 16, 2008) <http://www.time.com/time/business/article/0,8599,1841699,00.html>. “AIG

cusses the underexplored perils in the credit default swaps market.

C. *The Dangers of Credit Default Swaps*

Conflicts frequently arise when commons users transfer the negative externalities that their activities generate to others while extracting and retaining benefits from use of a commons.²⁰³ This Section explores arguments that credit default swap market participants extracted and internalized the benefits of their activities in credit default swap markets, while transferring credit, operational, and systemic risks to the national economy.

1. Credit Risks Relating to the Credit Default Swap Market

Credit risk, a significant danger associated with credit default swaps, presents itself in three noteworthy forms: counterparty risk, default risk, and unrealistic perceptions of credit protection as an absolute guarantee against loss. Counterparty risk refers to the counterparty's ability to satisfy its obligations under a credit default swap agreement, which in turn rests on the creditworthiness of the counterparty.²⁰⁴ At the time of the execution of the credit default swap agreement, parties typically do not exchange funds; rather, the parties agree to set aside a certain amount of collateral to cover their obligations under the agreement.²⁰⁵ For the term of the credit default swap agreement, the protection buyer faces the risk that its counterparty may be unable to satisfy its obligations upon the termination or expiration of the agreement.

appears to have sold [credit default swaps] in large quantities to practically every financial institution on the planet." *Id.*

203. See OSTROM, *GOVERNING THE COMMONS*, *supra* note 55, at 2–3; see also *supra* Part I.B.

204. Frank Partnoy, *Financial Derivatives and the Costs of Regulatory Arbitrage*, 22 J. CORP. L. 211, 219 n.48 (1997). Counterparty risk is particularly significant where the agreement is not secured with collateral. See *The Causes and Effects of the AIG Bailout: Hearing Before the H. Comm. on Oversight and Gov't Reform*, 110th Cong. 37 (2008) (statement of Eric R. Dinallo, Superintendent, Insurance Department, State of New York) ("For a large, large, large percentage of credit default swaps, you're required to have absolutely no collateral or capital behind them.").

205. Kim, *supra* note 140, at 740. Collateral is defined as "[p]roperty that is pledged as security against a debt." BLACK'S LAW DICTIONARY 278 (8th ed. 2004).

Default risk refers to the risk faced by lenders that a borrower may default on an outstanding debt obligation.²⁰⁶ Historically, under a single borrower/single lender model, financial institutions originated loans and held the loans in their individual portfolios until the loans matured and the debtor satisfied its debt obligations.²⁰⁷ When issuing loans that they intended to hold until maturity, financial institutions had incentives to conduct effective, if not extensive, due diligence.²⁰⁸ Banks carefully evaluated whether borrowers satisfied qualifications that indicated the borrowers' ability to successfully repay any loan obligations.²⁰⁹ The introduction of new mechanisms—syndication, credit default swaps, and other credit derivatives that transfer default risk—altered creditors' historic commitment to best practices of due diligence standards and continuous credit monitoring.²¹⁰ Credit default swaps thus reduced creditors' incentives to act as gatekeepers.²¹¹

The unrealistic perception of the protections provided by credit default swaps mirrors the classic seatbelt dilemma. Research demonstrates that some drivers speed or drive more recklessly when wearing seatbelts because the seatbelt creates the misperception of protection against any possible driving-related injuries.²¹² In the recent crisis, some market participants began to perceive credit default swap agreements as an absolute guarantee against risk of loss, and they consequently adopted less disciplined risk management processes and exposed themselves to excessive levels of risk.²¹³ Additionally,

206. See *supra* note 182 and accompanying text (discussing risk that lender bears in single borrower-lender scenario).

207. See *supra* note 182 and accompanying text.

208. Feder, *supra* note 143, at 690 (“Traditionally, an expectant firm minimizes its credit risk by monitoring the credit health of its debtors and tailoring the amount of unsecured credit it would extend to such debtors.”).

209. See Partnoy & Skeel, *supra* note 145, at 1033 (“[S]ince banks are often particularly well-positioned to monitor—due, among other things, to their sophistication and the access they have to the details of a debtor’s finances—the use of credit default swaps can neutralize a very good monitor.”).

210. *Id.* at 1020 (“Financial intermediaries, particularly banks, no longer necessarily serve as monitors and risk bearers. Instead, intermediaries use new instruments known as credit derivatives to shift risks to other parties.”); see also *id.* at 1033 (“Overall this situation suggests that credit default swaps may reduce monitoring oversight, and their use can lead to moral hazard on the part of borrowers who are subject to less financial discipline from their lenders.”).

211. See *id.*

212. See John G. U. Adams, *Seat Belt Legislation: The Evidence Revisited*, 18 SAFETY SCI. 135, 136, 138 (1994).

213. See *infra* Part II.D.

market participants' "[s]ensitivity to risk was dulled by the 'Greenspan put', a belief that America's Federal Reserve would ride to the rescue with lower rates and liquidity support if needed."²¹⁴ Furthermore, financial institutions relied on their protection sellers to act as backstops and credit rating agencies to assess accurately the likelihood of a reference entity's default.²¹⁵

In addition to market participants' misperceptions regarding their ability to rely on credit default swaps as a type of guarantee, the use of credit default swaps created concerns regarding traditional assumptions about the creditor-debtor relationship in the context of bankruptcy. In the absence of an investment product or strategy that allows banks to transfer risk, credit markets may be described as illiquid; traditionally, when a lender extends a loan to a borrower, the bank bears the risk of loss related to the loan until it is repaid.²¹⁶ The lender in the traditional lending model has incentives to assist the debtor to remain solvent: namely to ensure repayment of the loan.²¹⁷

214. Matthew Valencia, *The Gods Strike Back*, THE ECONOMIST, Feb. 11, 2010, at 4, available at http://www.economist.com/NODE/15474137?STORY_ID=15474137; see also CONSUMER FED'N OF AM., REFORM OF FINANCIAL MARKETS: THE COLLAPSE OF MARKET FUNDAMENTALISM AND THE FIRST STEPS TO REVITALIZE THE ECONOMY 34–35 (2009), available at <http://www.consumerfed.org/elements/www.consumerfed.org/file/FinancialMarketReformReport.pdf> (discussing the tendency of financial institutions to shift risk to the government and, ultimately, taxpayers); Kevin Dowd, *Moral Hazard and the Financial Crisis*, 29 CATO J. 141, 157 (2009), available at <http://www.cato.org/pubs/journal/cj29n1/cj29n1-12.pdf>.

215. Valencia, *supra* note 214, at 4 (“Scrutiny of borrowers was delegated to rating agencies, who were paid by the debt-issuers. Some products were so complex, and the chains from borrower to end-investor so long, that thorough due diligence was impossible.”).

216. The market for an equity security is described as liquid when a party is able to promptly execute a transaction to purchase or sell the security. See BARRON'S FINANCIAL GUIDES: DICTIONARY OF FINANCE AND INVESTMENT TERMS 405 (8th ed.) (defining liquidity as the “ability to buy or sell quickly and in large volume without substantially affecting the asset price” and as a reference to “the ability to convert to cash quickly”). Credit default swaps allow lenders to transfer risk, increasing liquidity in credit markets. See GREENSPAN, *supra* note 182, at 371 (explaining the introduction of products that offered a mechanism to transfer risk away from loan originators); see also Partnoy & Skeel, *supra* note 145, at 1024 (stating that “credit default swaps enable banks to lend at lower risk . . . [and thereby] increase liquidity in the banking industry” and analogizing the mechanics of credit default swaps to “the influence securitization has had on home mortgage lending”).

217. See, e.g., Royce de R. Barondes, *Fiduciary Duties of Officers and Directors of Distressed Corporations*, 7 GEO. MASON L. REV. 45, 57 (1998) (“If a corporation has outstanding publicly-issued debt, . . . creditors will attempt to negotiate defaults that permit them to exercise remedies, and negotiate a satisfactory out-

Credit default swaps allow market participants to share the risk of a borrower's default.²¹⁸ Therefore, when a lender purchases a credit default swap to offset its exposure if the reference entity defaults, the lender may have diminished incentives to assist the issuer of the debt that is the underlying asset in the credit default swap agreement.²¹⁹ Some posit that the recent bankruptcies at automakers General Motors Company and Chrysler LLC demonstrate the need to evaluate carefully traditional assumptions about creditors' intentions and presumed responses to a distressed debtor.²²⁰

In recent works expanding on earlier evaluations of similar short selling strategies, Professors Hu and Black explore the effects of decoupling economic interest and voting interest in the context of debt securities.²²¹ Their findings reflect concerns that short selling, or the use of naked credit default swaps, may lead to manipulation in the debt securities markets similar to the manipulation discovered in connection with short selling in the equities market.²²² According to Professors Hu and Black's "empty voter" hypothesis, shareholders' ownership of equity ordinarily grants them a bundle of rights, including voting rights and the opportunity to share in the profits and

come, before either public debt is in default or the debtor's position becomes hopeless.").

218. See GREENSPAN, *supra* note 182, at 371.

219. See generally *No Empty Threat: Credit-Default Swaps are Pitting Firms Against Their Own Creditors*, THE ECONOMIST (June 18, 2009) http://www.economist.com/node/13871164?story_id=13871164 ("[L]enders who hedged their economic exposure through credit-default swaps . . . can often make higher returns from CDS payouts than from out-of-court restructuring plans.").

220. Henny Sender, *Credit Insurance Hampers Restructuring Plan*, FIN. TIMES, May 12, 2009, at 16 ("Hedge funds and other investors stand to make billions of dollars on credit [default swap] contracts if GM declares bankruptcy, a prospect that is complicating efforts to persuade creditors to agree to a restructuring plan for the automaker, analysts say."). For a description of assumptions about the traditional risk allocation in a model where the lender does not shift its risk, see Barondes, *supra* note 217, at 57.

221. Henry T. C. Hu & Bernard Black, *Equity and Debt Decoupling and Empty Voting II: Importance and Extensions*, 156 U. PA. L. REV. 625, 730–35 (2008) [hereinafter Hu & Black, *Equity and Debt Decoupling*]; see generally Henry T. C. Hu & Bernard Black, *The New Vote Buying: Empty Voting and Hidden (Morphable) Ownership*, 79 S. CAL. L. REV. 811 (2006) [hereinafter Hu & Black, *New Vote Buying*] (discussing the effects of decoupling on equity security ownership).

222. Hu & Black, *Equity and Debt Decoupling*, *supra* note 221, at 730–35. The benefits of a naked credit default swap are similar to the benefits of a short sale. Partnoy and Skeel describe a credit default swap as a "private contract in which private parties bet on a debt issuer's bankruptcy, default, or restructuring." Partnoy & Skeel, *supra* note 145, at 1021.

losses of the enterprise.²²³ Extending the argument to corporate OTC equity derivatives, they argue that when derivatives allow market participants to hedge against risk exposure, such instruments decouple economic rights (collection of principal and interest debt repayments) from non-economic rights.²²⁴

These arguments regarding decoupling of rights can extend, by analogy, to credit derivatives. Voting for or against bankruptcy is among the non-economic rights that a creditor obtains in connection with her investment. When economic rights are decoupled from non-economic rights and a debt issuer faces the question of bankruptcy, creditors who have entered into credit default swaps have reduced incentives to value the debt claims. In fact, creditors who have purchased protection against default, particularly those who have purchased coverage that is greater than their risk exposure, may “prefer to force the company into bankruptcy, rather than agree to a restructuring, because the bankruptcy filing will trigger a contractual payoff on its swap position.”²²⁵

2. Operational Risks in Credit Default Swap Markets

In addition to credit risk concerns, operational risks threaten the stability of the credit default swap market. In the years leading up to the recent financial crisis, disorder and obscurity plagued the operational structure of the credit default swap market. Unlike securities or commodities transactions that pass through clearinghouses, credit default swaps originate and trade in the informal OTC market. The informality of

223. See Hu & Black, *New Vote Buying*, *supra* note 221, at 821, 825.

224. See Hu & Black, *Equity and Debt Decoupling*, *supra* note 221, at 737–38.

225. *Id.* at 732. Several other exceptions in the bankruptcy code exacerbate concerns regarding the current regulatory framework for derivatives transactions. See, e.g., 11 U.S.C. § 362(b)(17) (2008). Scholars have also challenged the equities of the bankruptcy provisions that create a safe harbor exempting derivatives from the automatic stay limiting asset transfers by distressed debtors that file for Chapter 11 protection. See Rhett G. Campbell, *Energy Future and Forward Contracts, Safe Harbors and the Bankruptcy Code*, 78 AM. BANKR. L.J. 1, 1 (2004); Stephen J. Lubben, *The Bankruptcy Code Without Safe Harbors*, 84 AM. BANKR. L.J. 123, 127–28 (2010) [hereinafter Lubben, *The Bankruptcy Code Without Safe Harbors*] (describing the development of the safe harbors under the Bankruptcy Code and the current breadth of the catch-all definition covering the “whole of the derivatives market, present and future”); Stephen J. Lubben, *Derivatives and Bankruptcy: The Flawed Case for Special Treatment*, 12 U. PA. J. BUS. L. 61 (2009); see also Bryan G. Faubus, Note, *Narrowing the Bankruptcy Safe Harbor for Derivatives to Combat Systemic Risk*, 59 DUKE L.J. 801 (2010).

the operational infrastructure of the OTC market has led to operational risks such as significant backlogs and large volumes of trade confirmations that remain unprocessed.²²⁶ The absence of formal requirements to register and record trades exacerbates the difficulty of identifying trade counterparties. Unprocessed trade confirmations lead to disagreements regarding the identities of trading partners and settlement disputes.²²⁷

The disconcerting and widespread practice of novation in the early years of the market exemplifies another significant operational weakness or risk in the credit default swap market. Secondary trading of credit default swap agreements involves novation, or the legal substitution of a new counterparty for one of the original parties to the agreement.²²⁸ In the credit default swap market, for many years, the practice of novation occurred without the prior consent of the remaining original counterparty.²²⁹ Thus, a counterparty to a credit default swap agreement may not have received notice or an opportunity to consent to such a transfer and therefore lacked an opportunity to perform due diligence on the creditworthiness of a substituted counterparty.

226. When parties desire to purchase or sell a credit default swap, they typically issue a trade confirmation that contractually signals the agreement to transfer rights and obligations under the agreement to another party. See Bailey, *supra* note 195 (“Trading in credit derivatives has grown so quickly that it has put unusual stress on the middle and back offices to confirm and process trades effectively. The backlog reached a level last year where both the Federal Reserve and the U.K.’s Financial Service Authority (FSA) commented on possible systemic risk to the financial system as a result of so many unconfirmed and unprocessed trades.”).

227. 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 13 (2007) *available at* <http://www.gao.gov/new.items/d07716.pdf> (explaining how dealers regularly agreed to assignments in response to competitive pressure even when credit default swap agreements contained provisions that did not permit assignments, also called novations, without consent). Regulators in other jurisdictions took similar action—the British Financial Services Authority, for example, issued a letter in February 2005 that aimed to draw the industry’s attention to the confirmation backlog. FIN. SERV. AUTH., ANNUAL REPORT 2006/07 6, *available at* http://www.fsa.gov.uk/pubs/annual/ar06_07/ar06_07.pdf.

228. BLACK’S LAW DICTIONARY 1168 (9th ed. 2009) (defining novation as “[t]he act of substitution for an old obligation a new one that either replaces an existing obligation with a new obligation or replaces an original party with a new party”).

229. U.S. GOV’T ACCOUNTABILITY OFFICE, *supra* note 227, at 13; see John D. Sheehan, *Careful Planning Remains Important Part of Pre-bankruptcy Negotiations*, 24 AM. BANKR. INST. J. 10, 45 (2006) (discussing potential implications of a judicial finding that an agreement was subject to a novation).

The disadvantages of the informal operational structure of the market likely reduced several of the benefits discussed in Section A of this Part. Unregistered and unconfirmed trades and frequent use of novation impeded even the most sophisticated market participants' ability to assess counterparties' creditworthiness. As a result, it was difficult for participants to assess counterparty risk.²³⁰ The difficulty in assessing counterparty creditworthiness in a less transparent market, coupled with pervasive operational risks, continues to threaten the health and vitality of broader credit markets and capital markets.²³¹ The lack of a formal operational infrastructure contributed to the opaque character of the market. Structural reforms may remedy many of these operational risks. Parts III and IV of this Article explore structural reforms adopted by private market participants and the structural reforms imposed by recently adopted legislation.

3. Systemic Risk, Moral Hazard and Credit Default Swaps

During the recent financial crisis, investigations revealed that a concentration of significant financial institutions participated in the credit default swap market.²³² This concentration of significant financial market participants contributed to systemic risk and moral hazard concerns.

Several of the largest financial institutions in the economy engaged in the credit default swap market.²³³ The credit de-

230. Gensler testimony I, *supra* note 157 (explaining that prior to and throughout the financial crisis, market participants "were often unable to adequately judge the risks they were assuming [in the OTC derivatives markets] due to the complexity and lack of transparency of the instruments they were trading and the counterparty credit risk they were assuming").

