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FINANCIAL MARKETS UNCERTAINTY AND THE RAWLSIAN ARGUMENT FOR CENTRAL COUNTERPARTY CLEARING OF OTC DERIVATIVES

STEVEN MCNAMARA*

One of the key measures in the Dodd-Frank Act intended to curb systemic risk in the financial system is the central counterparty (CCP) clearing mandate for over-the-counter derivatives. The mandate reflects the belief of legislators and many financial markets experts that these derivatives, particularly credit default swaps, were an important cause of the financial crisis of 2008. While derivatives markets do create extensive interconnections between financial institutions, and were essential to the creation of the structured finance securities that fueled the housing bubble, in hindsight it appears that derivatives were not a proximate cause but rather one of many “but for” structural causes of the crisis. As a result, the CCP clearing mandate has been extensively criticized on the grounds that it carries with it significant risks for the global financial system, while providing little benefit in return.

This Article offers a critical examination of the arguments against CCP clearing and a defense of the mandate and other Dodd-Frank Title VII derivatives provisions. Beginning with the fundamental uncertainty about the true causes of the crisis that remains, it then examines the arguments against CCP clearing, finding that they rely on overly narrow boundaries in order to achieve a measure of precision in making a cost-benefit analysis, thereby ignoring many of the important costs that derivatives indirectly contributed to. Given that a more complete cost-benefit analysis appears to run aground on the complexity of accurately enumerating all the costs and benefits associated with modern financial markets, this Article instead proposes looking at the problem of derivatives regulation through a Rawlsian framework. Central to Rawls’s thought is the procedure of decision-making under conditions of fundamental uncertainty, or the maximin rule. I argue that application of the maximin rule is appropriate here, and that unlike the standard cost-benefit analysis grounded in utilitarianism, Rawls’s views lead to a holistic understanding of the financial markets in their larger societal context that both guides and justifies legislative action in the context of fundamental uncertainty by prioritizing the safety of the financial system. Such a holistic understanding of economic regulation is necessary as governments struggle to preserve social stability in the face of widespread economic challenges such as unemployment, income inequality, excessive debt, and instability in the financial system.

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INTRODUCTION

The efforts to reform the trading regime for over-the-counter (OTC) derivatives¹ have given rise to some of the most heated controversies surrounding the financial reform process in the wake of the credit crisis of 2008. At stake for the major investment banks is a substantial percentage of their yearly revenues. For government regulators, an unregulated trading regime in a \$650 trillion global market calls into question their ability to police the shadow-banking system and, more broadly, to safeguard the global financial system as a whole.

For the academics who study the financial system, derivatives regulation highlights certain crucial epistemological questions: What are the limits of the evidence that can be drawn on to obtain an accurate understanding of the financial system? How should we view propositions that we highly suspect may be true but cannot confidently prove? And how should we deal with uncertainty, both in the attempt to accurately understand the financial system, and in the possible effects of the regulations we impose on it? The epistemological quickly leads to the moral, as how one answers these questions affects the degree to which one allows broader moral concerns to influence both our understanding and regulation of financial markets. The thesis of this Article is that given the high degree of uncertainty surrounding the operation of highly complex, contemporary financial markets, and the broad, and for many very deep, effects of a financial crisis, a Rawlsian perspective

1. A note on terminology: in this Article, "derivative" is used in its narrower sense to denote financial instruments such as options and swaps, excluding structured finance securities such as collateralized debt obligations (CDOs), residential mortgage-backed securities (RMBSs), and other forms of asset-backed securities (ABSs).

better frames our understanding of the financial markets than one grounded in utilitarianism. It also offers strong support for the reforms that were enacted in 2010 in Title VII of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act).²

The cornerstone of the derivatives reform in Title VII is the central counterparty (CCP) clearing mandate, which requires all derivatives to be cleared through a clearing agency registered with the Securities and Exchange Commission (SEC) or the Commodities Futures Trading Commission (CFTC), as applicable.³ The debate over the mandate and how to control the systemic risk emanating from OTC derivatives trading has been joined by both legal and finance scholars, and reflects the deep fault lines in the general debate over how to best regulate the activity of private actors in a system as complex as that of contemporary finance. The purpose of this Article is to explore these fault lines and offer a defense of the pro-regulation position on both practical and philosophical levels. In this way it is meant as a complement to the arguments of scholars, including Anupam Chander and Randall Costa,⁴ Michael Greenberger,⁵ Viral Acharya,⁶ Brian Quinn,⁷ David Skeel,⁸ and perhaps less directly, Eric Posner and E. Glen Weyl,⁹ and Lynn Stout.¹⁰

Derivatives, primarily (but not exclusively) in the form of credit default swaps (CDSs), were one of the many “but for” causes of the financial crisis. They greatly increased the level of interconnection

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

3. Although commonly referred to as the clearing “mandate,” the requirement is more complicated than a simple blanket rule. See *infra* Part II.A.

4. See Anupam Chander & Randall Costa, *Clearing Credit Default Swaps: A Case Study in Global Legal Convergence*, 10 CHL. J. INT’L L. 639 (2010).

5. See Michael Greenberger, *Out of the Black Hole: Regulatory Reform of the Over-the-Counter Derivatives Market*, in ROOSEVELT INSTITUTE, MAKE MARKETS BE MARKETS 99 (Robert Johnson & Erica Payne eds., 2010); see also *The Role of Derivatives in the Financial Crisis, Financial Crisis Inquiry Comm’n Hearing* (2010) (statement of Michael Greenberger), available at http://fcic-static.law.stanford.edu/cdn_media/fcic-testimony/2010-0630-Greenberger.pdf.

6. See *Centralized Clearing for Credit Derivatives*, in RESTORING FINANCIAL STABILITY: HOW TO REPAIR A FAILED SYSTEM 251 (Viral V. Acharya & Matthew Richardson eds., 2009); see also Viral Acharya & Alberto Bisin, *Counterparty Risk Externalities: Centralized versus Over-The-Counter Markets* (2010), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1573355.

7. See Brian J.M. Quinn, *The Failure of Private Ordering and the Financial Crisis of 2008*, 5 N.Y.U. J.L. & BUS. 549, 609 (2009).

8. See DAVID A. SKEEL, JR., THE NEW FINANCIAL DEAL: UNDERSTANDING THE DODD-FRANK ACT AND ITS (UNINTENDED) CONSEQUENCES 14 (2010) (“The new framework for clearing derivatives and trading them on exchanges is an unequivocal advance.”); see also Kent Cherny & Ben R. Craig, *Reforming the Over-the-Counter Derivatives Market: What’s To Be Gained?*, 6 FED. RES. BANK CLEVELAND, ECON. COMMENT. (2010), <http://www.clevelandfed.org/research/commentary/2010/2010-6.pdf>.

9. See Eric A. Posner & E. Glen Weyl, *An FDA for Financial Innovation: Applying the Insurable Interest Doctrine to Twenty-First-Century Financial Markets*, 107 NW. U. L. REV. 1307 (2013).

10. See Lynn A. Stout, *Derivatives and the Legal Origin of the 2008 Credit Crisis*, 1 HARV. BUS. L. REV. 1 (2011); *Why the Law Hates Speculators: Regulation and Private Ordering in the Market for OTC Derivatives*, 48 DUKE L.J. 701 (1999).

between financial markets institutions and were a necessary ingredient in the construction of collateralized debt obligations (CDOs). They also made a substantial contribution to the opacity of the shadow banking system. It is important to note, however, that derivatives were not the proximate cause of the crisis; nor did the derivatives markets seize up or otherwise fail during the crisis. Moreover, the derivatives closest to the scene of the disaster, CDSs on structured finance securities such as those issued by the American Insurance Group (AIG), are highly customized or “bespoke” contracts that would not be suitable for clearing under the mandate and so would presumably not be directly affected by the central pillar of Dodd-Frank Title VII. Regulators and financial markets experts therefore face a paradox: the types of derivatives most closely associated with the recent crisis will not be subject to the main regulatory solution, while the broader effects of other types of OTC derivatives—most importantly, the degree to which they knit together the major financial institutions in a highly complex and tightly coupled system¹¹—are, even now, uncertain.