231. *See id.* ("Some have legitimately debated whether this lack of transparency was a contributing factor to the financial crisis. I believe that . . . this lack of transparency [in OTC derivatives markets] did leave our financial system more vulnerable. The inability to price many complex mortgage securities created a new word in the public lexicon: 'toxic assets.'").

232. As of March 2008, the top twenty-five commercial and investment banks in the United States held more than \$13 trillion in credit default swaps, with J.P. Morgan Chase, Citibank, Bank of America, and Wachovia among the most active traders in credit default swaps. Janet Morrissey, *Credit Default Swaps: The Next Crisis?*, TIME (Mar. 17, 2008), <http://www.time.com/time/business/article/0,8599,1723152,00.html>.

233. According to the Office of the Comptroller of the Currency, U.S. commercial banks with insured deposits held an estimated \$13 trillion in credit default swaps. OFFICE OF THE COMPTROLLER OF THE CURRENCY, NR 2009-161, QUARTERLY REPORT ON BANK TRADING AND DERIVATIVES ACTIVITIES, THIRD

fault swap market is a gentleman's club of the most elite and prestigious financial institutions in the world.²³⁴ The use of credit default swaps is limited to larger institutions and is highly concentrated among a few market participants.²³⁵ Federal law limits the market participants who are eligible to participate in credit default swap transactions. Only "eligible contract participants" may participate in the credit default swap market; "eligible contract participants" typically include institutional investors, financial institutions, insurance companies, registered investment companies, corporations, partnerships, trusts, and other similar entities with assets exceeding \$1 million, or individuals with total assets exceeding \$10 million.²³⁶ While designed to prevent unsophisticated investors from entering into the market, Congress limited the possible market participants to the largest financial services intermediaries and institutions and other sophisticated, and high net worth investors.

According to the Office of the Comptroller of the Currency, "[f]ive large commercial banks represent 97% of the total banking industry[s] notional amounts" of OTC derivatives.²³⁷ Consequently, the high level of concentration in the credit default swap market increases the probability that these few eligible market participants will form a web of counterparty relationships. The concentration within the market and the interconnectedness of contractual arrangements increases the risk that one market participant, such as AIG, might become insolvent and trigger a domino effect of losses.²³⁸

QUARTER 6 (2009), available at <http://www.occ.gov/news-issuances/news-releases/2009/nr-occ-2009-161a.pdf>. An estimated 1,065 insured U.S. commercial banks reported derivatives activities. *Id.* at 1.

234. Matthew Phillips, *The Monster that Ate Wall Street*, NEWSWEEK, Oct. 6, 2008, at 46, available at <http://www.newsweek.com/2008/09/26/the-monster-that-ate-wall-street.html>; James Quinn, *Lehman Brothers Crisis Shakes Wall Street's Corridors of Power*, TELEGRAPH (London), Sept. 14, 2008 ("At times, the New York banking elite is referred to as a gentleman's club, one that is impenetrably difficult to get into, and one that no one wants to leave.")

235. See COMM. ON THE GLOBAL FIN. SYS., BANK FOR INT'L SETTLEMENTS, CREDIT RISK TRANSFER 6 (2003), available at <http://www.bis.org/publ/cgfs20.pdf>.

236. Commodity Futures Modernization Act of 2000, 7 U.S.C. § 1a(12) (2006).

237. OFFICE OF THE COMPTROLLER OF THE CURRENCY, *supra* note 233, at 1.

238. See Gensler testimony I, *supra* note 157 ("There are lessons out of AIG and the financial crisis that go well beyond credit default swaps. There are lessons about interconnectedness in the financial system, the lack of regulation of derivatives dealers and the lack of transparency in the swaps marketplace. Each of these had some role in the crisis. . . . [The absence of a central clearing authority for OTC derivatives] left the financial system interconnected through a web of

In addition to the systemic risk related to market concentration, market participants' use of proprietary quantitative models to determine the negotiated contract terms for credit default swap transactions poses a second set of systemic risk concerns.²³⁹ Once the values of corporate debt began to decline, market participants who agreed to act as protection sellers faced significant pressure to satisfy counterparties' demands that protection sellers, consistent with their obligations under the credit default swap agreements, post additional collateral.²⁴⁰ The concern that protection sellers lacked the ability to satisfy their obligations threatened to trigger a series of insolvencies among systemically significant financial institutions, a daisy-chain effect, resulting in a breakdown of the entire financial services industry.²⁴¹ The similarities in the market participants' debt exposure related to universal reliance on similar quantitative models wove a paralyzing web around the market.²⁴²

transactions in the derivatives marketplace. In 2008, this contributed to uncertainty at the height of the crisis.”).

239. Carrick Mollenkamp et al., *Behind AIG's Fall, Risk Models Failed to Pass Real-World Test*, WALL ST. J., Nov. 3, 2008, at A1 [hereinafter Mollenkamp, *Behind AIG's Fall*] (describing how “AIG relied on [quantitative risk] models to help figure out which swap deals were safe . . . [but failed to] anticipate how market forces and contract terms not weighed by the models would turn the swaps, over the short term, into huge financial liabilities” and explaining that AIG’s failure to apply the models for valuation of swaps and collateral risk effectively resulted in extensive losses and the near-collapse of AIG).

240. For a discussion of collateral exchanges related to credit derivative contracts, see generally Lubben, *The Bankruptcy Code Without Safe Harbors*, *supra* note 225 (describing the process whereby derivatives transactions as secured by collateral and the transfers of the collateral in the event of a bankruptcy event). Lubben writes:

Many derivative transactions, particularly those among financial institutions and investors, involve an element of secured lending. . . . [P]arties to derivative transactions typically exchange “mark to market” collateral to reduce counterparty risk. . . . As a matter of best practices, the balance of the mark to market collateral should be adjusted with some frequency

Id. at 126. For an example of these events transpiring, see Mollenkamp, *Behind AIG's Fall*, *supra* note 239 (describing AIG’s efforts to address collateral demands in September of 2008).

241. See, e.g., Mollenkamp, *Behind AIG's Fall*, *supra* note 239.

242. SCOTT E. HARRINGTON, NAT’L ASS’N OF MUT. INS. COS., *THE FINANCIAL CRISIS, SYSTEMIC RISK, AND THE FUTURE OF INSURANCE REGULATION* 1–2 (2009), available at <http://www.namic.org/pdf/090908SystemicRiskAndTheFuture.pdf> (discussing the various causes of the financial crisis and noting the impact of the CDS market).

D. *Illustrating the Dangers of the Credit Default Swap Market*

AIG's near collapse illustrates the most alarming danger posed by the credit default swap market. In the fall of 2008, AIG's poor decisions regarding its positions in the credit default swap market threatened to dismantle the company,²⁴³ and AIG—the world's largest insurance firm—teetered on the brink of collapse. Traditionally an insurance firm,²⁴⁴ AIG had two divisions that offered securities related services. One of those two divisions, the AIG Financial Products Corporation ("AIGFP"), entered into the credit default swap market in 2002.²⁴⁵ The notional value²⁴⁶ of AIG's derivatives portfolio reached a height of \$2 trillion before settling to \$700 billion prior to the company's near collapse.²⁴⁷ AIG acted almost exclusively as a protection seller.

AIG senior executives, relying on quantitative risk models, concluded that losses on credit default swap transactions were unlikely and, as a result, viewed the protection buyers' periodic payments as "gold" or "free money."²⁴⁸ AIG imprudently

243. See Daniel Schwarcz, *Regulating Insurance Sales or Selling Insurance Regulation?: Against Regulatory Competition in Insurance*, 94 MINN. L. REV. 1707, 1770–71 (2010). For a discussion of the events leading to AIG's request for federal aid to assist the company in maintaining its solvency, see OFFICE OF THE SPECIAL INSPECTOR GEN. FOR THE TROUBLED ASSET RELIEF PROGRAM, SIGTARP-10-003: FACTORS AFFECTING EFFORTS TO LIMIT PAYMENTS TO AIG COUNTERPARTIES 8 (Nov. 17, 2009).

244. AIG's principal business divisions offered individual life, group life, commercial property, casualty, workers' compensation, and mortgage guaranty insurance. See AIG, Annual Report (Form 10-K) 6 (Feb. 27, 2008) [hereinafter AIG '07 Annual Report], available at <http://www.sec.gov/Archives/edgar/data/5272/000095012308002280/y44393e10vk.htm>.

245. Within AIG, AIGFP managed the credit default swap portfolio. *Id.* at 11, 16.

246. Notional value refers to the total face value of the debt securities or loans protected by the credit default swap agreements. See BARRON'S FINANCIAL GUIDES: DICTIONARY OF FINANCE AND INVESTMENT TERMS 487–88 (8th ed.). The notional value of a credit default swap is generally only a fraction of the full face value of the debt obligation. See *supra* note 204 and accompanying text.

247. See Serena Ng, *AIG, Goldman Unwind Soured Trades*, WALL ST. J., Apr. 12, 2010, at C1. ("The notional value of [AIG's] remaining derivatives [portfolio] is about \$770 billion, down from more than \$2 trillion . . ."). Among the investments covered by credit default swaps, AIG agreed to provide protection against the default of \$61.4 billion of multi-sector collateralized debt obligations, pools of asset backed securities including commercial and residential mortgage loans, auto loans, credit card receivables, and other debt obligations secured by collateral. AIG '07 Annual Report, *supra* note 244, at 122.

248. Mollenkamp, *Behind AIG's Fall*, *supra* note 241, at A1; see also Morgen-son, *Blind Eye*, *supra* note 12, at A1. According to one report, a risk model archi-

trusted misguided credit ratings, which relied on erroneous assumptions about the probability of debtors' defaults,²⁴⁹ and recklessly entered into excessive volumes of credit derivatives transactions.²⁵⁰ When the market began to decline, AIG stumbled toward insolvency under the weight of the losses related to the credit derivatives market that the company experienced.

If AIG became insolvent, its inability to satisfy its obligations under various business agreements would negatively impact its counterparties. AIG's counterparties included cities, states, public and private pension funds, retirement funds, and other significant financial institutions.²⁵¹ As discussed in Part II.C, the size and concentration of the market intensified systematic risk concerns. To avoid the deleterious effects of AIG's bankruptcy on the heels of Lehman Brothers' bankruptcy, the Federal Reserve decided to extend an emergency loan to AIG in September of 2008.

This Part explored the mechanics, benefits, and dangers of the credit default swap market. In order to allow for market participants to capture the benefits available through use of credit default swaps, but to avoid the perilous costs, Part III examines the three traditional governance models proposed to address the dangers in the credit default swap market.

III. TRADITIONAL COMMONS GOVERNANCE MODELS FAIL TO ADDRESS THE RISKS RELATED TO CREDIT DEFAULT SWAPS

Since Hardin first articulated the commons parable, a rich discussion has emerged regarding management and governance of commons resources.²⁵² The parable of the commons

tect persuaded an AIG executive, Joseph Cassano, that selling protection on credit default swaps was "only gold" and "that if anybody paid you to take on these risks, it was free money." Mollenkamp, *Behind AIG's Fall*, *supra* note 241, at A1. For a discussion of the role of risk models and their predictions regarding the housing market, see Eric S. Rosengren, President & CEO, Fed. Reserve Bank of Bos., *Asset Bubbles and Systemic Risk* (Mar. 3, 2010), *available at* <http://www.bos.frb.org/news/speeches/rosengren/2010/030310/index.htm> ("There is evidence that financial institutions understood the risks that would arise if house prices fell, but assigned too low a probability to this potential outcome. Thus they were woefully unprepared to weather the consequences when prices did indeed fall.").

249. See Manns, *supra* note 170, at 1046.

250. See Karnitschnig et al., *supra* note 12; see also Jon Hilsenrath et al., *Worst Crisis Since '30s, With No End Yet in Sight*, WALL ST. J., Sept. 18, 2008, at A1.

251. Geithner testimony, *supra* note 15.

252. See, e.g., Abraham Bell & Gideon Parchomovsky, *Of Property and Anti-property*, 102 MICH. L. REV. 1, 2 (2003); Michael A. Carrier & Greg Lastowka,

challenges communities to develop efficient yet normative governance models.²⁵³ Hardin's discussion of the commons concludes that the openly accessible, nonrival, and nonexcludable commons creates a free-for-all and, consequently, leads to the ruin of the commons.²⁵⁴ A wealth of scholarship explores the responses Hardin proposes in his original essay.²⁵⁵ Not all scholars agree with Hardin. Dissenters reject the assumption that the freedom of commons inherently brings demise.²⁵⁶ According to these scholars, the structure of the governance model determines whether freedom in the commons equates to ruin.²⁵⁷

Drawing upon Hardin's essay, commons scholarship developed three governance models to resolve the tragedy of the commons: deregulation; privatization; and centralized, external regulation. The theories appear on a continuum with deregulation—a libertarian or *laissez faire* model—at one end of the governance spectrum, and centralized control by an external

Against Cyberproperty, 22 BERKELEY TECH. L.J. 1485, 1495–96 (2007); Yonatan Even, *Appropriability and Property*, 58 AM. U. L. REV. 1417, 1432 (2009); Sheila R. Foster, *Urban Informality as a Commons Dilemma*, 40 U. MIAMI INTER-AM. L. REV. 261, 272–78 (2009); Frischmann, *Infrastructure*, *supra* note 71, at 921; Rose, *Comedy of the Commons*, *supra* note 79, at 719–20; Amy Sinden, *The Tragedy of the Commons and the Myth of a Private Property Solution*, 78 U. COLO. L. REV. 533, 534–38 (2007); Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEX. L. REV. 1031, 1037–38 (2005); Robert J. Smith, *Resolving the Tragedy of the Commons by Creating Private Property Rights in Wildlife*, 1 CATO J. 439, 467 (1981); Sandra B. Zellmer & Jessica Harder, *Unbundling Property in Water*, 59 ALA. L. REV. 679, 682 (2008).

253. Benkler, *Political Economy of Commons*, *supra* note 71, at 6–7.

254. See Hardin, *Tragedy*, *supra* note 35, at 1244–45. Commons theory also illustrates the inherent tension between a libertarian view that embraces laissez-faire free market principles and a view that aims to ensure that market participants who capture the benefits of using a common resource also internalize externalities or costs created by their activities. See, e.g., H. Scott Gordon, *The Economic Theory of a Common-Property Resource: The Fishery*, 62 J. POL. ECON. 124, 124 (1954); Demsetz, *supra* note 65, at 354–56. Literary references to the commons date back as early as the works of Aristotle. OSTROM, GOVERNING THE COMMONS, *supra* note 55, at 2–3.

255. See, e.g., *supra* note 252; LESSIG, *supra* note 56, at 19–23; Fennell, *supra* note 56, at 918–19; Berkowitz & Li, *supra* note 57, at 370–71; Ayres & Funk, *supra* note 58, at 87–88.

256. See, e.g., Bell & Parchomovsky, *supra* note 252, at 2; Carrier & Lastowka, *supra* note 252, at 1495–96; Even, *supra* note 252, at 1432; Foster, *supra* note 252, at 272–78; Frischmann, *Infrastructure*, *supra* note 71, at 921; Lemley, *supra* note 252, at 1037–38; Rose, *Comedy of the Commons*, *supra* note 79, at 719–20.

257. See OSTROM, GOVERNING THE COMMONS, *supra* note 55, at 41. See also Carol M. Rose, *Rethinking Environmental Controls: Management Strategies for Common Resources*, 1991 DUKE L.J. 1, 8–12 (1991) [hereinafter Rose, *Rethinking Environmental Controls*]; Sinden, *supra* note 252, at 547.

enforcer at the other end of the spectrum. Using the example of the credit default swap market, this Part contends that these solutions do not effectively resolve the concerns presented in a financial market commons. Section A explores the three governance solutions offered in commons scholarship. Section B argues that each of these proposed solutions to the commons, including recently adopted legislation to address the financial crisis, spectacularly fail.

A. *Mapping Traditional Commons Governance Solutions*

A number of theories aim to articulate a governance model that addresses the competition in the commons.²⁵⁸ Exploring these governance models offers insight into the strengths and weaknesses of the proposed governance standards.

Deregulation connotes the absence of a formal set of strictly applied regulatory guidelines.²⁵⁹ A deregulatory governance model does not assign parties formal or informal rights to access the commons.²⁶⁰ Formal adoption of a deregulatory governance model reflects the conclusion that parties competing to use a resource do not require a third party to order the market.

The second suggested governance model, privatization, grants commons users express rights to use the commons resource and excludes or limits other parties' use.²⁶¹ Privatization models may be informally or formally organized.²⁶²

258. See generally Sinden, *supra* note 252; Barton H. Thompson, Jr., *Tragically Difficult: The Obstacles to Governing the Commons*, 30 ENVTL. L. 241 (2000).