This condition of uncertainty is reflected in many ways in the derivatives debate. Looking back at possible explanations for the crisis, commentators emphasize how little is really known about the degree to which derivatives were a contributing cause of the crisis, even though many agree they were a key “but for” cause.¹² And the dangers of derivatives themselves often stem from the opacity of the bilateral markets they trade in, and the inability of many parties to obtain a clear view of their credit risk in derivatives transactions. The unique properties of CDSs enable parties to change their risk profile without the knowledge of others. On a system-wide basis, OTC derivatives create extensive interlocking connections between financial market participants, generating conditions of tight coupling between institutions and making the financial markets brittle and highly reactive to any hint of insolvency of a major institution such as Bear Stearns, Lehman Brothers, or AIG. Looking forward, regulators face the challenge of implementing changes to highly complex markets, which they may not fully understand and the effects of which are difficult or impossible to predict.

Although not the sole cause of the controversy surrounding derivatives reform, this uncertainty has led to significant controversy surrounding the new derivatives mandates and the manner and extent to which the SEC and CFTC will implement and enforce them. While the mandates have considerable support, significant voices urge caution or even abandonment of the CCP clearing mechanism as prone to ineffi-

11. Richard Bookstaber emphasizes the dangers that arise from tightly coupled, highly complex systems in his analysis of recent derivatives disasters on Wall Street. See RICHARD BOOKSTABER, *A DEMON OF OUR OWN DESIGN* 143–64 (2007).

12. See, e.g., ANAT ADMATI & MARTIN HELLWIG, *THE BANKERS’ NEW CLOTHES: WHAT’S WRONG WITH BANKING AND WHAT TO DO ABOUT IT* 70–74, 160–61 (2013); ALAN S. BLINDER, *AFTER THE MUSIC STOPPED: THE FINANCIAL CRISIS, THE RESPONSE, AND THE WORK AHEAD* 279–82 (2013) (with respect to derivatives transactions, “when things started going off track, rampant fears of counterparty default played major roles in shutting down markets.”). See also *infra* notes 117–26 and accompanying text.

ciency and likely to create additional, significant centers of risk in the financial system.¹³ This Article examines these arguments in light of what we do and don't know about the role of derivatives in the financial crisis, with a view towards answering the following questions:

1. Given the conditions of pervasive and even fundamental uncertainty, should we embrace the clearing and other new mandates in Dodd-Frank?
2. If so, what argument best justifies them in the public policy arena?

I contend that the arguments against the clearing mandate, while highlighting possible danger zones that regulators will have to monitor, ultimately fail to persuade. They fail to take into account wider contextual features of the derivatives trading system that are strongly suspected of being key factors in the financial crisis. They also downplay the likelihood and severity of the effects of market failure in unregulated derivatives markets, and implicitly assume that if an improvement to a market were beneficial, private actors would have brought it about already.¹⁴ And last but not least, critics of the clearing mandate appear to employ a fairly narrow, albeit standard, conception of social welfare, which carries with it the implicit assumption that a more efficient financial system is in the interest of society as a whole.¹⁵ Ultimately, they are unable to respond to the wider economic, political, and moral concerns raised by the financial crisis that relate back to the derivatives trading regime, even if only indirectly. In light of the effects of the financial crisis and the likely central role that OTC derivatives trading played in it, as a deep though admittedly indirect and shadowy cause, the criticisms of the mandate fail to respond to a large measure of the real impetus of the efforts to reform the derivatives markets. The safety and justice (as serving the larger cause of societal fairness) of the financial system are, I contend, legitimate regulatory goals that the arguments against the mandate fail to give their full due.

A powerful set of ideas does support the clearing mandate and other Dodd-Frank derivatives provisions, however: the political thought of John Rawls. A holistic look at the financial system leads to the conclusion that our knowledge of the precise functioning of this system is fundamentally colored by uncertainty. Uncertainty also has a crucial role in Rawls's thought, as the "maximin" rule for choosing the rules of a social system is one that applies in conditions of fundamental uncertainty. A Rawlsian argument for the Dodd-Frank derivatives legislation contends that the irruption of systemic risk that occurred in the 2008 crisis and the accompanying recession were so injurious to the American and global economies that considerations of justice require implementation of legislation that is likely to mitigate systemic risk, even at the expense of possible costs to the financial system, i.e., inefficiency

13. Most prominent among these are Craig Pirrong & Mark Roe; *see infra* Part III.B.1.

14. *See infra* note 236 and accompanying text.

15. *See infra* notes 246–53 and accompanying text.

generated by such regulation, and to the economy at large. Furthermore, even if there is uncertainty as to the ultimate consequences of creating a new regulatory structure, such uncertainty should not prevent us from acting to control systemic risk. Instead, uncertainty should motivate vigilant oversight on the part of regulators.

In order to make this argument, I proceed in four parts: Part I examines the role of derivatives in the financial crisis, highlighting their unique characteristics in the world of financial instruments. These characteristics are a double-edged sword, making them highly useful for a broad swath of companies, but also increasing the severity of their risks and the unpredictability of their effects. Part II presents an overview of Title VII of Dodd-Frank, the “Wall Street Transparency and Accountability Act of 2010,” focusing on the clearing mandate and the information reporting requirements in the derivatives markets. Part III turns to the arguments for and against the clearing mandate, and the philosophical characteristics of these arguments. Part IV argues that given the fundamental uncertainty surrounding the role of derivatives in the financial crisis, and the narrow scope of the arguments against Dodd-Frank, it is better to err on the side of regulation that will likely prevent a future outbreak of systemic risk, despite the possibility of efficiency costs to financial markets participants and the economy. Although the core proposition that the Dodd-Frank reforms will reduce systemic risk cannot be known with certainty and is dependent on the future actions of regulators and market participants, it is buttressed by important political considerations drawn from Rawls’s *Theory of Justice*.

I. FINANCIAL DERIVATIVES: THEIR SPECIAL CHARACTERISTICS AND ROLE IN THE BANKING CRISIS OF 2008

A. *A Brief Overview of Derivatives and Their Trading*

1. Derivatives

What are derivatives, and what special characteristics differentiate them from other investment contracts such as stocks and bonds that are more familiar to the general public? Derivatives are investment contracts whose value is *derived from* the performance of another financial instrument or instruments, or the occurrence of a specified event, though not always in the financial markets. Various categories of derivatives include futures, swaps, forward contracts (or “forwards”), and options, and they can be combined in various ways to produce hybrid contracts such as “swaptions,” contracts giving the buyer the right to buy or sell CDS protection.¹⁶ Derivatives trade on exchanges and over-the-counter in bilateral markets; some also clear through central clearinghouses, while others are processed bilaterally by the two parties to the contract themselves.

Because the value, or payoff, of a derivative depends on the performance or occurrence of another security, entity, index, interest rate,

16. See generally David Mengle, *Credit Derivatives: An Overview*, 92 *ECON. REV.* 1 (2007).

or other variable, derivatives exist at a level of abstraction from traditional financial reality.¹⁷ This removal or separation presents many opportunities for information failures and asymmetries. The fact that they depend on the performance of at least three variables—the two parties to the contract, in addition to the underlying “reference obligation”—adds another element of complexity, as any party to the transaction is dependent on both the performance of the reference obligation and the creditworthiness of its counterparty. And the performance of parties to a derivatives transaction commonly includes a much longer time horizon than a securities transaction, as a party to a derivatives contract is exposed to the creditworthiness of its counterparty for the entire life of the contract, as opposed to the very short time horizon of the typical securities transaction, which usually occurs in a matter of days.¹⁸ All of these factors produce a much more complex and potentially risky landscape than is typically found with other financial contracts or investments.