259. Benkler, *Political Economy of Commons*, *supra* note 71, at 6–7 (“Instead, resources governed by commons may be used or disposed of by anyone among some (more or less well-defined) number of persons, under rules that may range from ‘anything goes’ to quite crisply articulated formal rules that are effectively enforced.”); Rose, *Big Roads*, *supra* note 71, at 431 (describing the deregulated state as a “chaotic situation where resource users compete under pluralistic conceptions of entitlement”).

260. See generally Richard J. Pierce, Jr., *State Regulation of Natural Gas in a Federally Deregulated Market: The Tragedy Of The Commons Revisited*, 73 CORNELL L. REV. 15, 15–17 (1987).

261. RICHARD POSNER, *ECONOMIC ANALYSIS OF LAW* 28 (2d ed. 1977).

262. Scholarship applying commons theories to intellectual property literature offers insightful examples of collaboration among independent actors to use, share, and develop resources in a commons. See generally Niva Elkin-Koren, *What Contracts Cannot Do: The Limits of Private Ordering in Facilitating a Creative Commons*, 74 FORDHAM L. REV. 375, 397 (2005) (“Social motivation is a major force that inspires thousands of volunteers around the world to contribute their talent and time to create free online informational tools (homepages, blogs, computer programs, or reported news) in the absence of any direct monetary compensation.”). For an example of a formal private organization, see *infra* notes 316–

Among other valuable contributions, privatization often introduces operational and structural policies that improve order in the markets for targeted financial products.²⁶³

The assignment of access rights, according to neoclassical economists, promotes economic efficiency by assigning rights to parties who most value a resource and reduces social conflict and related transaction costs.²⁶⁴ Establishing an enforceable entitlement system, according to proponents of private property, overcomes the concerns of underproduction and overexploitation.²⁶⁵

Privatization encourages efficient use of resources.²⁶⁶ Privatization, it is thought, allocates resources to those who value them most, to the benefit of everyone in society.²⁶⁷ The right to exclude in a privatized governance model gives property owners the incentives to use the resource at sustainable levels.²⁶⁸ Privatization, according to proponents, also minimizes conflicts between market participants competing for greater access to the commons resource.²⁶⁹ Armed with enforcement rights that protect their entitlement to access the commons, commons users invest in the development and maximization of

321 and accompanying text discussing the development of the International Swaps and Derivatives Association.

263. See Rose, *Big Roads*, *supra* note 71, at 431.

264. *Id.* (“[A]lienable property rights . . . can allow landholders to borrow, invest, and generally improve land and move its use toward higher economic values.”).

265. See Hardin, *Tragedy*, *supra* note 35, at 1245.

266. See, e.g., Rose, *Comedy of the Commons*, *supra* note 79, at 711–12 (noting that the right to exclude others “makes private property fruitful by enabling owners to capture the full value of their individual investments, thus encouraging everyone to put time and labor into the development of resources”).

267. *Id.* (explaining the theory of private property benefits, including the argument that “exclusive control makes it possible for owners to identify other owners, and for all to exchange the fruits of their labors, until these things arrive in the hands of those who value them most highly—to the great cumulative advantage of all”).

268. See Hardin, *Tragedy*, *supra* note 35, at 1245 (explaining that “our particular concept of private property . . . deters us from exhausting the positive resources of the earth,” but noting the limitations of private property as a governance model with respect to certain concerns such as pollution).

269. See, e.g., Garrett Hardin, *Political Requirements for Preserving our Common Heritage*, in *WILDLIFE AND AMERICA* 310–17 (1978); Bruce Yandle, *Resource Economics: A Property Rights Perspective*, 5 *J. ENERGY L. & POL’Y* 1, 1–2 (1983) (arguing that society will progress from community-based ownership toward individual ownership of resources when faced with the threat of scarceness); Vincent Ostrom & Elinor Ostrom, *A Theory for Institutional Analysis of Common Pool Problems*, in *MANAGING THE COMMONS* 157–72 (1977).

commons resources.²⁷⁰ Even if privatization addresses efficient use concerns, many argue that such a model fails to ensure that commons users internalize costs that arise from market activities.²⁷¹

The third approach, regulation, involves coercion by an external, central regulatory authority.²⁷² Advocates of the regulatory governance model argue that a central, external authority is necessary to impose and enforce rules that reflect community values and limit exploitation of commons resources to sustainable levels.²⁷³ In the modern administrative state, the federal government plays a central role in the management of many environmental and infrastructure resources.²⁷⁴ The government imbues agencies and other authorities with oversight responsibility for these important infrastructure resources. Under such a regulatory governance model, regulatory agencies exercise authority to issue and revoke licenses that grant rights to use commons resources. If a private party fails to internalize costs related to its use of the commons, the government may discontinue the party's license to use the commons.²⁷⁵

Regulatory governance structures often rely on agencies that may lack the expertise that market participants develop or

270. While the organizational structure of a private property regime is not always as formal as government imposed regulation, private property regimes rely upon certain relationships within the communities where rights are enforced. Rose, *Big Roads*, *supra* note 71, at 410 ("Property rights regimes at a minimum require some system to define rights, to signal their presence, to monitor transgressions, to resolve disputes about who has what rights, and to enforce the rights held valid."). Both private property regimes and regulation models suffer from the inescapable politics that accompany rights and entitlements. See John Shepard Wiley, Jr., *A Capture Theory of Antitrust Federalism*, 99 HARV. L. REV. 713, 782–83 (1986); Edward Wyatt & Eric Lichtblau, *Finance Overhaul Fight Draws a Swarm of Lobbyists*, N.Y. TIMES, Apr. 19, 2010, at A1. When competing interests lobby authorities to adopt favorable rules governing or assigning rights, the distribution of rights may be inefficient or may fail to ensure that private parties internalize the costs associated with their activities. See Wiley, Jr., *supra*, at 746.

271. See Demsetz, *supra* note 65, at 350.

272. See Hardin, *Tragedy*, *supra* note 35, at 1247–48. See also Rose, *Rethinking Environmental Controls*, *supra* note 257, at 30–33.

273. See generally Hardin, *Tragedy*, *supra* note 35. See also Elinor Ostrom, *Policy Analysis of Collective Action and Self-Governance*, in ADVANCES IN POLICY STUDIES SINCE 1950 81, 93–94 (1991) ("The proponents of centralized control want an external government agency to decide the specific herding strategy that the central authority considers best for the situation. The central authority would decide who could use the meadow, when they could use it, and how many animals could be grazed.").

274. Rose, *Big Roads*, *supra* note 71, at 410.

275. See *supra* note 91.

lack the funding to create comprehensive regulation. Regulatory oversight is often reactive²⁷⁶ and, as a result, may not be well-tailored to address the most critical concerns that the regulation is intended to address.²⁷⁷ Advocates of the regulatory governance model point to the recent financial crisis and the losses experienced throughout the economy as evidence of the weakness of deregulatory and privatization models.²⁷⁸

Selecting any of the three governance models presents benefits on the one hand, and creates costs on the other. None of the models successfully avoid the most significant costs that may arise out of market participants' extraction of benefits from the commons. Electing a particular governance model has heightened significance when the commons is an infrastructure resource. When adopting a governance model for an infrastructure resource, we must juxtapose the benefits of exploiting the infrastructure resource with the potential failure to adopt an effective governing arrangement.

B. Failed Applications of the Deregulatory, Privatization, and Regulatory Governance Models in the Commons

The history of the credit default swap market included efforts to employ each of the governance solutions proposed to address conflicts in financial markets. From the 1980s until the 1990s, credit default swaps developed in a regulation-free zone, not directly regulated by a federal or state administrative agency and with minimal private ordering imposing obligations or enforcing rights. This Section contends that Congress's adoption of the Commodity Futures Modernization Act²⁷⁹ and the Gramm-Leach-Bliley Act²⁸⁰ expressly removed credit default swaps from the direct authority of relevant financial markets regulatory agencies. In so doing, Congress established a

276. See Whitehead, *supra* note 27, at 2.

277. Roberta Romano, *The Sarbanes-Oxley Act and the Making of Quack Corporate Governance*, 114 YALE L. J. 1521, 1585 (2005) (noting that the corporate governance provisions in the Sarbanes-Oxley Act "were not carefully considered by Congress" during the development of the statute).

278. See Paul Krugman, Op-Ed., *The Fire Next Time*, N.Y. TIMES, Apr. 16, 2010, at A27; Louis Uchitelle, *Volcker, Loud and Clear*, N.Y. TIMES, July 11, 2010, at BU1. But see Peter J. Wallison, Op-Ed., *Republicans and Obama's New Deal*, WALL ST. J., May 21, 2010, at A15.

279. Commodity Futures Modernization Act of 2000, Pub. L. No. 106-554, 114 Stat. 2763 (2000).

280. Gramm-Leach-Bliley Act, Pub. L. No. 106-102, 113 Stat. 1338 (2006) (codified at 15 U.S.C. §§ 6801-6809 (2006)).

deregulatory governance model in the credit default swap market.

This Section next outlines the persistence of the deregulatory governance model until credit, structural, operational, market, and systemic risks motivated private orders to emerge and private organizations to impose formal community rules. Despite efforts to minimize the transfer of negative externalities, the recent financial crisis demonstrates that the privatization model suffered from significant shortcomings. Finally, this Section explores the recently adopted Dodd-Frank Act, which attempts to impose a regulatory governance model on OTC markets, including the credit default swap markets. This Section critiques apparent regulatory gaps in the Dodd-Frank Act and concludes that the application of each of the proposed governance solutions fails to adequately address tragedy in the credit default swap market.

1. Deregulation: Credit Default Swaps Developed in a Regulation-Free Zone

At its inception, the credit default swap market was unregulated. No federal administrative agency exercised express authority to create and enforce rules governing the obscure instruments.²⁸¹ While plain vanilla credit default swaps involve protection against risk of loss in a manner similar to insurance products, the diversity of arrangements that fall within the credit default swap market undermined state insurance regulators' efforts to assert authority over credit default swaps.²⁸² Naked credit default swap agreements, for example, grant buy-

281. See *supra* Part II.A.

282. State insurance regulators struggled to assert jurisdiction over credit default swaps because certain swap agreements by definition fall beyond their regulatory ambit. State insurance regulators may only regulate financial products in which the insured owns an "insurable interest," or an interest in which the insured may suffer a loss. Thomas Lee Hazen, *Filling a Regulatory Gap: It Is Time to Regulate Over-the-Counter Derivatives*, 13 N.C. BANKING INST. 123, 131-32 (2009); Nathaniel G. Dutt, Note, *Current United States Credit Default Swap Regulatory Initiatives: A New World Standard or Just a Ploy?*, 16 ILSA J. INT'L & COMP. L. 169, 175-76 (2009). Credit default swaps, however, do not require parties to own the reference asset or bond that is the subject of the agreement. See *supra* Part II.B. In other words, naked credit default swap protection buyers do not have an insurable interest, and because insurance regulation does not reach circumstances where parties lack an insurable interest, insurance regulators' ability to assert jurisdiction over credit default swap instruments was limited. *Id.*

ers insurance protection against a decline in value of a security that the protection buyer does not own.²⁸³

Following the near collapse of Long Term Capital Management, a prominent national hedge fund, and the threat that the hedge fund's failure might initiate a ripple effect of losses across the economy, the Commodities Future Trading Commission ("CFTC") asserted authority over OTC derivatives.²⁸⁴ When Congress considered adopting regulation to oversee the OTC derivatives market, the Securities Exchange Commission ("SEC") quickly tossed its hat in the ring, vying for an acknowledgement that it exercises authority over securities-related derivatives.²⁸⁵

The structure of our federal securities regulatory scheme and the diverse character of swaps, however, frustrated both the SEC's and the CFTC's efforts to assert jurisdiction over swaps.²⁸⁶ Our federal securities regulatory scheme grants authority to the SEC or the CFTC to adopt and enforce regulations governing financial products based on the regulated products' characteristics.²⁸⁷ Credit default swaps are hybrid

283. See *supra* Part II.A.

284. See Terzah Ewing, *CFTC Warned Early About Hedge Funds*, WALL ST. J., Sept. 29, 1998, at C15. In 1998, CFTC Chairwoman Brooksley Born sought to warn Congress, regulators, and major commodities dealers of the dangers of an unregulated over-the-counter derivatives market. Federal Reserve Board Chairman Alan Greenspan dismissed these concerns, as did Richard Lindsey, director of the SEC's division of market regulation. Lindsey characterized the proposed regulations as a threat that might "stifle innovation and push transactions offshore." *Id.*

285. See *Over-the-Counter Derivatives: Hearing Before the S. Comm. on Agric., Nutrition, and Forestry*, 105th Cong. 120–21 (July 30, 1998) (statement of Arthur Levitt, Chairman, U.S. Securities and Exchange Commission), available at <http://www.sec.gov/news/testimony/testarchive/1998/tsty0998.htm> [hereinafter Levitt testimony]; *President's Working Group Report of OTC Derivatives—CEA Re-Authorization: Hearing Before the S. Comm. on Agric., Nutrition, and Forestry*, 106th Cong. 73–80 (Feb. 10, 2000) (testimony of Annette L. Nazareth, Director, Division of Market Regulation, U.S. Securities & Exchange Commission), available at <http://www.sec.gov/news/testimony/tsty2999.htm>.

286. See Kathleen Day, *The Derivatives Dilemma; Oversight Dispute Leaves Contracts in Perilous Limbo*, WASH. POST, June 2, 2000, at E2.

287. The SEC has regulatory authority over instruments that constitute "securities." See 15 U.S.C. § 78c(a)(10) (2006) (defining "security"). In 1974, Congress created the CFTC to curb abuses in the trading of commodity options that had developed across the nation, resulting in significant investor losses. See S. REP. NO. 93-1131, at 1 (1974), reprinted in 1974 U.S.C.C.A.N. 5843, 5844 (describing 1974 amendments to the Commodity Exchange Act, 7 U.S.C. §§ 1–27 (2006), and creation of the Commission); see generally David J. Gilberg, *Regulation of New Financial Instruments Under the Federal Securities and Commodities Laws*, 39 VAND. L. REV. 1599, 1610–15 (1986) (describing the role of the CFTC in federal financial regulatory scheme).

instruments, meaning that they have the characteristics of more than one traditional class of financial products.²⁸⁸ Swap agreements are classifiable as derivatives because they involve future delivery of an asset or an exchange of cash flows on a future date.²⁸⁹ The asset that is the subject of a swap agreement, however, may be an equity or debt security, equity or debt index, option on an equity or debt security, foreign exchange rate, commodity, commodity index, or interest rate.²⁹⁰ The SEC has express authority to regulate equity or debt securities and asserts authority over derivatives related to these products.²⁹¹ The CFTC exercises authority over commodities and asserts authority over derivatives related to commodities.²⁹²

The uncertainty regarding regulation in the 1990s sparked a jurisdictional battle between the SEC and the CFTC.²⁹³ The SEC declared that swaps fell within the ambit of its regulatory authority.²⁹⁴ The Securities Exchange Act of 1934 (“Exchange Act”) grants the SEC rule-making and enforcement authority over “securities.”²⁹⁵ While both the statutory definition of a “security” in the Exchange Act and the parallel definition in the Securities Act of 1933 (“Securities Act”)²⁹⁶ include “any put, call, straddle, option, or privilege on any security,” neither statutory definition explicitly includes swap agreements.²⁹⁷

The CFTC asserted regulatory authority over the OTC derivatives market on the basis that it exercises exclusive regulatory jurisdiction over “contracts of sale of a commodity for future delivery” under the Commodity Exchange Act (“CEA”).²⁹⁸

288. Gilberg, *supra* note 287, at 1600 (describing various types of swaps).

289. *See supra* Part II.A.1.

290. *See supra* Part II.A.1.

291. *See supra* Part II.A.1.

292. *See supra* Part II.A.1.

293. Sarah N. Lynch, *SEC-CFTC Turf Battle Revived over CDS Role in Financial Crisis*, FINANCIAL NEWS, Oct. 9, 2008, <http://www.efinancialnews.com/story/2008-10-09/sec-cftc-turf-battle-revived-over-cds-role-in-financial-crisis-1>; *see also* Frank Partnoy, *The Shifting Contours of Global Derivatives Regulation*, 22 U. PA. J. INT'L ECON L. 421, 429–32 (2001).

294. *See* Levitt testimony, *supra* note 285, at 120–21.

295. Securities Exchange Act of 1934 § 2, 15 U.S.C. § 78b (2006).

296. Securities Act of 1933, 15 U.S.C. § 77 (2006).

297. 15 U.S.C. § 78c(a)(10); 15 U.S.C. § 77b(a)(1). A swap agreement is also not contained in the definition of “option.” *See* 7 U.S.C. § 1a(26) (“The term ‘option’ means an agreement, contract, or transaction that is of a character of, or is commonly known to the trade as, an ‘option,’ ‘privilege,’ ‘indemnity,’ ‘bid,’ ‘offer,’ ‘put,’ ‘call,’ ‘advance guarantee,’ or ‘decline guaranty.’”).

298. Commodity Exchange Act, 7 U.S.C. § 2(a)(1)(A) (2006). In 1921, Congress enacted The Future Trading Act, heavily taxing the unregulated trade of options on grain futures, ch. 86, 42 Stat. 187 (1921), and after this statute was found to be

The definition of the CFTC's regulatory authority indisputably indicates its authority over futures contracts involving commodities.²⁹⁹ Futures contracts, by definition, involve contracts for the future delivery of a commodity.³⁰⁰ The CFTC's claim, however, failed to address regulatory authority over OTC derivatives that list securities as the underlying asset or reference asset.³⁰¹ After an impassioned debate between the SEC and the CFTC, Congress elected to exempt OTC derivatives from federal regulation.³⁰² Some scholars argue that the legislation exempting swaps from direct federal regulation comprised part of a larger deregulatory era.³⁰³ In 1995, Congress adopted heightened pleading standards and other procedural measures that increased the hurdles that plaintiffs face when filing derivative lawsuits against publicly traded corpora-

unconstitutional under the taxing power, it was replaced in 1922 by a regulation addressing trading in grain futures under the commerce power, The Grain Futures Act, ch. 369, 42 Stat. 998 (1922) (codified at 7 U.S.C. §§ 1–27); see *Merrill Lynch, Pierce, Fenner & Smith, Inc. v. Curran*, 456 U.S. 353, 361 (1982). Congress substituted the title “Commodity Exchange Act” for “The Grain Futures Act” in 1936. Commodity Exchange Act, ch. 545, § 1, 49 Stat. 1491 (1936) (codified at 7 U.S.C. § 1). The Commodity Exchange Act replaced the tax on futures trading with a requirement that all commodity futures contracts originate and trade on a board of trade, and further required that the CFTC exercise oversight with respect to all such exchanges trading derivatives involving commodity futures. 7 U.S.C. § 6(a); *Merrill Lynch*, 456 U.S. at 362.

299. 7 U.S.C. § 2(a)(1)(A) (“The Commission shall have exclusive jurisdiction . . . with respect to accounts, agreements . . . and transactions involving contracts of sale of a commodity for future delivery . . .”).

300. See *id.* § 6(a); see also *CFTC v. Int'l Fin. Servs.*, 323 F. Supp. 2d 482, 494 (S.D.N.Y. 2004) (defining “futures contracts” as “contracts for purchase or sale of a commodity for delivery in the future at a price that is established at the time the contract is initiated”) (quoting *CFTC v. Hanover Trading Corp.*, 34 F. Supp. 2d 203, 205 (S.D.N.Y. 1999)). For a general discussion of futures trading, see *Merrill Lynch*, 456 U.S. at 357–67.

301. See Gibson, *supra* note 143, at 402–07.

302. See *infra* notes 308–309.

303. Jacob M. Schlesinger, *What's Wrong?—The Deregulators: Did Washington Help Set Stage For Current Business Turmoil?*, WALL ST. J., Oct. 17, 2002, at A1. In the late 1990s, Congress began adopting legislation designed to reduce regulation governing various market activities, yielding control over the regulatory infrastructure of financial markets to private ordering. See *Fall of Enron: How Could It Have Happened?: Hearing Before the S. Comm. on Governmental Affairs*, 107th Cong. 105 (2002) (statement of Frank Partnoy, Professor of Law, University of San Diego School of Law) (stating that OTC derivatives markets as of 2002 were still “largely unregulated”); see also andré douglas pond cummings, *Still “Ain’t No Glory In Pain”: How the Telecommunications Act of 1996 and Other 1990s Deregulation Facilitated The Market Crash of 2002*, 12 FORDHAM J. CORP. & FIN. L. 467, 469 (2007) (noting that scholars blame the stock market crash of 2001–02 on “deregulatory legislation” in the 1990s).

tions.³⁰⁴ In 1999, after decades of effort to eliminate the Glass-Steagall Act's limitations on business combinations involving deposit banking, underwriting, and insurance businesses,³⁰⁵ Congress adopted the Gramm-Leach-Bliley Act.³⁰⁶ The Gramm-Leach-Bliley Act repealed the prohibition against the combination of investment banking, insurance, and commercial and deposit businesses that had been in place since shortly after the stock market crash of 1929.³⁰⁷

In December of 2000, Congress amended existing securities and commodities statutes, including the Securities Act, the Exchange Act, and the Commodity Exchange Act, effectively excluding certain derivatives contracts from the jurisdictional

304. Congress passed the Private Securities Litigation Reform Act ("PSLRA") in 1995 to limit expensive and meritless strike suits. 15 U.S.C.A. § 78u-4 (2006). The PSLRA imposes heightened pleading standards for shareholders in derivative litigation, circumscribing private rights of action and signaling that courts should grant greater leniency to market participants accused of violating Securities or Exchange Act disclosure standards. Hillary A. Sale, *Heightened Pleading and Discovery Stays: An Analysis of the Effect of the PSLRA's Internal-Information Standard on '33 and '34 Act Claims*, 76 WASH. U. L. REV. 537, 540 (1998). The PSLRA requires that plaintiffs in securities litigation alleging that directors and officers violated federal securities laws must "state with particularity facts giving rise to a strong inference that the defendant acted with the required state of mind." *Tellabs, Inc. v. Makor Issues & Rights, Ltd.*, 551 U.S. 308, 314 (2007) (quoting 15 U.S.C. § 78u-4(b)(2)). Because of this, the PSLRA alters the probability that a plaintiff's complaint will survive a motion to dismiss prior to discovery. Under the Federal Rules of Civil Procedure, a plaintiff's pleading need only establish a general averment. FED. R. CIV. P. 12(b)(6). But post-PSLRA, plaintiffs are required to state specific evidence that supports a conclusion that fraud had occurred. 15 U.S.C.A. § 78u-4(b) (stating the requirements for fraud actions include that "the complaint shall state with particularity all facts on which that belief is formed"). It is noteworthy that the PSLRA also allowed courts to stay discovery while a motion to dismiss on the pleadings was pending. See THOMAS LEE HAZEN & DAVID L. RATNER, *SECURITIES REGULATION: CASES AND MATERIALS* 381 (6th ed. 2003) ("Under Section 27(b) [of the 1933 Act] and 21D [of the 1934 Act], discovery is stayed during the pendency of a motion to dismiss or motion for summary judgment in order to alleviate discovery expenses on defendants."). The PSLRA was enacted by Congress, in part, "to strike the appropriate balance between protecting the rights of victims of securities fraud and the rights of public companies to avoid costly and meritless litigation. Our economy does not benefit when strike suit artists wreak havoc on our Nation's boardrooms and deter capital formation." S. REP. NO. 104-98, at 10 (1995), *reprinted in* 1995 U.S.C.C.A.N. 679, 689.

305. Joan K. Willen, *Commercial Banks and the Glass-Steagall Act: A Survey of New Products and Activities*, 104 BANKING L.J. 5, 6 (1987) (arguing that new economic realities altered the need for Glass-Steagall).

306. Gramm-Leach-Bliley Act, Pub. L. No. 106-102, 113 Stat. 1338 (2006) (codified at 15 U.S.C. §§ 6801-6809 (2006)).

307. 1-2 KENNETH M. LAPINE ET AL., *BANKING LAW* § 2.03 (2010).

ambit of the SEC³⁰⁸ and the CFTC.³⁰⁹ Significant credit, operational, and systemic risks began to plague the credit default swap market.

Upon surveying the damage exacted on the national and global economy, this recent crisis offers evidence that challenges the merits of the regulation-free regulatory approach of the deregulatory governance model. AIG and Citigroup nearly collapsed.³¹⁰ Lehman Brothers, an investment bank with a one-hundred-and-fifty-year history, and two American manufacturing icons, General Motors and Chrysler, filed for bank-

308. The amendments exclude from the purview of both the Securities Act and the Securities Exchange Act any “security-based swap agreement” and any “non-security-based swap agreement.” 15 U.S.C. § 77b-1(b)(2) (2006) (prohibiting the SEC “from registering, or requiring, recommending, or suggesting, the registration under this subchapter of any security-based swap agreement (as defined in section 206B of the Gramm-Leach-Bliley Act)”; 15 U.S.C. § 78c-1(a) (“The definition of ‘security’ in . . . this title does not include any non-security-based swap agreement (as defined in section 206C of the Gramm-Leach-Bliley Act).”).

Swap agreements are defined under the Commodity Futures Modernization Act (“CFMA”) as:

Any agreement . . . between eligible contract participants . . . the material terms of which . . . are subject to individual negotiation, and that . . . provides on an executory basis for the exchange, on a fixed or contingent basis . . . based on the value . . . of one or more . . . securities . . . or other financial or economic interests, . . . based on the value thereof, and that transfers, as between the parties to the transaction . . . the financial risk associated with a future change in any such value . . . without also conveying a current or future direct or indirect ownership interest in an asset

Pub. L. No. 106-554, tit. III, § 301, 114 Stat. 2763 App. E, at 2763A-449 to -50 (2000). A security-based swap agreement includes any swap agreement “of which a material term is based on the price, yield, value or volatility of any security.” *Id.* at 451. The SEC continued to assert jurisdiction over swap transactions that violate antifraud provisions of the Securities Act. *See* 15 U.S.C. §§ 77q(a), 78j(b) (2006).

309. Prior to the adoption of the CEA, the CFTC held a monopoly over contract markets or commodities markets. *See* Thomas Lee Hazen, *Disparate Regulatory Schemes for Parallel Activities: Securities Regulation, Derivatives Regulation, Gambling and Insurance*, 24 ANN. REV. BANKING & FIN. L. 375, 388–95 (2005). The CFMA recognized three categories of derivatives—those that may trade only on exchanges; those that may trade in organized, but less regulated markets; and those that trade in the unregulated OTC market. *Id.* at 389. The adoption of the CFMA eliminated the CFTC’s authority over the contracts in the third category and allowed derivatives to trade off-exchange in the over-the-counter market. *See* Cummings, *supra* note 303, at 529–30; *see also* HAZEN & RATNER, *supra* note 304 at 96 (“The [CFMA amendments] abolished the former contract market monopoly for commodities futures and options contracts, which prohibited the trading of those contracts other than on an organized exchange. The Act thus permit[ted] for the first time over-the-counter markets for commodities futures and options.”).

310. *See supra* Part II.C.

ruptcy.³¹¹ Hundreds of banks became insolvent and closed their doors.³¹² The unprecedented insolvencies, business closures, bankruptcies, mergers, and seizures of banking institutions shocked the world economy.³¹³

As illustrated by the recent financial crisis, the dangers of an unregulated credit default swap market discredit proponents of a deregulatory governance model. Despite the fact that the governance structure in the deregulated market offered freedom from regulation, market participants as a community began to implement elements of a privatization governance model.³¹⁴ Market participants' efforts to institute a privatization governance regime in the decade prior to the recent crisis demonstrates that even beneficiaries of the regulation-free zone appreciate the calamitous threat that a credit default swap market poses.

2. Private Responses Improve Order in the Markets but Fail to Accomplish Accountability

Following the adoption of the CFMA, but prior to the recent crisis, credit default swap market participants responded to concerns about credit, operational, and systemic risks by adopting formal and informal institutions, initiatives, and programs establishing a private governance model.³¹⁵ This Section explores these institutions, initiatives, and programs. Privatization unfolded in two phases: institutional development and extra-institutional collective action designed to address credit, market, and operational risks.

311. See A. Joseph Warburton, *Understanding the Bankruptcies of Chrysler and General Motors: A Primer*, 60 SYRACUSE L. REV. 531, 533 (2010); Susanne Craig et al., *The Weekend that Wall Street Died: Ties that Long United Strongest Firms Unraveled as Lehman Sank Toward Failure*, WALL ST. J., Dec. 29, 2008, at A1; Sorkin, *Bids to Halt Financial Crisis*, *supra* note 5, at A1.

312. See Eric Dash & Aaron Ross Sorkin, *In Largest Bank Failure, U.S. Seizes, Then Sells*, N.Y. TIMES, Sept. 26, 2008, at A1; David Enrich & Dan Fitzpatrick, *Wachovia Chooses Wells Fargo, Spurns Citi: Deal Avoids Need for Taxpayer Cash; Pandit Vows a Fight*, WALL ST. J., Oct. 4, 2008, at A1.

313. *Monetary Policy and the State of the Economy: Hearing Before the H. Comm. on Fin. Servs.*, 111th Cong. 7 (July 21, 2009) (statement of Ben S. Bernanke, Chairman, Federal Reserve Board) (“[T]he financial shocks that hit the global economy in September and October were the worst since the 1930’s; and they helped push the global economy into the deepest recession since World War II.”); see also John A. Powell & Jason Reece, *The Future of Fair Housing and Fair Credit: From Crisis to Opportunity*, 57 CLEV. ST. L. REV. 209, 217–18 (2009).

314. See *infra* Part III.B.2.

315. See *infra* notes 316–318 and accompanying text.

The institutional development phase of privatization began with the creation of the International Swaps and Derivatives Association (“ISDA”) in the mid-1980s.³¹⁶ Through ISDA, swaps and derivatives dealers and their lawyers developed the foundational documents for swap transactions.³¹⁷ Lawyers played a critical role in drafting standard swap documentation, which reduced transaction costs associated with contract negotiation and facilitated dispute resolution by introducing form agreements.³¹⁸

With 830 member institutions from fifty-six countries, ISDA is the world’s largest global financial trade association.³¹⁹ ISDA currently develops essential trading policies and best practice standards and resolves disputes among its mem-

316. See *About ISDA*, ISDA, <http://www.isda.org> (follow “About ISDA” hyperlink) (last visited Sept. 10, 2010).

317. Houman B. Shadab, *Guilty By Association? Regulating Credit Default Swaps*, 4 ENTREPRENEURIAL BUS. L.J. 407, 422–24 (2010).

318. *About ISDA*, *supra* note 316. The ISDA Master Agreement allows parties to agree to standard definitions and provisions for contract terms that are periodically amended to reflect broad market use. *Id.* In 1985, ISDA introduced a Code of Standard Wording, Assumptions, and Provisions for Swaps as a guide for standard terms used in the market. Sean M. Flanagan, Note, *The Rise of a Trade Association: Group Interactions Within the International Swaps and Derivatives Association*, 6 HARV. NEGOT. L. REV. 211, 233–34 (2001). By 1987, ISDA began to publish “master agreements” for currency and interest rate swaps. *Id.* at 243–44. In the 1990s, ISDA developed additional standardized ancillary documentation, including definitions, schedules, credit support agreements, and formal trade confirmations. *Id.* at 245; see also ISDA, A RETROSPECTIVE OF ISDA’S ACTIVITIES IN 1999 10–11 (2000), http://www.isda.org/www/retrospective_1999_master.pdf; ISDA, A RETROSPECTIVE OF ISDA’S ACTIVITIES 2003–2004 18 (2004), http://www.isda.org/www/retrospective_2003-2004_master.pdf; Blythe Masters & Kelly Bryson, *Credit Derivatives and Loan Portfolio Management*, in THE HANDBOOK OF CREDIT DERIVATIVES 43, 48 (1999). In 2009, ISDA introduced the Big Bang Protocol to further enhance standardization in the market. *ISDA Announces Successful Implementation of “Big Bang” CDS Protocol: Determinations Committees and Auction Settlement Changes Take Effect*, ISDA (Apr. 8, 2009), <http://www.isda.org/press/press040809.html> [hereinafter *Big Bang Protocol*].

319. Colleen M. Baker, *Regulating the Invisible: The Case of Over-the-Counter Derivatives*, 85 NOTRE DAME L. REV. 1287, 1359 (2010) (quoting *The Effective Regulation of the Over-the-Counter Derivatives Market: Hearing Before the Subcomm. on Capital Mkts., Ins., and Gov’t Sponsored Enters. of the H. Comm. on Fin. Servs.*, 111th Cong. 176 (June 9, 2009) (statement of Robert Pickel, Chief Executive Officer, International Swaps and Derivatives Association)).

bers.³²⁰ ISDA also advises market participants on clearing and settlement procedures and settlement auctions.³²¹

In the second phase of the development of the privatization governance model, market participants adopted extra-institutional efforts to address credit, operational, and systemic risks. As described in Part II, credit default swaps have not historically traded in formal organized markets or on exchanges; the trades occur in the over-the-counter market and may occur over the phone, by fax, or through other informal communications.³²² The mounting chaos of unresolved trade requests and novation led government regulators and commentators to demand that credit default swap market participants address these concerns.³²³

Prompted by threats of formal regulation, a group of the largest credit default swap dealers launched efficiency-enhancing initiatives instituting comprehensive procedures for trading confirmations.³²⁴ These initiatives reduced backlogs of unprocessed trades and facilitated settlement. As a result of the initiatives, certain operational and credit risks abated in credit default swap markets.³²⁵ In addition to these efforts, the industry dealers proposed reforms for trade execution and data repository services.³²⁶ Notwithstanding the reforms accomplished during each of the two phases of privatization gover-

320. ISDA created protocols addressing many of the operational concerns related to credit default swaps. See, e.g., ISDA, ISDA NOVATION PROTOCOL II (2006), available at <http://www.isda.org/isdanovationprotII/docs/NPII.pdf> (describing the novation protocol). Another protocol established auction settlement of contracts after a default by a reference entity. *Big Bang Protocol*, *supra* note 318.