While trading in derivatives has exploded in the past decade, moving from total “notional” amounts outstanding of \$63 trillion at the end of 2000 to \$466 trillion as of June 2010,¹⁹ they have an ancient lineage in the agriculture markets stretching back millennia. Derivatives transactions trace back to 2000 B.C. in the Middle East,²⁰ were common in medieval Europe, and more recently flourished in Chicago in the 1800s in connection with American agriculture.²¹

In their simplest form, derivatives consist of contracts for the future purchase or sale of agricultural commodities. In three months’ time, for example, Farmer Smith agrees to sell 100 bushels of wheat to Trader Jones. Such a contract is called a future, as the terms of a transaction in the future are settled today. It is easy to see how a future could be used as a form of insurance, or as a hedge: if Farmer Smith is concerned about the price of his crops falling, he can protect himself by locking in a price today. Of course, this simple hedge also exposes him to the risk that he will forego any rise in the price that may occur.

17. See Henry T.C. Hu, *Hedging Expectations: “Derivative Reality” and the Law and Finance of the Corporate Objective*, 73 TEX. L. REV. 985, 1010–14 (1995) (“The Emergence of Derivative Reality”); see also SATYAJIT DAS, TRADERS, GUNS & MONEY: KNOWN AND UNKNOWN IN THE DAZZLING WORLD OF DERIVATIVES 55 (2010) (“To enter the world of derivatives trading is to enter a realm of beautiful lies.”).

18. See Robert R. Bliss & Robert S. Steigerwald, *Derivatives Clearing and Settlement: A comparison of central counterparties and alternative structures*, 30 J. ECON. PERSP. 22 (2006); Randall Kroszner, *Can the Financial Markets Privately Regulate Risk?: The Development of Derivatives Clearinghouses and Recent over-the-Counter Innovations*, 31 J. MONEY, CREDIT & BANKING 596, 600 (1999).

19. *Market Surveys*, INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION (June 30, 2010), <http://www2.isda.org/functional-areas/research/surveys/market-surveys>. Figures from the Bank of International Settlements are higher, showing \$648 trillion outstanding at year-end 2011. See BANK FOR INTERNATIONAL SETTLEMENTS, MONETARY AND ECONOMIC DEPARTMENT, STATISTICAL RELEASE: OTC DERIVATIVES STATISTICS AT END-DECEMBER 2011 (2012), available at http://www.bis.org/publ/otc_hy1205.pdf.

20. See Jerry W. Markham, “Confederate Bonds,” “General Custer,” and the Regulation of Derivative Financial Instruments, 25 SETON HALL L. REV. 1, 5 (1994).

21. See Kroszner, *supra* note 18, at 598.

On the other side of the transaction, Mr. Jones is willing to commit to a specified price today because he believes the price agreed to in the futures contract affords him a worthwhile opportunity for gain. Either he believes the price may rise substantially from its current level, or the price he offers for purchase three months hence contains enough of a discount from the current cost to function as a sort of insurance premium for the risk of a decline.

While futures in the agricultural sector still have substantial economic importance, as well as futures on other commodities used in the industrial, energy, and minerals sectors, the most important recent growth in the derivatives markets has been the development of swaps: particularly, interest rate, currency, and credit default swaps.²² A “swap” accomplishes what its name implies—a trade, in the case of a CDS, of the credit risk associated with a particular debt security or other financial obligation specified in the contract. Similar to a future, it functions as a kind of insurance. But in the case of a swap, the need to purchase or sell the underlying asset is done away with, although liability for the entire worth of the reference asset remains.²³ In fact, because the risk alone associated with the performance of an asset can be separated out from the asset itself, and the risk alone traded, a swap is in some ways equivalent to an insurance policy: the risk associated with an asset is transferred to another party in return for a fee just as a purchaser of homeowner’s insurance, for example, pays a regular fee for an insurance policy covering the worth of her house in the event of its destruction.²⁴

While there are a number of important varieties, such as total return swaps, interest rate swaps, and currency swaps, the focus of this Article is the CDS. A typical CDS transaction would be the following: A party holding \$10 million of General Motors bonds would like to insure those bonds against the risk of default. To do so, it enters into a CDS with a major investment bank where it pays a yearly fee of 200 basis points, or 2% of the total value of the reference obligation divided up into quarterly payments of \$50,000 each. As long as the purchaser of the credit default swap makes its quarterly payments, any failure on the part of General Motors to make its scheduled interest or principal payments will be covered by the credit default swap seller. In this example, the value of the contract to the seller is \$200,000, or the fee income it will earn for selling the bond protection. The “notional amount” of this CDS, however, is \$10 million. While in ordinary circumstances it is

22. See Robert E. Litan, *The Derivatives Dealers’ Club and Derivatives Markets Reform: A Guide for Policy Makers, Citizens and Other Interested Parties*, INITIATIVE ON BUS. AND PUB. POL’Y AT BROOKINGS 1, 13–15 (2010); BLINDER, *supra* note 12, at 65–68.

23. See Margaret M. Blair & Erik F. Gerding, *Sometimes Too Great a Notional: Measuring the “Systemic Significance” of OTC Credit Derivatives*, 1 LOMBARD STREET 10 (2009); Mingle, *supra* note 16, at 1–2 (“The protection buyer is entitled to protection on a specified face value, referred to in this paper as the notional amount, of reference entity debt.”).

24. For a critical examination of the similarities and dissimilarities between credit derivatives and insurance, see M. Todd Henderson, *Credit Derivatives Are Not ‘Insurance’* (U. Chi. L. & Econ., Olin Working Paper No. 476, 2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1440945.

wrong to say that the contract is “worth” \$10 million, because the likelihood of the General Motors bonds becoming worthless is exceedingly small, notional value is still a measure of the total potential financial risk. The CDS seller is ultimately responsible for the total value of the reference obligation, just as the insurer of a house would be responsible for its complete replacement cost in the event of its total destruction.²⁵

2. Special Risks Inherent in Derivatives Transactions

It is easy to see from this overview that derivatives are inherently more complex than securities transactions; investment in a stock or bond gives the purchaser a direct investment in the company, as either an owner or creditor, whereas a derivatives transaction always involves at least three central elements: (1) the purchaser, (2) the seller, and (3) the underlying reference obligation. In the case of a CDS transaction, this reference obligation is often a corporate bond, with sovereign debt, asset-backed securities, or indices of these instruments being other common reference obligations.²⁶ The addition of a third party to a transaction greatly multiplies the potential for complexity and unpredictability of performance and the difficulty of estimating the worth of the contract. Derivatives transactions differ in three basic ways from securities transactions. These differences likely made the crisis of 2008 unforeseeable to most market participants and economists; they also greatly complicate the challenge of reducing the systemic risk engendered by derivatives trading.

First, counterparty exposure exists with a derivatives transaction throughout the life of the contract. With a securities purchase, counterparty exposure only lasts for a couple of days, at most, during which the ownership of the particular securities is transferred from the seller to the buyer. This is now handled through the Depository Trust Clearing Corporation (DTCC) system in an automated and regular fashion.²⁷ The investor, of course, remains exposed to the performance of the entity in which it invests, but this is a direct relationship that is the entire purpose of the investment. The transactional risk the parties to a securities transaction bear is very brief. A derivatives contract, by contrast, is long-lived, and during this time the purchaser and the seller are exposed to both the performance of the underlying reference obligation and the risk that their counterparty will not perform.²⁸ The

25. See Blair & Gerding, *supra* note 23, at 11:

[A]lthough the notional value is not a good indicator of the market value of a derivative (because it is unlikely that each contract in the portfolio would have to be settled for the full notional amount), the notional value of all the derivative contracts in an institution's portfolio is a powerful indicator of the systemic risk posed by that institution's investments because it is the maximum amount the institution could owe to (or be owed by) other financial institutions in an extreme event such as the credit freeze