321. *Big Bang Protocol*, *supra* note 318.

322. See David Wessel, *Wall Street Is Cleaning Derivatives Mess*, WALL ST. J., Feb. 16, 2006, at A2; Kent Cherny & Ben R. Craig, *Credit Default Swaps and Their Market Function*, FED. RESERVE BANK OF CLEVELAND (Sep. 22, 2009), <http://www.clevelandfed.org/research/commentary/2009/0709.cfm>.

323. See Wessel, *supra* note 322; Kent Cherny & Ben R. Craig, *Reforming the Over-the-Counter Derivatives Market: What's to Be Gained?*, FED. RESERVE BANK OF CLEVELAND (Jul. 7, 2010), <http://www.clevelandfed.org/research/commentary/2010/2010-6.cfm>.

324. On August 12, 2005, the Federal Reserve Bank of New York called a meeting of the fourteen largest financial intermediaries or "Major Dealers." See U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 227, at 3. The group formed the Counterparty Risk Management Policy Group, a private sector initiative developed by the largest, most significant credit derivatives dealers, presented reports suggesting many of the most valuable private sector proposals. See generally COUNTERPARTY RISK MANAGEMENT POLICY GROUP II, TOWARD GREATER FINANCIAL STABILITY: A PRIVATE SECTOR PERSPECTIVE (2005), available at <http://www.crmgroup.org/crmgroup2/>.

325. See U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 227, at 3-4.

326. See Wessel, *supra* note 322.

nance, financial markets roiled in 2008. The continuing credit, operational, and systemic risks, coupled with the exponential growth in the market and the lack of an effective governance model, threatened to cause a global recession.³²⁷ Credit markets contracted.³²⁸

While the initiatives succeeded in alleviating some risks in the credit default swap markets, significant risks persisted. Private institutions and extra-institutional initiatives lacked the capacity to address the consequences, complexities, and nuances of the credit default swap market. For instance, ISDA and the working groups organized around market reforms lack governmental authority to require market participants to cooperate or comply with these initiatives.³²⁹ The privatization governance model did not grant formal authority to any institutional or extra-institutional body to challenge or investigate these decisions or even the authority to demand transparency regarding market participants' exposure to credit default swaps.

Furthermore, credit default swap market participants constitute institutional authorities' most influential constituents. But the institutional authorities created under the privatization governance model were not accountable to other constituencies affected by the credit default swap market. ISDA diligently engages in lobbying effort to influence legislation and regulations that may impact derivatives in accordance with its interests.³³⁰ ISDA's lobbying activities, in combination with other lobbyists' efforts, successfully persuaded the U.S. Congress to exempt certain derivatives from the automatic stay provisions in bankruptcy, essentially granting swap counter-

327. See *supra* notes 310–313 and accompanying text.

328. See Carrick Mollenkamp et al., *Lehman's Demise Triggered Cash Crunch Around Globe; Decision to Let Firm Fail Marked a Turning Point in Crisis*, WALL ST. J., Sept. 29, 2008, at A1.

329. See, e.g., U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 227, at 25 (describing adherence to ISDA protocols as "voluntary").

330. Annelise Riles, *The Anti-Network: Private Global Governance, Legal Knowledge, and the Legitimacy of the State*, 56 AM. J. COMP. L. 605, 615 n.32 ("In the United States, intensive lobbying on the part of ISDA has resulted in important revisions of New York state law, the UCC, and the national bankruptcy law, and has averted other proposed regulation opposed by ISDA."). "[W]here the terms in ISDA's standardized documents conflict with the norms enshrined in national statutory or judge-made law, ISDA actively works to supplant or change the latter so that it conforms to the former." *Id.* at 614. For an international perspective, see Christopher J. Mertens, *Australian Insolvency Law and the 1992 ISDA Master Agreement—Catalyst, Reaction, and Solution*, 15 PAC. RIM L. & POL'Y J. 233 (2006).

parties a priority status above secured creditors in bankruptcy proceedings.³³¹ As a special interest group, ISDA has constituents whose interests may conflict with the fundamental goals of federal securities law.³³² Because ISDA is not an administrative agency, it does not operate under the auspices of a representative body and is not accountable for harms to economic or social welfare in any of the jurisdictions where its members operate.

Finally, employing a privatization governance model may have created inefficiencies in the use of an infrastructure resource commons. Privatization governance may encourage entitlement holders to capture benefits that ought to be distributed to the community in which the commons is situated.³³³ For example, in the recent crisis, many harshly criticized the federal government's policy as reverse welfare distribution.³³⁴ Consumers suffered losses both as investors and taxpayers while senior executives, who made decisions to enter into high-risk investments or adopted excessive leverage policies, contin-

331. Kenneth Ayotte & David Skeel, Jr., *Bankruptcy or Bailouts?*, 35 J. CORP. L. 469, 493–94 (2010).

332. *Compare* SEC v. Ralston Purina Co., 346 U.S. 119, 124 (1953) (“The design of the statute is to protect investors by promoting full disclosure of information thought necessary to informed investment decisions.”), *and* Radzanower v. Touche Ross & Co., 426 U.S. 148, 155 (1976) (“The primary purpose of the Securities Exchange Act was not to regulate the activities of national banks as such but ‘[t]o provide fair and honest mechanisms for the pricing of securities [and] to assure that dealing in securities is fair and without undue preferences or advantages among investors’”), *with* ISDA, BY-LAWS OF INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION, INC.: ARTICLE II (2010), *available at* <http://www.isda.org/membership/bylaws.pdf> (“The purposes of the Association are as follows: . . . To inform its members of legislative and administrative developments affecting participants in DERIVATIVES transactions; to provide a forum for its members to examine and review such developments; and to represent effectively the common interests of its members before legislative and administrative bodies and international or quasi-public institutes, boards and other bodies.”).

333. *See* Sinden, *supra* note 252, at 591 (“Once one takes seriously the task of internalizing within property boundaries the myriad externalities caused by the vast network of ecosystem connections and interdependencies that criss-cross the landscape, the necessary parcels begin to appear unimaginably large.”); *see also* Frischmann, *Infrastructure*, *supra* note 71, at 927 n.33 (“[S]ocial surplus . . . ought to be distributed among the consumers who contributed to the value-creation.”).

334. *See* Chris Dolmetsch, *Main Street Pans Bailout, Says Bankers Get 'What They Deserve'*, BLOOMBERG (Sept. 30, 2008), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=a5LgXsmYi6OU>; Christine Harper, *Bonuses for Wall Street Should Go to Zero, U.S. Taxpayers Say*, BLOOMBERG (Nov. 11, 2008), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=apRDGKM7Sbi8>.

ued to receive salaries and golden parachutes paid for, in some instances, with federal funds.³³⁵

Other inefficiencies, such as under-exploitation, may also arise in connection with private use of the commons. In a privatized market, commons users lack incentives to use the commons in a manner that creates benefits for others.³³⁶ In other words, when free riders benefit without sharing in the costs of production, disgruntled market participants will cease to produce the relevant good or reduce their supply of the good.³³⁷

The development of proprietary pricing models illustrates this issue. Market participants used diverse methodologies for pricing credit default swaps in the period leading to the recent financial crisis.³³⁸ Market participants relied upon diverse methodologies to determine the prices for OTC derivatives products like credit default swaps.³³⁹ It is likely that some participants withheld information regarding their strategies because they recognized that publicly sharing discoveries regarding flaws in the quantitative models would enable others to free ride.

In short, the privatization governance model allowed for a shroud to remain over credit default swap markets. Under the privatization model, market participants shifted negative externalities arising from use of the financial market infrastructure commons to other groups. In response to the failures of the privatization governance model, Congress and international regulators have adopted regulation that imposes central, external regulation on the credit default swap market.

335. Edmund L. Andrews & Peter Baker, *At A.I.G., Huge Bonuses After \$170 Billion Bailout*, N.Y. TIMES, Mar. 15, 2009, at A1.

336. *See, e.g.*, Frischmann, *Infrastructure*, *supra* note 71, at 280 (“Access to infrastructural resources is not necessarily managed well in a private property rights regime. Private property owners are not necessarily optimal suppliers of infrastructure because they have an incentive to investigate and support only those uses that generate observable and appropriable private returns, which may or may not be the uses with the greatest social value. Users are not necessarily optimal purchasers of access, because if they are productive users—as will often be the case with infrastructure—they do not themselves capture the full social value of their use. Their private willingness to pay accordingly understates the social value of their use.”).

337. *See id.*

338. Chander & Costa, *supra* note 173, at 651.

339. *Id.*

3. The Dodd-Frank Act—Winning the Battle While Losing the War?

On July 21, 2010, President Obama signed the Dodd-Frank Act, the most sweeping financial reform bill since Congress adopted securities regulations in response to the stock market crash of 1929.³⁴⁰ Congress adopted the Dodd-Frank Act to address the egregious behaviors that led to the recent financial crisis.³⁴¹ The Dodd-Frank Act imposes significant shifts in the oversight of the swaps market, including limitations on systemically significant financial institutions' use of swaps, regulation of swap dealers, and the creation of a private right of action against any person who employs manipulative devices in violation of CFTC rules and regulations relating to derivatives.³⁴²

While there is debate regarding whether these reforms are sufficient to prevent future crises, most commentators agree that the introduction of clearing and registration requirements will enhance market-wide transparency and address counterparty and other credit risks.³⁴³ The Dodd-Frank Act authorizes the SEC and the CFTC to mandate registration of OTC swap transactions and require market participants to settle eligible swap transactions through federally registered clearinghouses.³⁴⁴ The Dodd-Frank Act also requires market participants to report all OTC derivatives transactions to a "swap data repository" in real time, including those subject to mandatory clearing and those ineligible for clearing through a clearing-

340. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010). The bill reflects earlier versions of legislation passed by both houses of Congress. The U.S. House of Representatives passed the Wall Street Reform Act, H.R. 4173, 111th Cong. (2009), in December of 2009, and the Senate passed the Restoring American Financial Stability Act of 2010, S. 3217, 111th Cong. (renaming the bill H.R. 4173).

341. Andrew Ross Sorkin, *Preparing for the Next Big One*, N.Y. TIMES, Jun. 29, 2010, at B1.

342. See Dodd-Frank Act sec. 723(a)(3), 124 Stat. 1376 (2010) (adding §§ 2(h)(1)(A) and 2(h)(2)(B)(i) to the Commodity Exchange Act, which require clearing of swaps and regulation of swap dealers); *id.* sec. 731 (requiring registration and regulation of swap dealers); *id.* sec. 753(c) (providing private rights of action against users of manipulative devices); *id.* sec. 764 (requiring registration and regulation of security-based swap dealers).

343. Sorkin, *supra* note 341; Andrew Ross Sorkin, *Paulson Likes What He Sees in Overhaul*, N.Y. TIMES, July 13, 2010, at B1.

344. Dodd-Frank Act, sec. 723(a)(3), amending the Commodity Exchange Act, 7 U.S.C. § 2(h)(1)(A). The SEC's authority to register derivatives clearing agencies arises from Section 17A of the Exchange Act and the CFTC's authority to register derivatives clearing organizations registered under section 5b of the CEA. See SEC Rule 400(c)(2)(iii)(2009); 17 C.F.R. 41.42(c)(2)(iii) (2010).

house.³⁴⁵ Each of these steps greatly improves transparency in the OTC derivatives market.

Clearinghouses perform an essential role in domestic and international financial markets by providing a platform to originate, trade, clear, and settle transactions.³⁴⁶ Prior to the adoption of the Dodd-Frank Act, a market participant seeking a credit default swap needed only to find another participant interested in entering into the agreement.³⁴⁷ A clearinghouse, in contrast, acts as an intermediary or a central counterparty to the agreements under its purview, thereby eliminating private agreements. Because each market participant first enters into an agreement with the clearinghouse, satisfaction of obligations under the agreement initially rests with the clearinghouse.³⁴⁸ Therefore, the clearinghouse's credit quality and solvency are substituted for each of the interested counterparties.³⁴⁹

Acting as a central counterparty, the clearinghouse becomes the buyer in each transaction in which a party seeks to trade out of a position, and it becomes a seller in transactions in which a party seeks to enter into a position.³⁵⁰ A market participant that desires to engage in an eligible OTC transaction notifies the clearinghouse of its interest to buy or sell a credit default swap agreement.³⁵¹ To minimize its exposure to risk of loss, the clearinghouse anonymously matches the orders of interested counterparties.³⁵² The clearinghouse enters into an agreement with each of the parties and negotiates certain material terms of the agreement, such as margin and collateral requirements.³⁵³ The clearinghouse, through novation, legally

345. Sec. 728, 124 Stat. 1376 (2010) (amending 7 U.S.C. § 24).

346. Joseph Santos, *A History of Futures Trading in the United States*, EH.NET ENCYCLOPEDIA OF ECONOMIC AND BUSINESS HISTORY (Mar. 16, 2008, 11:30 AM), <http://eh.net/encyclopedia/article/Santos.futures>. In securities markets, clearinghouses regularly record transactions; receive funds to settle transactions on behalf of issuers, brokers, and dealers; and maintain shareholder records. *Id.* The first modern clearinghouse for futures was established in Minnesota in 1891. *Id.*

347. See Chander & Costa, *supra* note 173, at 651–55, 677.

348. Romano, *supra* note 134, at 16–17.

349. *Id.*

350. *Id.*

351. *Id.*

352. See Chander & Costa, *supra* note 173, at 677.

353. See Squam Lake Working Group on Financial Regulation, *Credit Default Swaps, Clearinghouses, and Exchanges* 3–4 (Council on Foreign Relations Ctr. for Geoeconomic Studies Working Paper 2009), available at http://www.cfr.org/content/publications/attachments/Squam_Lake_Working_Paper5.pdf (describing the process by which counterparties clear a transaction through

substitutes the interested parties for itself under each of the agreements.³⁵⁴

The clearinghouse is a guarantor of all transactions cleared through its platform.³⁵⁵ As a result, the clearinghouse has strong incentives to assume the role of a market gatekeeper. In this role, clearinghouses evaluate each registered member's credit quality in advance, and members agree to disclose on a periodic basis certain information regarding their credit quality.³⁵⁶ The clearinghouse also clears secondary market

a clearinghouse). Financial market participants generally engage in transactions with the assistance of a broker through clearinghouses or exchanges. See Neil M. Garfinkel, Note, *No Way Out: Section 546(E) Is No Escape for the Public Shareholder of a Failed LBO*, 1991 COLUM. BUS. L. REV. 51, 63–65 (1991). An agreement between the broker and the clearinghouse or the exchange allows the broker to purchase securities on behalf of its clients and delay delivery of the payment. *Id.* The short-term extensions of credit to purchase securities are known as “buying on the margin.” Gretchen Morgenson, *Investors Turn to Credit in a Bull Market*, N.Y. TIMES, Mar. 24, 2000, at C1. The broker often provides collateral based on its creditworthiness as security for the ability to engage in margin activities. Garfinkel, *supra* at 64–65. The clearinghouse or exchange facilitating the transactions establishes rules governing margin and collateral requirements. See *id.*

354. Michael H. Moskow, *Public Policy and Central Counterparty Clearing*, in THE ROLE OF CENTRAL COUNTERPARTIES 40, 41 (2007), <http://www.ecb.eu/pub/pdf/other/rolecentralcounterparties200707en.pdf>.

355. Jerry W. Markham, “Confederate Bonds,” “General Custer,” and the Regulation of Derivative Financial Instruments, 25 SETON HALL L. REV. 1, 61 n.232 (1994) (“The clearinghouse acts as the buyer and seller to every contract that is entered into on the exchange. The clearinghouse is interceded between the actual purchaser and seller of the futures or options contract. The clearinghouse thereupon becomes guarantor to the parties. If one party to the contract defaults, the clearinghouse will be responsible to the other party because of its intercession.”). Market participants who trade in credit default swaps will presumably be required to pay for the clearinghouse services and to contribute to any shortfalls in capital in connection with transactions that threaten the solvency of the clearinghouse. See, e.g., DEP’T OF TREASURY, FINANCIAL REGULATORY REFORM: A NEW FOUNDATION 47–48 (2009), available at http://www.financialstability.gov/docs/regs/FinalReport_web.pdf; see also *Regulatory Perspectives on the Obama Administration’s Financial Regulatory Reform Proposals—Part Two: Hearings Before the H. Comm. On Fin. Servs.*, 111th Cong. 14–15 (2009) (statement of Ben S. Bernanke, Chairman, Federal Reserve Board) [hereinafter Bernanke testimony], available at http://financialservices.house.gov/media/file/hearings/111/bernanke_-_frb.pdf (discussing clearing arrangements and referring to payment, settlement, and clearing arrangements as the “foundation of the nation’s financial infrastructure”).

356. See, e.g., INT’L DERIVATIVES CLEARINGHOUSE, LLC, RULES OF INTERNATIONAL DERIVATIVES CLEARINGHOUSE, LLC 21–22, (July 26, 2010), <http://www.idcg.com/pdfs/idch/20100726rulebook.pdf> (“For the purpose of determining whether any applicant or Clearing Member is thus qualified, the Clearinghouse may establish minimum capital and other financial requirements for Clearing Members, examine the books and records of any applicant or Clearing Member, and may take such other steps as it may deem necessary to ascertain the facts bearing upon the question of qualification.”); see also Markham, *supra* note

transactions in which original counterparties exchange their interests in credit default swap agreements with third parties.³⁵⁷ Requiring market participants to clear transactions through a clearinghouse reduces counterparty, operational, and systemic risks.³⁵⁸ Through clearinghouses, financial markets self-capitalize and isolate risks that may arise in the trading of certain products.³⁵⁹

Clearinghouses act as a central repository, registering or warehousing transactions.³⁶⁰ Through its position as a central counterparty for the market, a clearinghouse gains access to the terms of transactions.³⁶¹ As a repository, the clearinghouse forces transparency by recording all of the market transactions that it executes, and it typically settles each transaction at the end of each day.³⁶²

Finally, clearinghouses facilitate price discovery.³⁶³ Because clearinghouses act as an original counterparty in all transactions that are registered and settled through the clear-

355, at 62 (noting that there have been few instances of clearinghouse failures because clearinghouses are “backed up with several defensive mechanisms,” namely margin requirements to ensure that a party engaging in a derivative contract will have sufficient funds to assure performance); Scott, *supra* note 201, at 688.

357. See Letter from Lisa A. Dunsky, Dir. and Assoc. Gen. Counsel, CME-Group, to David Stawick, Office of the Secretariat, Commodity Futures Trading Comm’n, on Petition to Commingle Customer Funds Used to Margin Credit Default Swaps Cleared by CME with Other Funds Held in Segregated Accounts 8 (June 15, 2009) available at <http://www.cftc.gov/stellent/groups/public/@requestsandactions/documents/ifdocs/cme4drequestcds.pdf>.

358. See *The Role of Financial Derivatives in the Current Financial Crisis: Hearing Before the S. Comm. on Agric., Nutrition, and Forestry*, 110th Cong. 40 (2008) (statement of Terrence Duffy, Executive Chairman, Chicago Mercantile Exchange Group) [hereinafter Duffy testimony].

359. DEPT OF TREASURY, *supra* note 355, at 46–48; Bernanke testimony, *supra* note 355, at 14–15.

360. Romano, *supra* note 134, at 17–18.

361. *Id.*

362. *Role of Financial Derivatives in the Current Financial Crisis: Hearing Before the S. Comm. on Agric., Nutrition, and Forestry*, 110th Cong. 107 (2008) (statement of Ananda Radhakrishnan, Director, Division of Clearing and Intermediary Oversight, Commodity Futures Trading Commission) [hereinafter Radhakrishnan testimony] (“Clearing addresses the assessment of market risk and price transparency by publishing a settlement price each day for each product.”). Registration of each transaction enables market participants to identify their counterparties with certainty and to assess with greater confidence other market participants’ risk or exposure within the market; these improvements enhance market participants’ ability to avoid some of the surprises that were endemic in the recent financial crisis. See *id.*

363. See Duffy testimony, *supra* note 358, at 81 (“[The] Congressionally mandated role [of the Chicago Mercantile Exchange Group, Inc.] is to operate fair markets that foster price discovery.”).

inghouse, there is a centralized repository of the prices for each credit default swap transaction.³⁶⁴ The centralization of pricing information makes it less difficult for credit default swap market participants to determine the accurate price for an agreement.³⁶⁵ While this is an imperfect pricing methodology, the presence of the clearinghouse reduces the threat of prices derived solely from isolated and perhaps blind reliance on an internal, proprietary quantitative pricing program.³⁶⁶ In other words, if market participants had been required to clear credit default swap transactions during the years before the crisis, it is unlikely that AIG would have entered into such a significant volume of credit default swap agreements acting as a protection seller without triggering at least an investigation into its collateral accounting policies and its ability to satisfy obligations under the agreements.

The requirement that market participants execute swap transactions through a clearinghouse is at once among the legislation's most significant accomplishments and among its most important shortcomings. The clearing and recording requirements reduce obscurity in the OTC derivatives market that allowed financial institutions like AIG to amass unfathomable exposure to credit default swaps.³⁶⁷

While the Dodd-Frank Act improves transparency, the Dodd-Frank Act missed the opportunity to equally address equally important concerns that linger in the OTC derivatives market. The stated intention of the Dodd-Frank Act is to throw open the dark curtain that obscured the OTC derivatives market and, by extension, the credit default swap market.³⁶⁸ While requiring registration and clearing of swaps provides

364. See Radharkishan testimony, *supra* note 362, at 107; see also Robert R. Bliss & Robert S. Steigerwald, *Derivatives Clearing and Settlement: A Comparison of Central Counterparties and Alternative Structures*, 30 *ECON. PERSP.* 27 (2006) (noting that clearinghouses collect information from individual counterparty transactions and can help determine credit events).

365. See *Regulatory Reform and the Derivatives Market: Hearing Before the S. Comm. on Agric., Nutrition, and Forestry*, 111th Cong. 8 (2009) (statement of Gary Gensler, Chairman, Commodity Futures Trading Commission) [hereinafter Gensler testimony II]; see also Radharkishan testimony, *supra* note 362, at 107.

366. Duffy testimony, *supra* note 358, at 85.

367. See *supra* Part II.C.

368. S. COMM. ON BANKING, HOUSING, AND URBAN AFFAIRS, BRIEF SUMMARY OF THE DODD-FRANK WALL STREET REFORM AND CONSUMER PROTECTION ACT 8 (2010), available at http://banking.senate.gov/public/_files/070110_Dodd_Frank_Wall_Street_Reform_comprehensive_summary_Final.pdf (noting that one purpose of the Dodd-Frank Act is to create transparency and accountability for derivatives).

improved disclosure, the Dodd-Frank Act exempts³⁶⁹ arguably the most perilous swap transactions from the clearing requirement.

Market participants started clearing transactions through clearinghouses well before the adoption of Dodd-Frank.³⁷⁰ Thus, the requirement that swap agreements clear through clearinghouses is arguably an element of private market reform. The transactions that market participants voluntarily clear through clearinghouses are generally standardized agreements.³⁷¹ These agreements trade regularly and reflect standard material terms, such as a commonly traded debt reference asset, standard typical maturity, collateral obligations, and pricing terms.³⁷² As a result, we describe the agreements as standardized or fungible.³⁷³ Any party seeking to enter into an agreement with standardized terms can anonymously enter into or transfer out of a standard agreement through the clearinghouse.

369. According to the Dodd-Frank Act, the clearing requirements do not apply to a swap if one of the counterparties to the swap “(i) is not a financial entity; (ii) is using swaps to hedge or mitigate commercial risk; and (iii) notifies the Commission, in a manner set forth by the Commission, how it generally meets its financial obligations associated with entering into non-cleared swaps.” Dodd-Frank Act, Pub. L. No. 111-203, sec. 723(a)(3), § 2(h)(7)(A), 124 Stat. 1376 (2010). A “financial entity” is defined as a swap dealer; a security-based swap dealer; a major swap participant; a major security-based swap participant; a commodity pool; a private fund as defined in the Investment Advisers Act; an employee benefit plan; or a person predominately engaged in the business of banking, or activities that are financial in nature. *Id.* at sec. 723(a)(7), § 2(h)(7)(C)(i). Financial entities do not include firms “whose primary business is providing financing, and who uses derivatives for the purpose of hedging underlying commercial risks related to interest rate and foreign currency exposures.” *Id.* at sec. 723(a)(3), § 2(h)(7)(C)(iii). In addition, the CFTC has the authority to exempt small banks, savings associations, farm credit system institutions, and credit unions (those with \$10 billion in assets or less). *Id.* at sec. 723(a)(3), § 2(h)(7)(C)(ii).

370. Press Release, Depository Trust & Clearing Corp., DTCC Trade Information Warehouse Completes Credit Event Processing for Lehman Brothers (Oct. 22, 2008), *available at* http://www.dtcc.com/news/press/releases/2008/dtcc_processes_lehman_cds.php.

371. Squam Lake Working Group on Financial Regulation, *supra* note 353, at 4 (describing credit default swaps, along with other derivative contracts, as types of agreements settled by clearinghouses and noting that “[m]ost of the systemic advantages of a clearinghouse require standardized contracts”).

372. *See id.* (noting that one of the issues that led to AIG’s credit default swap losses was that “[m]ost of their credit default swaps were customized to specific packages of mortgages and would not have met any reasonable test of standardization”).

373. Scott, *supra* note 201, at 695 (“[C]leared contracts are fully fungible within a clearing framework.”).

Transactions involving customized agreements, however, require greater time and attention.³⁷⁴ Because they are not fungible, meaning each agreement has unique and distinguishable terms, demand for customized agreements is not as consistent as demand for standardized agreements.³⁷⁵ The clearinghouse is likely less willing to accept customized agreements because of the difficulty the clearinghouse may have identifying a counterparty interested in taking the opposite position in the transaction.³⁷⁶ Clearinghouses mitigate risk by matching transactions and typically agree only to accept transactions for which they are able to offset their risk exposure.³⁷⁷ The exemption for customized agreements in the Dodd-Frank Act acknowledges the reality that credit default swap agreements are not uniform in their terms and therefore are not fungible like stocks or bonds. Credit default swap agreements are customized to address parties' specific risks and hedging interests.³⁷⁸ As a result, most credit default swap agreements may be too thinly traded or may contain particularized terms that make them difficult to trade on a clearinghouse platform. Thinly traded and highly customized credit default swap agreements may be ineligible for trading on a clearinghouse platform because of their non-standardized terms.³⁷⁹

The Dodd-Frank Act requires that only standardized credit default swap contracts be cleared through a central counterparty or derivatives clearing organization.³⁸⁰ This exception to the provision requiring OTC transactions to clear through clearinghouses allows market participants to continue to engage in private, bilateral, customized agreements.³⁸¹ This exception may undermine the benefits of instituting the clearinghouse requirements or requiring registration of credit

374. See Squam Lake Working Group on Financial Regulation, *supra* note 353, at 4.

375. See Scott, *supra* note 201, at 695 (noting that because cleared contracts are fully fungible, they are "therefore continuously and automatically net down, whereas bilateral contracts require consent of all parties to novate or net").

376. See generally Squam Lake Working Group on Financial Regulation, *supra* note 353, at 3-4 (discussing counterparties and the benefits of standardized contracts).

377. See *id.* at 3 ("With clearing . . . the positive and negative exposures of each counterparty cancel, and each poses no risk to anyone, including the clearinghouse.").

378. See *supra* Part II.B.

379. See *supra* text accompanying notes 370-377.

380. Dodd-Frank Act, Pub. L. No. 111-203, sec. 723(a)(3), 124 Stat. 1376 (2010).

381. *Id.* at sec. 723, § 2(h)(7)(A).

default swap agreements. Commentators already refer to the exception as a loophole.³⁸² Senior regulators warn that the exception for customized credit default swap agreements may create an incentive for dealers to make minor adjustments to credit default swap agreements in an effort to avoid the transparency of transacting through a clearinghouse.³⁸³

Finally, the Dodd-Frank Act leaves regulators to define the implications of the statute with respect to the distinction between standard and customized swap agreements and the appropriate limitations on systemically significant financial institutions' use of swaps.³⁸⁴ Relying on administrative agencies to expound upon the details of legislation is a customary practice.³⁸⁵ Although regulatory agencies have expertise and experience managing the details of financial markets regulation, there are significant limitations to this approach.³⁸⁶ Administrative rule-making processes are notoriously slow and subject

382. Peter Eavis, *Volcker Rule's Proprietary Position on Government Bonds*, WALL ST. J., July 7, 2010, at C14.

383. Gensler testimony II, *supra* note 365, at 89 ("It is important that tailored or customized swaps that are not able to be cleared or traded on an exchange be sufficiently regulated.")

384. The Dodd-Frank Act, for example, grants the SEC the authority to determine which types of dealers qualify as a "major swap participant," a critical definition in the Act. A "major swap participant" includes "any person who is not a swap dealer" and who "maintains a substantial position in swaps." Dodd-Frank Act, sec. 721(a)(15), § 1a(33)(A), 124 Stat. 1376. Determining as a threshold question how to define "substantial position" is a fact-sensitive inquiry. The text directs the SEC to interpret "substantial position" in a manner that is "prudent" and allows "for the effective monitoring, management, and oversight of entities that are systemically important or can significantly impact the financial system of the United States." *Id.* at sec. 721(a)(15), § 1a(33)(B).

385. The Securities Act of 1933, for example, sets out the general limitations relating to the sales of securities in public markets. *See* Securities Act of 1933, 15 U.S.C. § 77f–g (2006) (granting SEC rulemaking authority on matters including, *inter alia*, registration fees, publication of registration statements, and exclusions of certain types of information from registration documents). The Exchange Act of 1934 authorizes the SEC to develop specific rules applicable to marketing documents distributed to prospective investors. *See* Securities Exchange Act of 1934, 15 U.S.C. § 78m (2006).

386. The Exchange Act, for example, delegates to the SEC the authority to create the rules and regulations necessary to implement the federal statute. 15 U.S.C. § 78d-1 (2006). The definitional provisions of the Securities Act provides for a "prospectus" of the sales document that an issuer seeking to sell securities may provide to potential investors. 15 U.S.C. § 77b(a)(10) (2006). The SEC, however, has adopted detailed rules under Regulation S-K governing the quality and quantity of information that must be included in the prospectus and other types of communications by issuers and their affiliates in connection with the sale of securities to the public. *See* 17 C.F.R. § 229 (2010).

regulation to the influence of interested parties.³⁸⁷ Even after regulators adopt rules, there is often a lag as market participants adjust to the rules. As a result, agile private actors often adapt to regulation while it is in developmental stages and avoid the impact of the regulation by innovating forward.³⁸⁸

While the regulatory governance model imposed by the Dodd-Frank Act offers important introductory steps toward limiting the systemic risk that evolved into one of the most infamous transfers of negative externalities in recent financial market history, the Dodd-Frank Act leaves much to be desired. Reliance on a purely regulatory governance model neither engenders the most efficient nor the most effective solution to the problems inherent in an infrastructure resource commons. The solution to concerns about tragedies in infrastructure resource commons lies in employing adaptive, institutional solutions that are informed by the normative principles of the community in which the commons is situated. The ideal reform for the concerns presented by credit default swap markets may be found in common governance.

IV. AN AGENDA FOR REFORM: INTRODUCING IMPROVED INSTITUTIONAL ARCHITECTURE

The events of the recent financial crisis highlight the exponential growth, as well as the credit, operational, and systemic risks in the credit default swap market.³⁸⁹ Few commentators dispute the shortcomings of the deregulatory, privatization, and regulatory governance models, as applied in the financial markets. In response to failed attempts at governing the credit default swap market, some commentators demand an absolute ban, prohibiting market participants from using these instruments.³⁹⁰

387. See generally Matthew McCubbins et al., *Structure and Process, Politics and Policy: Administrative Arrangements and the Political Control of Agencies*, 75 VA. L. REV. 431, 442 (1989) (describing problems with administrative rule-making).

388. See, e.g., Jon B. Jordan, *Regulation S and Offshore Capital: Will the New Amendments Rid the Safe Harbor of Pirates?*, 19 NW. J. INT'L L. & BUS. 58, 59 (1998) (explaining that after Regulation S was adopted "unscrupulous market participants quickly identified and took advantage of significant loopholes in the regulation").

389. See *supra* Part II.A, C–D.

390. The Dodd-Lincoln Substitute Amendment to the financial reform legislation adopted under the title, "The Dodd-Frank Act," proposed prohibiting banks from buying and selling derivatives on their own accounts. See Restoring Ameri-

On the one hand, evidence suggests that credit default swaps caused a great deal of global despair, justifying demands for a prohibition against the use of OTC derivatives.³⁹¹ On the other hand, the insistence on adopting a market ban overlooks two critical issues. First, the turmoil in the credit default swap market is analogous to the types of tumult witnessed in the markets for other financial products.³⁹² Second, credit default swaps, like other financial products, yield valuable economic benefits if the market operates within effective limiting parameters.³⁹³

This Part argues that there is an underexplored alternative governance model that better resolves the commons-like conflicts in the credit default swap market. This Part introduces a governance model that applies institutional design principles developed from commons literature. The community governance model would allow market participants to capture the benefits of using credit default swaps. At the same time, the community governance model would impose limiting parameters and better ensure that market participants internalize negative externalities such as credit, operational, and systemic risks. Section A explores the origins of the community governance model, and Section B adapts the community governance model to the credit default swap market. Section C argues that provisions of the Dodd-Frank Act governing the credit default swap market reflect a weak version of the community governance model and concludes that a stronger commitment to the community governance model would offer more effective regulation of the credit default swap market and offers insight into regulation that may serve to reduce systemic risk in the broader financial markets.

can Financial Stability Act of 2010, S. 3217, 111th Cong. § 619 (2010); *see also* Emily Barrett, *'Naked' Swaps Targeted*, WALL ST. J., Jan. 30, 2009, at C4.