26. Litan, *supra* note 22, at 13.

27. See *id.* at 12.

28. See Bliss & Stiegerwald, *Derivatives Clearing and Settlement*, *supra* note 18, at 23 (“With derivatives, however, the length of time between the execution of a transaction and settlement is *essential to the contract.*”) (emphasis in original).

seller of the contract could face the default of the buyer, in which case the quarterly fee would not be forthcoming, and the buyer is exposed to the risk that the seller would not be able to meet its obligation in the face of disaster, as AIG's counterparties faced in September 2008. Since counterparty risk is always present, it adds a great deal of risk and uncertainty to derivatives transactions. Furthermore, because information concerning the counterparty's true health is often unavailable, an accurate measure of counterparty risk is very difficult for many parties to achieve.²⁹

A second key way in which derivatives transactions differ from securities transactions is that many of them, in particular the complex or "exotic" CDS transactions that occur in the OTC market, display both volatile and non-linear values.³⁰ Stock and bond prices, of course, display a certain amount of volatility, with the fluctuation in their value dependent on a wide variety of factors both endogenous and exogenous to the issuing entity. CDS prices, however, display much greater volatility. The market for a CDS on a corporate bond is typically much more sensitive to information concerning the issuer of the reference obligation than the price of the bond itself, resulting in much greater volatility.³¹ Furthermore, the value of a complex derivative is often non-linear, i.e., it does not vary in a one-to-one relationship with the value of the underlying obligation. As Pirrong explains, exotics often display a "skewness" in price: when a company nears default, the value of its bonds falls precipitously, but when a company strengthens its financial position from a point of relative health, a corresponding price increase is unlikely.³² Therefore, a CDS on a company nearing default will jump wildly in price.³³ As a result, "upward spikes in the cost of protection (corresponding to downward spikes in the value of [the] position held by the protection seller) are more common than downward spikes."³⁴ In conjunction with the naturally greater amount of volatility of CDS, such downward price spikes on the underlying bond can lead to very non-linear risk exposures. Pirrong also notes that CDSs built on portfolios of underlying obligations will display greater sensitiv-

29. See *Interconnectedness, Fragility and the Financial Crisis*, FINANCIAL CRISIS INQUIRY (Feb. 26–27, 2010) (statement of Randall Kroszner), available at http://fcic-static.law.stanford.edu/cdn_media/fcic-testimony/2010-0226-Kroszner.pdf; ADMATI & HELLWIG, *supra* note 12, at 74 ("Because most trades are made over the counter, out of the sight of other market participants, it is all but impossible for anyone to have a precise picture of other participants' overall exposures and default risks.")

30. See Craig Pirrong, *The Economics of Clearing in Derivatives Markets: Netting, Asymmetric Information, and the Sharing of Default Risks Through a Central Counterparty* 35 (U. Hous. Working Paper 2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1340660; René M. Stulz, *Credit Default Swaps and the Credit Crisis*, 24 J. ECON. PERSP. 73, 82 (2010).

31. Stulz notes that CDS on corporate bonds are much more sensitive to information concerning the issuer than are the prices of the corporate bonds themselves. Stulz, *supra* note 30, at 75-76.

32. See Pirrong, *supra* note 30, at 35.

33. See, e.g., *infra* Part I.B (discussing the sudden increase in CDS protection as Bear Stearns and Lehman Brothers each ran into financial difficulty).

34. Pirrong, *supra* note 30, at 35.

ity to correlation risk than the volatility of any one name within the portfolio would, due to the much greater collective sensitivity to default risk of the portfolio as a whole than any one name.³⁵ The non-linearity of CDS prices was an important factor in the credit crisis of 2008, particularly with respect to AIG.³⁶

A third crucial difference between many derivatives transactions and common securities transactions is the lack of publicly disseminated price information.³⁷ Securities listed on the public markets trade at publicly available prices, observable by all market participants in real time. Furthermore, issuers of publicly traded securities are required to comply with the often extensive disclosure regimes of the securities laws of their jurisdiction. OTC derivatives markets generally lack observable prices, forcing parties to rely on quotes offered by the major dealers. In addition, many important OTC derivatives cover reference obligations which do not disclose financial information, for example, CDS protection sold on CDOs backed by real estate assets. The opacity of the transaction therefore does not just cover counterparty risk then, as discussed above, but extends to the pricing of the particular CDS as well as the true risk embodied in the underlying obligation. Such a risk is of course not limited to purchasers of CDS protection from major derivatives dealers. In the case of AIG, its sales of credit protection on fundamentally opaque and hard-to-value CDOs threatened to bring it down, because it was not able (or managers in its Financial Products unit lacked the proper incentives) to accurately price the risk embodied in the underlying CDOs.³⁸

The heightened riskiness and opacity of derivatives transactions was an important contributing cause of the systemic risk that prompted the bailouts of Fall 2008, as Part I.B below explores; this risk and opacity also prompted the key provisions of Title VII of Dodd-Frank, the central clearing mandate and the information provision requirements, which are the subject of Part II.

3. Derivatives Trading

The manner in which CDSs or other derivatives are traded is just as important for considerations of systemic risk as their intrinsic characteristics. Many standardized derivatives are traded on exchanges, and derivatives other than those specifically exempt from the exchange trading requirement of the Commodities Exchange Act must be conducted on exchanges.³⁹ For certain other classes of derivatives, such as

35. *Id.*

36. *See infra* Part I.B.3.

37. See Dan Awrey, *Complexity, Innovation and the Regulation of Modern Financial Markets*, 2 HARV. BUS. L. REV. 235, 243 n.24 (2012) (contrasting public capital markets with modern financial markets generating significant amounts of complexity).

38. See Carrick Mollenkamp et al., *Behind AIG's Fall, Risk Models Failed to Pass Real-World Test*, WALL ST. J., Nov. 3, 2008, at A1.

39. For a discussion of the development of the exemptions from the Commodities Exchange Act's requirement that derivatives be traded on an exchange, *see Stout, supra* note 10, at 18–22.

index options, foreign currency options, and “plain vanilla” credit default swaps on corporate bonds, the proper incentives have existed to spur exchange trading, particularly in recent years.⁴⁰ In addition, almost all derivatives that are traded on exchanges are cleared through central counterparty clearing mechanisms.⁴¹ Lastly, the Bank for International Settlements estimates that, as of December 2011, OTC derivatives totaled \$647.5 trillion in notional amounts, while exchange-traded derivatives amounted to \$55.5 trillion.⁴² While Dodd-Frank focuses on moving as much of the OTC market as possible into clearinghouses, and exchanges too if one should list a particular derivative, all three means of conducting derivatives transactions entail risks for counterparties, the creditors of counterparties, and the financial system and society as a whole. And while exchange trading remains a goal of regulators because of the benefits of price transparency associated with exchange listings, a derivative is only traded on an exchange when required by law, as with agricultural futures and options under the Commodity Exchange Act, or when economic factors incentivize an exchange listing. A derivative must be sufficiently standardized and demand fairly deep for exchange trading to make sense independent of regulatory fiat. The Deutsche Börse reported in 2008 that over 1,700 various derivatives were listed on exchanges around the globe, whereas the varieties of OTC-traded derivatives are virtually limitless, depending only on the needs of the counterparties to the transaction and the terms of the specific contracts written between them.⁴³

In contrast to exchange trading, a much larger subset of derivatives are centrally cleared through a clearinghouse. The CCP clearing mechanism is the heart of the Dodd-Frank derivatives provisions, and presents attractive benefits as well as risks, inefficiencies, and unknowns. A CCP differs from an exchange in that contracts cleared through a CCP are not necessarily listed on an exchange, and so do not require listing.⁴⁴ In the stock markets, clearing is done through DTCC, which handles the clearance and settlement of stock sales, bonds, and government and asset-backed securities. While the safety and soundness of DTCC’s operations are crucial to the financial system, and the failure of these back office functions in the 1970s caused extensive harm and led to the creation of DTCC, clearing in the securities mar-

40. For a discussion of the development of derivatives exchanges and CCPs in by private parties in response to market forces, see Kroszner, *supra* note 18, at 596. See also DEUTSCHE BÖRSE GROUP, *THE GLOBAL DERIVATIVES MARKET: AN INTRODUCTION* (2008), available at [http://deutsche-boerse.com/INTERNET/MR/mr_presse.nsf/0/0A4A6E3F8ED836BDC1257457002D5669/\\$File/2008-04%20DB_WP%20GlobalDerivativesMarket_e.pdf?OpenElement](http://deutsche-boerse.com/INTERNET/MR/mr_presse.nsf/0/0A4A6E3F8ED836BDC1257457002D5669/$File/2008-04%20DB_WP%20GlobalDerivativesMarket_e.pdf?OpenElement).

41. See Christopher L. Culp, *The Treasury Department’s Proposed Regulation of OTC Derivatives Clearing and Settlement* 14 (CRSP, Working Paper No. 09-30, 2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1430576.

42. Bank for International Settlements (BIS) data are available at <http://www.bis.org/statistics/derstats.htm>.

43. See DEUTSCHE BÖRSE GROUP, *supra* note 40, at 10.

44. See Adam Glass, *The Regulatory Drive Towards Central Counterparty Clearing of OTC Credit Derivatives and The Necessary Limits on This*, 4 CAP. MKTS. L.J. S79, S84 (2009).

kets is fundamentally straightforward as most transactions close within a matter of days. Due to the much longer time horizon, and the more complicated task of assessing the risk inherent in a particular derivative, clearing in the derivatives markets is a more complicated task.⁴⁵

When a derivative is centrally cleared, the clearinghouse steps in as a party to both sides of the contract through the process of novation. When A sells a credit default swap to B for example, the CCP it clears through will enter into two offsetting contracts: A selling a credit default swap to the CCP, and then CCP selling an equivalent credit default swap to B. In this way, the CCP inserts itself between the two parties. Because of its two offsetting contracts, as long as the parties perform, the CCP bears no market risk since the two equivalent contracts provide it with a perfect hedge.⁴⁶ On the other hand, the CCP does assume credit risk in the process of novation, as it is now exposed to the risk of nonperformance of one or both of the counterparties A and B.

The CCP uses three basic techniques to mitigate its credit risk: restriction of transactions to clearing members (CMs), margin requirements, and a loss mutualization or “guarantee” fund that CMs must contribute to. Counterparties are required to post “margin” reflecting the riskiness of the contract; margin is simply the collateral required as insurance in case either party to the trade defaults, and acts as a shock absorber for losses related to a position.⁴⁷ Initial margin is required to enter into the trade at the outset, and then as the value and risk of the derivative change on a daily basis, variation margin levels are adjusted. The CCP also maintains an additional means of protection from losses in the form of a loss mutualization fund.⁴⁸ All CMs are required to contribute amounts to this common fund that can be drawn upon in the event of unexpected losses. The loss mutualization fund highlights the self-insurance function of the CCP, as the CMs all contribute to this fund for the privilege of having the CCP assume the credit risk of their counterparties. The CCP internalizes the risk that would otherwise exist in the OTC market, where parties conduct bilateral trades, taking away credit risk from the OTC markets while at the same time isolating it into one entity.

These three aspects of the CCP mitigate credit risk for the CCP itself, and in so doing, reduce the risk that market participants would otherwise be exposed to in bilateral markets. The CCP also reduces overall systemic risk in a fourth and very important way by cancelling

45. See Bliss & Steigerwald, *supra* note 18, at 23 (contrasting clearing and settlement of derivatives transactions with those of securities transactions).

46. See Darrell Duffie et al., *Policy Perspectives on OTC Derivatives Market Infrastructure*, FED. RESERVE BANK OF N.Y. STAFF REPORTS 6 (2010); see also *infra* note 159 and accompanying text.

47. See Hal Scott, *The Reduction of Systemic Risk in the United States Financial System*, 33 HARV. J.L. & PUB. POL'Y 671, 688 (2010); Duffie et al., *supra* note 46 (Appendix C: How Clearing Participants Post Initial and Variation Margin).

48. See Bliss & Steigerwald, *supra* note 18, at 25.

out or “netting” overlapping amounts outstanding between parties.⁴⁹ The netting function potentially plays a crucial role in the reduction of overall systemic risk by lowering the total amount of obligations parties have to one another in the financial system. A CCP engages in multilateral or “ring” netting by cancelling out duplicative positions on the same contracts held by multiple parties.⁵⁰ In the simplest example, if A sells 500 of a particular CDS to B, B sells 500 of the same CDS to C, and C sells 500 of that CDS to A, the parties have formed a “ring” with the same contract whose net exposure is zero. Because large financial institutions hold many offsetting positions on the same derivatives with many different parties, multilateral netting of ring positions is often possible. A CCP identifies and cancels out these overlapping positions with a net exposure of zero, resulting in total lower collateral required of the parties, lower amounts of cross-trades to sort out in the event of default of a CM, and total lower losses among the CMs.⁵¹ Because multilateral netting reduces the total outstanding exposures of derivatives dealers, proponents of the CCP mandate argue that it reduces systemic risk.

The move from bilateral clearing in the OTC markets to central clearing also entails significant changes in the informational positions of the parties to the transaction. In a bilateral trade, both parties have great incentives to assess the creditworthiness of their counterparty; in particular, purchasers of CDS protection want to know that the seller, which in the U.S. is usually one of the five major banks that deal in OTC derivatives, will stand by its contract in the event of losses on the underlying reference obligation.⁵² Since the dealer banks usually hedge the risk of the transactions they enter into, by purchasing offsetting derivatives from other dealers, they convert their role as sellers of insurance to dealers who profit from the spread or difference between the prices of the two contracts. Since the banks are very sophisticated, well-connected entities with extensive, confidential books of derivatives transactions, a bilateral derivatives transaction with a major investment bank involves a substantial information asymmetry for the typical end-user.⁵³ First, since the bank has thousands of trades open, it has access to extensive information on price and corporate creditworthiness that a typical corporation or hedge fund purchasing CDS protection does not

49. See *id.* at 26.

50. See *infra* Part III.B.1.b. Note that multilateral netting differs from the bilateral netting that takes place in an OTC market. In bilateral netting, two counterparties agree, typically through their ISDA Master Agreement, to net out their total exposures, thereby reducing collateral required for their trades. Bilateral netting is not limited to their positions on the same derivative contract, but can apply to all outstanding contracts between them. The trade-offs between multilateral and bilateral netting form the core of Darrell Duffie and Haixiang Zhu’s analysis. Darrell Duffie & Haixiang Zhu, *Does a Central Clearing Counterparty Reduce Counterparty Risk?*, 1 REV. ASSET PRICING STUD. 74 (2011).

51. See *infra* Part III.B.1.c (discussing the possibility that multilateral netting may not reduce total losses). Pirrong and Roe emphasize that in a CCP regime employing multilateral netting, losses are shifted from dealers’ non-CM creditors to its fellow CMs; see *infra* note 208 and accompanying text.