391. *See supra* Part II.D.

392. Courts initially debated the enforceability of futures contracts, describing informal networks that traded in futures contracts as “bucket shops.” *See* JERRY W. MARKHAM, *THE HISTORY OF COMMODITY FUTURES TRADING AND ITS REGULATION* 9–12 (1987); *see also* *Gatewood v. North Carolina*, 203 U.S. 531, 536 (1906) (defining a bucket shop as “an establishment, nominally for the transaction of a stock exchange business, or business of a similar character, but really for the registration of bets, or wagers, usually for small amounts, on the rise or fall of the prices of stocks, grain, oil, etc., there being no transfer or delivery of the stock or commodities nominally dealt in”). Courts debated the enforceability of these agreements, and Congress passed two different statutes to create legislation narrowly tailored to address the concerns in the futures markets. *See* *Belly, supra* note 144, at 1473–78.

393. *See supra* Part II.B.

A. *An Alternative to Traditional Governance Models*

Recent commons scholarship offers an alternative governance model to address the conflicts that characterize the commons. The alternative governance model draws from the strengths of each of the three traditionally proposed governance models. This new governance model, community governance, involves the creation of an institution managed directly by resource users with oversight by an external authority. Through its oversight, the external authority imposes accountability standards consistent with the normative expectations of the broader community. The external authority enforces parameters to prevent commons users from transferring negative externalities related to their activities on to the community.³⁹⁴

The community governance model assumes that commercial use of an infrastructure commons engenders economic benefits for commons users and other members of the community. The model relies upon Elinor Ostrom's³⁹⁵ empirical research examining communities facing commons-like conflicts.³⁹⁶ Ostrom's findings demonstrate that certain institutional structures allow commons resource users to enjoy the benefits of an openly accessible resource while curbing self-interested behavior and transfers of the costs related to their activities.³⁹⁷

Ostrom and her colleagues discovered that community norms present a valuable method for resolving over-exploitation concerns, spillover effects, and negative externality

394. See OSTROM, GOVERNING THE COMMONS, *supra* note 55, at 30, 40–41; Frischmann, *Infrastructure*, *supra* note 71, at 933; Sinden, *supra* note 252, at 547–58.

395. On October 12, 2009, the Royal Swedish Academy of Sciences awarded the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel for 2009 to Elinor Ostrom, of Indiana University, “for her analysis of economic governance, especially the commons” and to Oliver E. Williamson, University of California, Berkeley, “for his analysis of economic governance, especially the boundaries of the firm.” Press Release, The Royal Swedish Academy of Sciences, The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2009 (Oct. 12, 2009), http://nobelprize.org/nobel_prizes/economics/laureates/2009/press.html). Professor Ostrom is the first woman to receive the Nobel Prize in the award's thirty-year history.

396. See *infra* note 398.

397. OSTROM, GOVERNING THE COMMONS, *supra* note 55, at 18–21. See generally Abraham Bell & Gideon Parchomovsky, *supra* note 252; Robert C. Ellickson, *Of Coase and Cattle: Dispute Resolution Among Neighbors in Shasta County*, 38 STAN. L. REV. 623 (1986) (arguing that disputes over the use of certain property are resolved by enforcing community norms); Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1320 (1993).

transfers.³⁹⁸ Based on their discoveries, Ostrom's team designed the Institutional Analysis and Development ("IAD") framework.³⁹⁹ The theory of IAD suggests that encouraging persons subject to regulation to participate in the development of governing rules leads them to perceive regulation as having greater legitimacy.⁴⁰⁰ Those governed by rules developed through a participatory process appear to be less resistant and less likely to engage in manipulation or violation of the rules.⁴⁰¹ The institutional design principles "enable individuals to achieve productive outcomes in situations where temptations to free-ride and shirk are ever present."⁴⁰²

To date, empirical research and the studies involving application of IAD principles focus on small communities' management of conflicts regarding environmental or natural resources. The application of IAD principles to environmental and natural resource infrastructure commons offers valuable guidance for other infrastructure resources. According to commons scholars' empirical research, the participants in IAD institutions are less likely to innovate around rules when there are institutional designs that create a collaborative rule-making process.⁴⁰³

398. OSTROM, GOVERNING THE COMMONS, *supra* note 55, at 18–21, 65–69, 82–88 (discussing community norms and public/private commons regimes governing Turkish fishing communities, uncultivated lands around small Japanese villages, and Philippine irrigation communities).

399. ELINOR OSTROM ET AL., RULES, GAMES, AND COMMON-POOL RESOURCES 25–29 (1994) (describing the background of IAD).

400. *See id.*; Elinor Ostrom & Vincent Ostrom, *supra* note 269, at 168–72. The term "institutions" as described in Ostrom's work refers to the sets of working rules "used to determine who is eligible to make decisions in some arena, what actions are allowed or constrained . . . what information must or must not be provided, and what payoffs will be assigned to individuals dependent on their actions." OSTROM, GOVERNING THE COMMONS, *supra* note 55, at 51. It is noteworthy that the empirical research of the commons scholars has typically involved smaller, contained communities. There is currently no empirical work that applies the theories to a community as large and complex as the group of institutions and individuals that comprise a national financial product market. There is, however, anecdotal precedent that supports the conclusion that Ostrom's findings are applicable to financial product markets. *See infra* Part IV.B.

401. *See infra* Part IV.B.

402. OSTROM, GOVERNING THE COMMONS, *supra* note 55, at 15.

403. *Id.* at 50–55; Elinor Ostrom, *A Behavioral Approach to the Rational Choice Theory of Collective Action*, 92 AM. POL. SCI. REV. 1, 8 (1998).

B. Commons Governance Principles Address Concerns in Financial Markets and Overcome Obstacles that Challenge Credit Default Swap Markets

The historical use of exchanges and clearinghouses indicates that market participants and regulators are amenable to adopting structures that reflect the institutional design principles proposed by the community governance model. The structure of federally registered self-regulatory organizations (“SRO”) reflects many of the IAD design principles. Creating a credit default swap SRO would effectively address the need for better organizational structure and greater transparency in the market and would respond to political demands for greater accountability by market participants. A federally registered SRO would offer an effective means to address concerns in the credit default swap market. A SRO would create necessary mechanisms for reducing concerns about a tragedy, such as over-exploitation, spillover effects, or inappropriate transfers of negative externalities.

Congress acknowledged the importance of SROs in its passage of the Securities Exchange Act of 1934.⁴⁰⁴ Depending on the structure and purpose of these entities, SROs contribute significantly to our federal regulatory scheme.⁴⁰⁵ SROs may exercise quasi-governmental authority;⁴⁰⁶ they can also offer

404. See Securities Exchange Act of 1934 § 19, 15 U.S.C. § 78s (2006) (establishing the process for registering national stock exchange as an SRO that may establish its own set of rules and policies and requiring all companies listed on an exchange to comply with the exchange’s rules and regulations); cf. *Bus. Roundtable v. SEC*, 905 F.2d 406 (D.C. Cir. 1990); Joel Seligman, *Cautious Evolution or Perennial Irresolution: Stock Market Self-Regulation During the First Seventy Years of the Securities and Exchange Commission*, 59 *BUS. LAW.* 1347, 1349 (2004) (noting that “[s]tock market self-regulation preceded the adoption of the Securities Exchange Act of 1934 but was incorporated into the 1934 Act largely as a by-product of congressional concern with stock market price manipulation”).

405. See generally Roberta S. Karmel, *Should Securities Industry Self-Regulatory Organizations Be Considered Government Agencies?*, 14 *STAN. J.L. BUS. & FIN.* 151, 197 (2008) (discussing advantages of SROs as regulator). See also Ernest E. Badway & Jonathan M. Busch, *Ending Securities Industry Self-Regulation as We Know It*, 57 *RUTGERS L. REV.* 1351, 1361–63 (2005); SRO CONSULTATIVE COMM., INT’L ORG. OF SEC. COMMISSIONS, MODEL FOR EFFECTIVE REGULATION (2000), available at <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD110.pdf> (“[A]dvocat[ing] the use, value and efficiencies of self-regulation as part of the overall regulatory structure in the financial services industry.”).

406. See *Nat’l Ass’n of Secs. Dealers v. SEC*, 431 F.3d 803, 804–06 (D.C. Cir. 2005) (describing an SRO as quasi-governmental agency and noting the role of the SRO is to promote a free and open market); see generally Donna M. Nagy,

marketplaces for origination and trading of investment instruments. The Financial Industry Regulatory Authority and the New York Stock Exchange Euronext, Inc. are two regularly cited examples of SROs.⁴⁰⁷ While the collaboration among market participants is similar to the initiatives developed under the privatization governance model,⁴⁰⁸ SROs are subject to federal regulatory oversight in the adoption, implementation, and enforcement of their policies. An SRO must register with a federal agency and submit to federal jurisdiction.⁴⁰⁹

Federal regulations require existing SROs to submit proposed rules or amendments to the federal agency overseeing the SRO. Entities that currently enjoy the privilege of SRO status under the Exchange Act, for example, must file proposed rule changes with the SEC pursuant to section 19(b)(1).⁴¹⁰ The proposed rule or amendment is subject to a public comment period, during which time the SRO receives comments from its members, other financial market participants, and the general public.⁴¹¹ The SEC has the authority to “abrogate, add to, and delete from” proposed SRO rules.⁴¹² When an SRO proposes adoption of a new rule or amendment of an existing guideline, the SEC has thirty-five days following the proposal or the rule to institute disapproval proceedings; the SEC also has the authority to extend this period to ninety days.⁴¹³

Playing Peekaboo With Constitutional Law: The PCAOB and Its Public/Private Status, 80 NOTRE DAME L. REV. 975, 975 (2005) (exploring the Congressional designation of a private company, the Public Company Accounting Oversight Board, as an example of a private, nonprofit corporation being endowed with authority to assist with the development and enforcement of governmental objectives).

407. See Karmel, *supra* note 405, at 151–52, 165–66.

408. The private governance model in the securities regulations context is often referred to as “private ordering.” See generally Larry E. Ribstein, *Private Ordering and the Securities Laws: The Case of General Partnerships*, 42 CASE W. RES. L. REV. 1 (1992); Steven L. Schwarcz, *Private Ordering*, 97 NW. U. L. REV. 319 (2002); Steven L. Schwarcz, *Private Ordering of Public Markets: The Rating Agency Paradox*, 2002 U. ILL. L. REV. 1 (2002); Quinn, *supra* note 200. Private ordering of the derivatives market dates back several centuries and has emerged in the form of trade organizations in foreign, domestic and international organizations. See *supra* Part III.B.2 (discussing the development of ISDA).

409. HAZEN & RATNER, *supra* note 306, at 933. National securities exchanges and national securities associations have the ability to exercise authority over their members. See 15 U.S.C. §§ 78f(b)(6), 78o-3(b)(7) (2006).

410. Securities Exchange Act of 1934 § 19, 15 U.S.C. § 78s(b)(1) (2006).

411. *Self-Regulatory Organization (SRO) Rulemaking and National Market System (NMS) Plans*, SEC, <http://www.sec.gov/rules/sro.shtml> [hereinafter *SRO Rulemaking*] (last visited Nov. 10, 2010).

412. 15 U.S.C. § 78s(c) (2006).

413. *Id.* § 78s(b)(1). Notice must be filed if an SRO proposes a rule change, and thereafter, a period of time must be reserved for public comment on the proposed

Through their participation in the rule-making process, market participants become stakeholders in the successful implementation and enforcement of rules.⁴¹⁴ The credit default swap SRO proposed in this Article would employ the IAD principle of inviting market participants and the broader commons community to participate in the SRO rule-making process. The credit default swap SRO would engage both public and private interests.⁴¹⁵ The relationship between existing SROs and regulators illustrates the effectiveness of collaborative rule-making that allows private actors, regulators, and the public to comment on regulation. Federal oversight in existing SRO rule-making procedures ensures better alignment between SRO market oversight and broader social norms.

In addition, the SRO would set higher industry standards. The charter of an SRO designed to introduce community governance standards would reflect aspirations to enhance transparency; introduce governance standards; and establish margin, capital adequacy, and collateral requirements that stabilize markets by limiting credit, market, operational, and systemic risks.⁴¹⁶ In addition, like other federally registered

new rule. Upon the closure of the period for public comment, the SEC must approve or reject the proposed rule. *Id.*; see also *SRO Rulemaking*, *supra* note 411.

414. See OSTROM, GOVERNING THE COMMONS, *supra* note 55, at 53.

415. The credit default swap SRO would benefit from the expertise of the ISDA, the private trade organization that has implemented significant market reform orders in the credit default swap market. ISDA's most recent reforms demonstrate the organization's expertise and the overlap between private and public interests in better ordering the market. See *ISDA Mission*, ISDA, <http://www.isda.org> (follow "Mission" hyperlink) (last visited Oct. 28, 2010). ISDA introduced critical netting and collateral arrangements and implemented a standard for electronic dealing and processing of derivatives. See ISDA, 2002 MODEL NETTING ACT, (2002), <http://www.isda.org/docproj/netact.pdf>; Press Release, ISDA, ISDA Announces FpML Services (Mar. 16, 2006), available at <http://www.isdadocs.org/press/press031606fpml.html> ("FpML [Financial Products Markup Language] is the freely licensed business information exchange standard for electronic dealing and processing of privately negotiated financial derivatives instruments."). ISDA's intimate understanding of the market's mechanics offers valuable insight. The rules adopted by the SRO, unlike the protocols adopted by ISDA, will, however, be situated within the context of national economic and social welfare concerns.

416. The CFTC and the SEC already exercise similar oversight authority over existing industry organization. See Commodity Exchange Act, 7 U.S.C. § 7(b) (2006) (establishing criteria for designation of boards of trade, including, *inter alia*, prevention of market manipulation, fair and equitable trading, financial integrity of transactions, and disciplinary procedures); Securities Exchange Act of 1934, 15 U.S.C. § 78f (2006) (requiring the rules of national securities exchanges to "prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, to foster cooperation and coordination with persons engaged in regulating, clearing, settling, processing information . . . and, in gen-

SROs, the proposed credit default swap SRO would offer arbitration and mediation facilities to resolve member disputes.⁴¹⁷

The SRO would develop, in a manner that is consistent with community governance standards, uniform education and professional qualification standards for dealers, compliance guidelines, and best practices and ethics standards for the credit default swap industry.⁴¹⁸ Like an entity created in accordance with community governance institutional design principles, the proposed SRO would participate in the aggregation of industry data and establishment of a reporting system that increases transparency and enables regulators to better assess risk levels and leverage across credit default swap markets.

C. Distinguishing Between Current Regulation and the Creation of a Credit Default Swap SRO

The Dodd-Frank Act imposes requirements in the OTC derivatives market that improve transparency in the trading of credit default swaps.⁴¹⁹ While the Dodd-Frank Act adopts several structural measures that reflect IAD-influenced community governance requirements, the provisions of the legislation impose only a weak version of institutional design principles proposed in the community governance model. As a result, the legislation leaves unresolved important issues that contributed to the role of the credit default swap market in the recent financial crisis.

eral, to protect investors and the public interest”); Nat’l Ass’n of Secs. Dealers v. SEC, 431 F.3d 803, 805–06 (D.C. Cir. 2005).

417. See generally *NYSE Arbitration Rules 600A–639*, NYSE EURONEXT (2010), <http://nyserules.nyse.com/NYSETools/bookmark.asp?id=sx-policymanual-nyseArbitrationRulesR600A639&manual=/nyse/rules/nyse-rules/>; *NASDAQ Code of Arbitration Procedure 10001–10102*, NASDAQ OMX GRP. INC. (2010), http://nasdaq.cchwallstreet.com/NASDAQTools/bookmark.asp?id=nasdaq-rule_10000&manual=/nasdaq/main/nasdaq-equityrules/; *FINRA Code of Arbitration Procedure*, FINRA (2010), <http://www.finra.org/ArbitrationMediation/Rules/>; CBOT Rulebook Ch. 6, CME GRP. (2010), <http://www.cmegroup.com/rulebook/CBOT/I/6/>.

418. Cf. Steven A. Ramirez, *The Professional Obligations of Securities Brokers Under Federal Law: An Antidote for Bubbles?*, 70 U. CIN. L. REV. 527, 532 (2002) (asserting that compliance with the heightened professional standards of stock exchanges, adopted under the Securities Exchange Act of 1934, will provide greater stability in financial markets); NASD and NYSE Rulemaking: Relating to Corporate Governance, Exchange Act Release No. 34-48745 (Nov. 4, 2003), available at <http://www.sec.gov/rules/sro/34-48745.htm> (discussing SROs in the context of corporate governance).