52. See Pirrong, *supra* note 30, at 35–36.

53. See Litan, *supra* note 22, at 17.

have. These informational advantages cover the creditworthiness of the entity issuing the reference obligation, for example, the purchaser of the CDS protection, as well as price information concerning recent trades. In addition to its inherent “balance sheet” advantage, the dealer bank therefore derives substantial benefits from its informational advantages in the OTC derivatives markets because it is believed to be creditworthy, or, aside from Lehman Brothers, “Too Big to Fail” in the event of market catastrophe.⁵⁴

A CCP reduces these informational asymmetries and substantially deprives the dealer banks of the ability to profit from them, though it does not completely eliminate them, and may create other informational asymmetries in turn. Crucially, a CCP lists price transaction data on a daily basis, depriving dealers of a great deal of their informational advantages vis-à-vis uninformed derivatives counterparties coming to the dealer banks asking for price quotes.⁵⁵ While this does not eliminate all the informational advantages of the large sophisticated institutions offering derivatives, by moving recent price history into the open, dealers are deprived of significant advantages. (In addition, dealers may consider the position information required for multilateral netting on the part of the CCP to be sensitive, proprietary information.)⁵⁶ And by assuming credit risk, the CCP itself deprives the banks of their “balance sheet” advantage as large, creditworthy institutions.⁵⁷

CCPs themselves give rise to other, unique informational asymmetries, however. Because they do not bear market risk, and are not otherwise dealing in the financial markets, CCPs will not incorporate the wide base of information banks have at their fingertips into their decisions intended to control credit risk; accordingly, they may set margin that is too low or too high for the reference obligation that is the subject of the CDS, and they may not possess accurate information concerning their CMs. Because in practice CCPs price risk in a relatively indiscriminate manner, Pirrong argues that the costs of asymmetric information will be higher with CCPs than in the bilateral, dealer-dominated market.⁵⁸

B. *The Role of Derivatives in the Financial Crisis of 2008*

What role then did derivatives play in the financial crisis, a role which ostensibly inspired Title VII of the Dodd-Frank Act? While there is a certain amount of data which can be used to shed light on this question, and models have been developed which are relevant to ascertaining the role of derivatives in the crisis, at the deepest level much is

54. See *id.*; see also Robert R. Bliss & Chryssa Papatthanassiou, *Derivatives Clearing, Central Counterparties and Novation: The Economic Implications* 12 (2006), available at <http://www.jscce.co.jp/en/ccp12/materials/docs/3.pdf>.

55. See Chander & Costa, *supra* note 4, at 677.

56. Bliss & Steigerwald, *supra* note 18, at 26.

57. *Id.*

58. The lack of adequate incentives and ability on the part of CCPs to deal with complex derivatives is the focus of Pirrong’s critique; see *infra*, Part III.B.1.a.

unknown.⁵⁹ Even with the relevant data, accurate assessment of the risk stemming from the derivatives markets presents a very difficult challenge.⁶⁰ Furthermore, at the time of the crisis, financial institutions and government officials were, practically speaking, operating in a realm of uncertainty as to the true causes of the crisis and the ultimate effects of their actions.⁶¹

It is also the case, as many commentators have observed, that derivatives were not the proximate cause of the financial crisis, and that only in the case of AIG were they directly implicated in the near failure of a major financial institution.⁶² They were indirectly involved in the financial crisis in a number of ways, though, the most important of which was simultaneously the least well understood: their role in creating a highly interconnected financial system that fostered a climate of extreme fear when a major derivatives counterparty, such as Bear Stearns or Lehman Brothers, was suspected of harboring significant losses due to large holdings of real estate-backed securities on its books.⁶³ This condition of fear, an essentially psychological factor, likely caused the quick demise of both entities.⁶⁴ It was pervasive and resulted in the runs on Bear Stearns and Lehman Brothers that caused them to fail, but the connection to their derivatives activities is hard to

59. This is reminiscent of “Knightian uncertainty,” named after the economist Frank Knight who distinguished between “risk” and “uncertainty”: the former is quantifiable, the latter not. See FRANK KNIGHT, *RISK, UNCERTAINTY, AND PROFIT* 233 (1921). Practically speaking, the systemic risk stemming from derivatives trading is not susceptible of measurement because information on the interconnections between parties in the shadow banking system is unavailable, even to regulators (though Title VII of Dodd-Frank, discussed in Part II.B, will remedy this to some extent). See also Philippe Jorion, *Risk Management Lessons from the Credit Crisis*, EUR. FIN. MGMT. 12 (2009) (contagion effects of counterparty risk “transform traditional risks that can be measured into Knightian ‘uncertainty,’ a form of risk that is immeasurable.”); Stulz, *supra* note 30, at 90–91 (emphasizing the dearth of empirical knowledge concerning derivatives).

60. See Andrew W. Lo, *Regulatory Reform in the Wake of the Financial Crisis of 2007–2008*, 1 J. FIN. ECON. POL’Y 4, 9–13 (2009).

61. See Ricardo J. Caballero, *Sudden Financial Arrest*, IMF ECON. REV., July 20, 2010, at 9–11, available at <http://economics.mit.edu/files/6010> (arguing that financial institutions were acting under conditions of Knightian uncertainty during the recent financial crisis).

62. Commentators maintaining that derivatives trading was not a proximate cause of the financial crisis include Houman B. Shadab, *Guilty By Association? Regulating Credit Default Swaps*, 4 ENTREPRENEURIAL BUS. L.J. 407, 412 (2009–2010) (“the financial crisis is primarily the result of mispricing” of CDOs, not CDSs); Stulz, *supra* note 30, at 83 (“derivatives were not a proximate cause of” the collapse of Bear Stearns and Lehman Brothers); Zachary J. Gubler, *The Financial Innovation Process: Theory and Application*, 36 DEL. J. CORP. L. 55, 87 (2011); cf. Culp, *supra* note 41, at 2 (maintaining that there is “no real evidence that a lack of clearing or exchange trading of *standardized* derivatives caused or contributed to the crash”); Mark J. Roe, *Clearinghouse Overconfidence*, 101 CAL. L. REV. 1641, 1691 (2013) (arguing that system-wide asset price deterioration was to blame for the crisis, not contagion through derivatives interconnections); Kimberly Summe, *Misconceptions About Lehman Brothers’ Bankruptcy and the Role Derivatives Played*, 64 STAN. L. REV. ONLINE 16, 16–18 (2011).

63. See generally Kroszner, *supra* note 29; ADMATI & HELLWIG, *supra* note 12, at 68.

64. For an account of the role fear plays in financial crises, see Andrew W. Lo, *Fear, Greed, and Financial Crises: A Cognitive Neuroscience Perspective*, in HANDBOOK ON SYSTEMIC RISK 622 (Jean-Pierre Fouque & Joseph A. Langsam, eds., 2013).

state exactly, let alone quantify. This is the first and most important way in which derivatives were indirectly responsible for the crisis.

Second, in their role in the structured finance industry, derivatives contributed to the financial crisis by facilitating much greater exposure to the U.S. real estate markets than would have otherwise been the case. They were both used to create certain types of CDOs and as insurance that allowed parties to offload the risk of real estate-backed CDOs and other asset-backed securities. By virtue of their role in creating CDOs at the height of the boom, CDSs greatly increased the total amount of exposure in the financial system to real estate.⁶⁵ When the demand for mortgages for use in the structured finance business began to outstrip their supply, CDSs were used instead to create “synthetic” CDOs. Synthetic CDOs are collateralized debt obligations that use CDSs on asset-backed securities (typically residential mortgage-backed securities or “RMBSs”) in their asset pools instead of RMBSs themselves. Because the purchaser of a CDS contract on a RMBS pays a regular, quarterly amount for protection on a particular RMBS security (the reference obligation in this case), the credit seller is in a position analogous to holding that RMBS itself. Assuming no counterparty risk, the risk and reward in this situation for the CDS seller track the risk of holding the actual RMBS. A “synthetic” or artificial CDO then can be created by bundling credit default swaps into the CDO instead of RMBSs holding actual mortgages. Synthetic CDOs took off close to the peak of the real estate market, in 2005 and 2006.⁶⁶ Not only did they signal in retrospect the peak of the market, they helped lift the real estate markets to heights beyond which they would have otherwise reached, and greatly increased the amount of exposure to real estate in the financial system at large. In addition, parties such as the big banks with exposure to CDOs, synthetic or not, were able to offset that risk by purchasing CDS protection on their assets, thereby shifting risk to other parties in the financial system, usually to monoline insurers, AIG, and hedge funds selling CDS protection. Both as components of synthetic CDOs and as financial insurance, CDSs added substantially to the amount of exposure to real estate-backed securities in the system.⁶⁷

CDSs, in their various roles in the financial system, were important, indirect causes of the financial crisis. What were the direct, proximate causes, and how did OTC derivatives intersect with them? In what follows, I look at the three most important failures of 2008. The first, Bear Stearns, was led to the altar with the backing of the U.S. government; the second, Lehman Brothers, was allowed to fall into bankruptcy; and

65. See Michel G. Crouhy et al., *The Subprime Crisis of '07*, 16 J. DERIVATIVES 81 (2008); Steven McNamara, *Informational Failures in Structured Finance and Dodd-Frank's "Improvements to the Regulation of Credit Rating Agencies,"* 17 FORDHAM J. CORP. & FIN. L. 665, 700–01 (2012).