419. See *supra* notes 342–367 and accompanying text.

Similar to the community governance model, the Dodd-Frank Act adopts elements of both the privatization and regulatory governance models. For example, the Dodd-Frank Act grants the CFTC and the SEC the authority to exercise jurisdiction over certain aspects of the OTC derivatives market, while preserving private market participants' authority over other elements of the market. Section 723 of the Dodd-Frank Act requires market participants to clear eligible transactions through federally registered clearinghouses.⁴²⁰ The clearinghouses are privately owned and managed settlement facilities.⁴²¹ When dealing with customized agreements, private clearinghouses will likely decline to clear customized credit default swap agreements if the clearinghouses cannot identify a counterparty willing to take the opposite position. The Dodd-Frank Act preserves federal regulatory agencies' authority to review decisions regarding the eligibility of transactions submitted to clearinghouses for clearing. The statute does not establish or suggest how federal regulators should develop rules for determining OTC derivative transactions' eligibility for clearing.⁴²² Rather, market participants and clearinghouses are to engage in private negotiations to determine standards. Federal regulators reserve, however, the right to challenge the privately developed standards.

In addition, OTC market participants, including those engaging in credit default swap transactions, are subject to reporting requirements. Under the Dodd-Frank Act, market participants must report such transactions, even if the transactions are not eligible for clearing through a clearinghouse.⁴²³ Moreover, the majority of market participants, those identifiable as "swap dealers"⁴²⁴ or "major swap participants,"⁴²⁵ must register and satisfy capital, margin, reporting, record-keeping,

420. Dodd-Frank Act sec. 723, § 2(h)(1)(A), 124 Stat. 1376 (2010).

421. *Id.* sec. 763(c).

422. *Id.* sec. 723, § 2(h)(2).

423. *Id.*

424. The Dodd-Frank Act defines "swap dealer" as any person who identifies as a dealer who regularly engages in, or is a market-maker in, the credit default swap market. *See id.* at sec. 721(a)(21), § 1a(49)(A).

425. A "major swap participant" is any person who is not a swap dealer, but who maintains substantial positions in, among other things, credit default swaps, and who does not hold such swaps merely to hedge commercial risk. *Id.* at sec. 721(a)(16), § 1a(33). A "major swap participant" may also be a person whose outstanding credit default swap positions create substantial counterparty risk that has the potential to threaten the stability of financial markets, or a person who is a highly leveraged, non-bank financial entity. *Id.*

and operational requirements.⁴²⁶ The Dodd-Frank Act also requires the registration of certain market makers as futures commission merchants or broker-dealers and subjects them to margin and segregation requirements.⁴²⁷ To address systemic risk concerns, the Dodd-Frank Act limits the aggregate positions of credit default swaps that any market participant may hold.⁴²⁸

While the Dodd-Frank Act includes express regulatory requirements, the Act implements these measures through private institutions.⁴²⁹ The clearinghouses that will clear and manage OTC derivative and credit default swap transactions are independently owned and operated.⁴³⁰ The clearinghouses are subject to federal regulation and data reporting requirements.⁴³¹

Yet, as private businesses, the clearinghouses must reconcile the interests of diverse constituencies. The clearinghouses eligible to clear swaps are private companies, and, in some instances, the clearinghouses are corporations whose shares trade in the public securities markets on national and international stock exchanges.⁴³² Within the parameters of agency guidelines, the management of clearinghouses or members will set forth the daily operational rules of the clearinghouse, advertise to and solicit customers, and retain a private profit from membership dues and fees charged for services provided through the clearinghouse.⁴³³

As drafted, the Dodd-Frank Act raises the possibility that many of the anticipated benefits of the legislation may not be realized. Clearinghouses have the freedom to decline requests for clearing, and if they consistently reject a sizeable portion of the agreements in the market or market participants continue to enter into contracts with

426. *Id.* sec. 731.

427. *Id.*

428. *Id.* sec. 737.

429. *Id.* sec. 723 (the clearing process is to occur via derivatives clearing organizations).

430. *Id.* sec. 723, § 2(h).

431. *Id.* sec. 723, § 2(h)(2)(B)(i) (“A derivatives clearing organization shall submit to the Commission each swap, or any group, category, type, or class of swaps that it plans to accept for clearing, and provide notice to its members (in a manner to be determined by the Commission) of the submission.”).

432. *Id.*

433. *See, e.g.*, Ice Clear Europe Ltd., Circular C09/028, May 21, 2009, available at https://www.theice.com/publicdocs/clear_europe/circulars/C09028.pdf (setting forth new margin rules and policies for members of clearing house).

customized terms that are ineligible for clearing through the clearinghouse, the anticipated benefits will not accrue to the market. Depending on clearinghouses to offer a source of regulation without bringing all agreements into the clearinghouses leaves the market susceptible to many of the systemic risks that precipitated the events of the recent financial crisis.

The community governance proposal blends elements of regulatory governance with privatization. The proposed credit default swap SRO, however, offers a more comprehensive approach to market reform. The Dodd-Frank Act requires the clearing of only *certain* credit default swap transactions. The legislation fails to implement institutional mechanisms that SROs regularly employ to reduce systemic risk.

The Dodd-Frank Act falls short of creating an institution that reflects the structural safeguards of the community governance model. Clearinghouses typically function as central counterparties and data repositories and, in those capacities, reduce substantial risks.⁴³⁴ The SRO, structured in accordance with the community governance model, introduces additional protections that further reduce risk, including collaborative rule-making and the development of best practices, compliance standards, and arbitration and mediation services. The gap in federal regulation relating to oversight of credit default swaps that are ineligible to clear through a traditional clearinghouse may be better addressed in the proposed community governance SRO. Under the proposed community governance principles, the appropriate SRO would possess a direct role in considering and adopting uniform standards for transactions that may be ineligible to clear through clearinghouses and would influence margin and collateral requirements for those transactions that remain outside of the traditional clearing structure. The proposed SRO, through rules adopted after comment by regulators, private actors, and the public, would address this significant gap in regulatory oversight.

The proposed credit default swap SRO would also have rulemaking and enforcement authority beyond that generally associated with clearinghouses. Unlike well-developed SROs in other financial product markets, clearinghouses have not traditionally engaged in federal or state securities regulation devel-

434. See Scott, *supra* note 201, at 687–88.

opment and enforcement.⁴³⁵ Federal SROs that satisfy the criteria of the community governance model build bridges between the SRO and the community.⁴³⁶ These institutions also have strong connections with federal regulators reflecting shared normative goals including securities law enforcement and comprehensive market monitoring and compliance.⁴³⁷ Clearinghouses lack institutional capacity to identify and enforce the norms of federal securities laws that the proposed community governance model SRO would encourage regulators to adopt.⁴³⁸

The private institutions that the Dodd-Frank Act relies upon to address the risks in the credit default swap market lack the oversight authority needed to adopt and implement appropriate gate keeping procedures.⁴³⁹ While the Dodd-Frank Act enables clearinghouses to address financial terms related to credit default swaps, such as margin and collateral requirements, the legislation does not create obligations for the clearinghouse to engage in normative rule-making. Despite efforts by the clearinghouse to offset risk positions, each clearinghouse remains susceptible to the danger that a member will default on its obligations, and the clearinghouse may become insolvent if it is unable to satisfy the defaulting member's outstanding positions.⁴⁴⁰

The community governance model offers a mechanism to close gaps between provisions adopted in the Dodd-Frank Act and the concerns illustrated in the recent financial crisis. The community governance model encourages regulators to develop the institutional mechanisms necessary to not only increase transparency, but also to guard against manipulation and abuses in the OTC derivatives market. Merely imposing clearing and reporting requirements fails to reach the issues *ex ante* that create systemic risk.

A credit default swap SRO would supplement the dearth of financial and human resources that may be allocated to a single federal regulator or even a collaborative regulatory effort by federal agencies. SROs and the federal regulatory agencies

435. See *id.* at 688 (noting that clearinghouses could fail themselves and require regulation).

436. See generally David P. Doherty et al., *The Enforcement Role of the New York Stock Exchange*, 85 NW. U. L. REV. 637, 637–38 (1991).

437. See *id.* at 638 (discussing the NYSE's enforcement role).

438. See Scott, *supra* note 201, at 688.

439. See *id.* at 687–88.

440. *Id.*

that oversee them exercise mutual regulatory authority.⁴⁴¹ The collaborative effort of mutual regulation increases the likelihood that the SRO or federal regulators will detect market manipulation. Mutual regulation enhances market surveillance and regulatory oversight of the credit default swap SRO and improves market stability by reducing the likelihood of undiscovered market manipulation.⁴⁴² In addition to the reputational harm, fees, or other disciplinary measures the SRO may impose upon a member that has violated an SRO regulation, the SRO may also collaborate with federal agencies to facilitate federal prosecution. This layering of collaborative regulation ensures greater market stability and minimizes systemic risk.⁴⁴³

Unlike privatization governance models, under which market participants exercise limited enforcement authority, a credit default swap SRO may adopt rigorous rules and exercise pervasive enforcement capabilities.⁴⁴⁴ SRO investigations may lead to censure, suspension, or permanent bars from participation in the relevant industry, as well as fines.⁴⁴⁵

441. The NYSE, for example, has worked jointly with federal agencies in conducting investigations into breaches of federal securities laws and SRO rules. See, e.g., Frank P. Quattrone, Exchange Act Release No. 53547, 87 SEC Docket 1847, at 2 (Mar. 24, 2006), available at <http://www.sec.gov/litigation/opinions/34-53547.pdf> (“In 2002, the Commission, NASD, and the New York Stock Exchange commenced a joint investigation into initial public offering ‘spinning’ and research analyst conflicts of interest at twelve investment firms.”) (acronyms omitted).

442. See Onnig H. Dombalagian, *Self and Self-Regulation: Resolving the SRO Identity Crisis*, 1 BROOK. J. CORP. FIN. & COM. L. 317, 320–23 (2007) (describing SROs as contributing to market stability through (1) mutual regulations of transactions among members, (2) reciprocal regulations of transactions between members and public, (3) partitive regulations governing the potential conflicts of interest between different classes of members, and (4) gate-keeping regulations, e.g., qualitative standards for membership).

443. See *id.* at 323.

444. Cf. *Credit Suisse First Boston Corp. v. Grunwald*, 400 F.3d 1119, 1121 (9th Cir. 2005) (“[National Association of Securities Dealers] rules approved by the Securities and Exchange Commission have preemptive force over conflicting state law”). Federal law permits SROs to develop disciplinary measures and enforcement mechanisms. 15 U.S.C. § 78s(g) (2006). The SEC, however, retains plenary review of disciplinary rules and procedures. 15 U.S.C. § 78s(d) (2006); *Otto v. SEC*, 253 F.3d 960, 964 (7th Cir. 2001). Final disciplinary sanctions must be filed with the SEC. 15 U.S.C. § 78s(d) (2006). The SEC independently evaluates the sanction and determines its appropriateness. If the SRO is displeased with the SEC’s response to the sanction, judicial review is available. 15 U.S.C. § 78y(a) (2006).

445. See David P. Doherty et al., *supra* note 436, at 644 (noting that the Hearing Panel of the NYSE is empowered to impose sanctions, including expulsion, suspension, fines, or censure).

Self-regulation is, however, “far from . . . a panacea.”⁴⁴⁶ Market participants may attempt to influence the regulations and enforcement of SROs, and SROs may lack the incentives to introduce or enforce rules that effectively deter exploitation. Critics charge that notwithstanding well-developed rules, large banks, hedge funds, and private equity funds manipulate SROs and the federal regulatory agencies that oversee SROs.⁴⁴⁷ Reform, these critics assert, requires more than allowing the foxes to guard the henhouse.⁴⁴⁸

While self-interested behavior does present a challenge for SROs, the successes of capital market SROs is well established.⁴⁴⁹ SROs create an important forum for market regulation. The effective rule-making and rule-enforcing procedures of SROs defeat arguments that members’ participation in self-

446. Seligman, *supra* note 404, at 1347. Recent scandal regarding anticompetitive behavior by members of the NASD and executive compensation of the officers and directors of the NYSE severely challenged the integrity of the entities and their legitimacy as ethics standard-bearers. See Report Pursuant to Section 21(a) of the Securities Exchange Act of 1934 Regarding the NASD and NASDAQ Market, Exchange Act Release No. 37,542, 62 SEC Docket 1385 (Aug. 8, 1996), available at <http://www.sec.gov/litigation/investreport/nd21a-report.txt>; Kate Kelly & Susanne Craig, *Weakened NYSE Must Face Challenges*, WALL ST. J., Sept. 18, 2003, at C1.

447. See, e.g., Seligman, *supra* note 404, at 1347. See also Jennifer J. Johnson, *Wall Street Meets the Wild West: Bringing Law and Order to Securities Arbitration*, 84 N.C. L. REV. 123, 126 (2006); Press Release, Securities Exchange Commission, *SEC Charges the New York Stock Exchange With Failing to Police Specialists* (Apr. 12, 2005), available at <http://www.sec.gov/news/press/2005-53.htm>. See also Kenneth R. Davis, *The Arbitration Claws: Unconscionability in the Securities Industry*, 78 B.U. L. REV. 255, 325 (1998) (“By compelling arbitration, securities firms may evade the rigors of the law.”); Aaron Lucchetti et al., *New Order At Big Board, Years of Turmoil Give Chief Opening for Change*, WALL ST. J., Apr. 22, 2005, at A1; Aaron Lucchetti & Kara Scannell, *Fifteen Indicted in NYSE Case*, WALL ST. J., Apr. 13, 2005, at C1; Laurie P. Cohen & Kate Kelly, *NYSE Turmoil Poses Question: Can Wall Street Regulate Itself?*, WALL ST. J., Dec. 31, 2003, at A1.

448. See Davis, *supra* note 447, at 260–61, 325 (arguing for federal intervention in the SRO securities arbitration process).

449. See Karmel, *supra* note 405, 160–61 (noting that the “NASD was a peculiar body, designed to act as a regulator, but also functioning as a professional organization”); Paul G. Mahoney, *The Political Economy of the Securities Act of 1933*, 30 J. LEGAL STUD. 1, 9, 23–24 (2001) (describing eventual evolution of Investment Bankers Association of America, founded in 1912, into NASD, by 1938); Lurie, *supra* note 138, at 218–39 (describing the development of the Chicago Board of Trade, formed in 1812); *Firsts & Records*, NYSE EURONEXT, <http://www.nyse.com/about/history/1022221392987.html> (describing the development of the New York Stock Exchange, organized in 1792 under a buttonwood tree).

regulation neutralizes an SRO's investigative and prosecutorial sting.⁴⁵⁰

An SRO developed pursuant to the community governance model would adopt enhanced governance rules, education qualifications and professional standards, compliance guidelines, best practices, and ethics standards for the credit default swap industry. Institutional design principles ensure that SROs develop and enforce sufficiently rigorous rules and standards. To make certain that regulatory oversight through the credit default swap SRO aligns with fundamental goals of federal securities laws, the rules for the credit default swap SRO should be drawn from the regulations currently employed to manage SROs.

The community governance model suggested in this Article addresses the most disconcerting conflicts in the credit default swap industry, a sector of the broader financial market commons. This alternative model incorporates important normative considerations and oversight by an external authority. Establishing the proposed SRO is only a first step in addressing systemic, operational, and credit risks. The next, and perhaps more crucial step, requires alignment of the SRO's rules and enforcement policies with the normative expectations of the community in which the credit default swap commons is situated.

CONCLUSION

Prior to the adoption of the Dodd-Frank Act, credit default swaps originated and traded in a regulation-free zone. Following the Federal Reserve bail-out of AIG, the Lehman Brothers' bankruptcy, and the collapse or near collapse of other systemically significant financial institutions, commentators demanded regulatory reform.

Examining the role that credit default swaps played in the near collapse of several systemically significant financial institutions, this Article explores the benefits and the dangers of allowing credit default swap market participants to operate in a regulation-free zone. This Article posits that notwithstanding the reforms introduced in the Dodd-Frank Act, more narrowly-tailored regulation is necessary to address the systemic risk

450. See Karmel, *supra* note 405, at 171–73.

concerns that arise in connection with use of credit default swaps.

This Article contends that commons literature offers valuable lessons and useful guidance for the development of financial markets reform. After considering the similarities between financial markets and commons described as infrastructure resources, this Article considers the traditional solutions proposed to solve tragedies in commons such as the tragedy that arises when market participants fail to internalize negative externalities. Upon reviewing the traditional solutions, which include deregulation, privatization, and regulation by an external authority, this Article adopts an alternative solution to the concerns in financial markets, a community governance model.

In financial markets, self-regulatory organizations or SROs encompass the virtues of the community governance regulatory model because the organizations involve both market participants and public participation in their governance structure. In addition, SROs remain subject to federal oversight. While recently adopted reforms propose the development of similar institutional structures, the proposal in this Article explains the theoretical basis for adopting an institutional approach and introduces important elements within the institutional structure that contribute to the reforms' future success.