66. See Mark Whitehouse, *Slices of Risk: How a Formula Ignited Market That Burned Some Big Investors*, WALL ST. J., Sept. 12, 2005, at A1; Bill Shepherd, *The Synthetic CDO Shell Game: Could The Hottest Market in All of Fixed Income Be A Disaster in The Making?*, CAPITAL MARKETS RISK ADVISORS (May 16, 2005), <http://www.cmra.com/press-2005.php>.

67. See generally ADMATI & HELLWIG, *supra* note 12, at 69–74 (CDSs as magnifying risks in the financial system).

the third, AIG, was rescued by massive and controversial bailouts. Only in the case of AIG are derivatives directly linked to the failure, and even here it is through their connection to the CDOs that were the heart of the financial crisis. In all three cases, however, the indirect causes sit behind the more obvious direct ones. Despite the fact that much remains unknown about the interconnection of firms in the financial system, the connection between derivatives activity and systemic risk supplied the impetus for the Dodd-Frank regulation of derivatives activities.⁶⁸

1. The Demise of Bear Stearns

The quick collapse of Bear Stearns, the fifth largest investment bank at the time, was a shot across the bow of the financial markets in the spring of 2008. Bear Stearns's demise was not entirely unforeseeable; it had to bail out two of its own highly leveraged hedge funds invested in subprime debt in the summer of 2007, an event that constituted one of the early warnings of the coming crisis tied to real estate-backed securities.⁶⁹ And it had other characteristics that lent itself to weakness in the event of market turmoil. It was run by a notoriously hands-off CEO, Jimmy Cayne, who spent substantial amounts of time at bridge tournaments and playing golf during his final years at the helm.⁷⁰ Real estate-backed securities, derivatives trading, and prime brokerage services for hedge funds and other financial institutions were three of Bear Stearns's particular strengths. The interplay of these three business areas allowed rumors to rapidly gain force in the marketplace, leading to its demise over the course of March 9–16, 2008.⁷¹ Bear Stearns was the victim of a run on the bank, as its prime brokerage clients abandoned it due to suspected financial weakness resulting from its heavy exposure to subprime debt, and other financial institutions refused to extend it short-term credit in the form of “repo” (repurchase) financing.

What is known about Bear Stearns's financial position going into its final crisis? It was highly leveraged, though not to a much greater extent than its competitors. It reportedly had approximately \$11 billion of capital, supporting \$395 billion in assets, for a leverage ratio of almost 36:1.⁷² While that was a dangerously high number, other investment banks had comparable ratios.⁷³ It also had significant exposure

68. See, e.g., Simon Boughey, *After Bear Stearns Scare, Fed Pushes Banks to Form Central Clearing House for CDS Market*, EUROWEEK, June 13, 2008, at 64.

69. See BETHANY McLEAN & JOE NOCERA, *ALL THE DEVILS ARE HERE: THE HIDDEN HISTORY OF THE FINANCIAL CRISIS* 285–95 (2010).

70. See Kate Kelly, *Bear CEO's Handling of Crisis Raises Issues; Cayne on Golf Links, 10-Day Bridge Trip Amid Summer Turmoil*, WALL ST. J., Nov. 1, 2007, at A1.

71. See Roddy Boyd, *The Last Days of Bear Stearns*, FORTUNE MAG., Mar. 31, 2008, available at http://www.cnnmoney.com/2008/03/28/magazines/fortune/boyd_bear-fortune/.

72. See Robin Sidel et al., *The Week That Shook Wall Street: Inside the Demise of Bear Stearns*, WALL ST. J., Mar. 18, 2008, at A1.

73. See Raghuram Rajan *Joins the RBI: Out of the Frying Pan*, ECONOMIST, Aug. 10, 2013.

to subprime securities. Perhaps most importantly, Bear Stearns had hundreds of thousands of CDS trades on its books;⁷⁴ for 2006, Fitch Ratings ranked Bear Stearns twelfth in terms of trade count and ninth in notional amount for all credit derivatives transactions.⁷⁵ The total notional amount of its derivatives transactions amounted to \$13.4 trillion in November 2007, as reported in its November 20, 2007 10-K.⁷⁶ Of this amount, CDS notional stood at approximately \$2.25 trillion.⁷⁷ This total amount indicates the systemic importance Bear Stearns held in the financial system, with thousands of counterparties at risk of losses in the event Bear Stearns were to fail.⁷⁸

Bear Stearns's Achilles' heel, as was the case for Lehman Brothers seven months later, was its need for repo financing to sustain its financing position. To obtain cash for its everyday operations, Bear Stearns and the other investment banks borrowed billions of dollars through short-term borrowing under repurchase agreements with other major financial institutions. This repo financing allowed Bear Stearns access to cash secured by longer-term, often illiquid securities; in Bear Stearns's case, a substantial percentage of these were RMBS and CDO securities backed by subprime and other real estate assets. Without a constantly replenished supply of cash, the major investment banks could not fund their day-to-day operations and would quickly fail.⁷⁹ This left Bear Stearns vulnerable to rumors concerning its solvency.

In the final ten days of its life, these rumors gathered force in the market and brought down the bank. As questions surrounding its solvency mounted, certain hedge funds and other institutions began to shy

74. See Chander & Costa, *supra* note 4, at 663.

75. See Ian Linnell et al., *CDX Survey – Market Volumes Continue Growing while New Concerns Emerge*, FITCH RATINGS, July 16, 2007, at 9. "Credit derivatives" is a broad category, including CDS, credit option, credit index, CDO, CLO, CPDO and LCDS (Loan-Only Credit Default Swaps) transactions.

76. BEAR STEARNS COMPANIES, ANNUAL REPORT (FORM 10-K), 61 (2008) ("As of November 30, 2007 and 2006, the Company had notional/contract amounts of approximately 13.40 trillion and \$8.74 trillion, respectively, of derivative financial instruments, of which \$1.85 trillion and \$1.25 trillion, respectively, were listed futures and options contracts.").

77. See Stulz, *supra* note 30, at 82 ("[T]he credit default swaps of Bear Stearns may have amounted to a total notional amount of \$2.25 trillion").

78. For a detailed attempt at a quantitative measure of Bear's systemic risk, see Jorge A. Chan-Lau, *Default Risk Codependence in the Global Financial System: Was the Bear Stearns Bailout Justified?* (Feb. 27, 2014), <http://www.bcentral.cl/conferencias-seminarios/seminarios/pdf/Chan-Lau.pdf>. Chan-Lau's analysis highlights the vulnerability of Bear (as well as AIG) to "default risk spillovers" from other parties, and hypothesizes that this was due to its heavy participation in the credit risk transfer markets. *Id.* at 15. Chan-Lau's paper is an attempt to gauge "unobservable factors likely related to the interconnectedness among financial institutions" from observable factors such as the price of CDS protection on such institutions. The ultimate success of this strategy presumes that credit markets are efficient, but noting the discrepancy between his results and the policy decisions of regulators he concludes that credit derivatives markets likely "exhibit at best, only semi-strong efficiency." *Id.* at 3–4.

79. See ADMATI & HELLWIG, *supra* note 12, at 11–12 (discussing reliance of banks on short-term debt); Markus Brunnermeier, *Deciphering the Liquidity and Credit Crunch 2007–2008*, 23 J. ECON. PERSP. 77, 80 (2009) (repo and investment bank balance sheet maturity mismatch).

away from using Bear Stearns as a prime broker, with some firms canceling their agreements with Bear and repossessing the collateral Bear held for their brokerage activities.⁸⁰ The other major banks noticed an increase in requests to assume derivatives trades through novation that parties had entered into with Bear. A critical event occurred on March 11, 2008, when a Credit Suisse manager sent an email to derivatives traders instructing them not to accept novations of Bear Stearns derivative transactions without first obtaining approval from management.⁸¹ When Bear Stearns President Alan Schwartz attempted to stop the damage the following day, it was too late. Bear Stearns's counterparties continued to flee, and prime brokerage clients also left the bank, depriving it of collateral used to back repo lending.⁸² The demise of Bear Stearns was a modern day run on the bank, with the flight of clients replacing the more familiar lines of depositors withdrawing cash in the event of bank runs in the 1930s. When JPMorgan refused to extend an emergency loan to Bear Stearns, on Thursday, March 13, 2008, Bear Stearns was forced to go to the Federal Government for emergency funding to stave off immediate collapse.

Federal Reserve and U.S. Treasury officials quickly became involved; in the maelstrom of the crisis, it was decided early the next day, March 14, 2008, that Bear would be extended emergency financing through JPMorgan.⁸³ Federal officials were concerned about the possible effects of a collapse of Bear on the financial markets at large, fearing the possibility of a "daisy chain" meltdown across the financial markets, particularly in the \$400 trillion notional derivatives and much smaller but crucial \$5 trillion repo financing markets.⁸⁴ Over the weekend, Bear Stearns executives labored to sell Bear to another institution. When a deal with the private equity firm J.C. Flowers failed, JPMorgan agreed to acquire Bear with the backing of a \$30 billion guarantee from the U.S. Federal Government.⁸⁵ The fire sale price of \$2 per share—

80. See Kate Kelly, *The Fall of Bear Stearns: Fear, Rumors Touched Off Fatal Run on Bear Stearns, Executives Swung from Hope to Despair in the Space of a Week*, WALL ST. J., May 28, 2008, at A1.

81. *Id.*

82. See FINANCIAL CRISIS INQUIRY COMM'N, FINANCIAL CRISIS INQUIRY REPORT 286–81 (2011), available at <http://www.gpo.gov/fdsys/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf>.

83. See Kate Kelly et al., *Fed Races to Rescue Bear Stearns In Bid to Steady Financial System; Storied Firm Sees Stock Plunge 47%*; *J.P. Morgan Steps In*, WALL ST. J., Mar. 15, 2008, at A1.

84. See *Turmoil in U.S. Credit Markets: Examining the Recent Actions of Federal Financial Regulators*, Before the S. Comm. on Banking, Housing, and Urban Affairs, 110th Cong. (2008) (statement of Ben S. Bernanke, Chairman, Board of Governors of the Federal Reserve System, and statement of Timothy F. Geithner, President and Chief Executive Officer, Federal Reserve Bank of New York), available at http://banking.senate.gov/public/index.cfm?FuseAction=Hearings.Testimony&Hearing_ID=ec013d8f-fe1e-4fb6-a514-ab93be32ad38&Witness_ID=c52a9dcc-1eb1-474c-a493-461c8fef9afd. [hereinafter Statements of Ben S. Bernanke and Timothy F. Geithner].

85. See Kate Kelly, *The Fall of Bear Stearns: Bear Stearns Nearing Collapse Twice in Frenzied Last Days; Paulson Pushed Low-Ball Bid, Relented; a Testy Time for Dimon*, WALL ST. J., May 29, 2008, at A1; Sidel et al., *supra* note 72.

Bear had traded as high as \$171.51 in January, 2007⁸⁶—was quickly raised to \$10 per share after the outrage of Bear shareholders became known. Nevertheless, investors and employees saw the vast bulk of the value of their stakes in the company wiped out.

This account of Bear's rapid demise indicates that defenders of CDS markets are correct when they point out that derivatives were not the proximate cause of Bear's near collapse. Rather, it was the effects of rumors regarding Bear's solvency on its clients, counterparties and lenders in the short-term repo financing market that were to blame. Beneath what is known however, is the abyss of collapse in the tightly interconnected financial markets. The generalized fear other institutions felt at the prospect of continuing to do business with Bear was grounded in their immediate self-interest, and a large portion of the clients fleeing Bear were derivatives counterparties. On a system-wide level, moreover, it was fear of the unknown effects of a collapse of the bank that prompted U.S. financial officials to intervene at the last moment.⁸⁷ While this response would not be repeated in the next failure, as a leader in derivatives transactions Bear was likely more interconnected in the financial markets than Lehman Brothers,⁸⁸ and the effects of the Lehman collapse were certainly traumatic. Despite existing at a remove from the immediate cause of the collapse, the derivatives activities of Bear appear to have been an indirect cause of its failure. Furthermore, the possible effects of an uncontrolled collapse on the interconnected markets as a whole held a great enough degree of risk for federal banking officials to agree to its rescue.

2. The Collapse of Lehman Brothers

After the demise of Bear Stearns, the markets entered into a nervous holding pattern in the late spring of 2008. It was clear to participants and observers alike that the housing market had crested and that there would be substantial problems in the financial markets as a result, but it was hoped that the economy would have a "soft landing" and that losses in the major financial institutions would not be too severe. By June however, news reports indicated that real estate-related losses could be heavy, and that Lehman Brothers in particular would be seriously affected.⁸⁹ Lehman Brothers was in fact the next institution to falter, and its collapse ushered in the financial crisis of 2008. While the overall pattern of its collapse followed that of Bear Stearns, there were important differences, and because it was allowed to fail, the consequences were much more severe.

86. See Andrew Ross Sorkin, *JP Morgan Chase Pays Only \$2 a Share for Troubled Firm*, N.Y. TIMES, Mar. 17, 2008, at A1, A16.

87. See Statements of Ben S. Bernanke and Timothy F. Geithner, *supra* note 84.

88. Lehman's total notional of derivatives exposure at the end of 2007 was \$737.9 billion. See LEHMAN BROTHERS HOLDINGS, ANNUAL REPORT (FORM 10-K) 120 (2007) [hereinafter LEHMAN BROTHERS'S ANNUAL REPORT]. See also Chan-Lau, *supra* note 78, at Table 1 ("Conditional risk codependence among financial institutions worldwide").

89. Jeremy Lemer, *Lehman Losses and Fed Comments Ruin Hopes for a Bounce*, FIN. TIMES, June 10, 2008, at 26.

What is known about the financial position of Lehman Brothers leading up to its collapse? In June 2008, Lehman management informed investors that its second quarter losses would amount to \$2.8 billion.⁹⁰ Throughout the summer, Lehman was rumored to be in a weak financial position, and its CEO, Dick Fuld, was urged to seek additional capital.⁹¹ Fuld, however, seemed to rebuff warnings that his bank was in a weak position, and failed to make a deal to shore up its balance sheet.⁹² In fact, Lehman's accounting was worse than it appeared at the time to investors, because it was using a questionable accounting technique known as "Repo 105" to move risky assets off its balance sheet for accounting purposes.⁹³ Lehman reported a leverage ratio of 30.7:1 at the end of 2007, with \$691 billion in assets on its balance sheet and \$22 billion equity,⁹⁴ but such ratio does not take into account the Repo 105 transactions examined by bankruptcy examiner Anton Valukas. Had Lehman not used the Repo 105 transactions, which removed \$39 billion from its balance sheet as the end of 2007, it would have had a leverage ratio of 33:1.⁹⁵

As with Bear, Lehman was also a substantial player in the derivatives markets. The Bank for International Settlements estimates that the combined derivatives assets and liabilities held by Lehman amounted to \$70.5 billion (market value, not notional), or 0.3% of all the value of derivatives outstanding.⁹⁶ In CDSs alone, Lehman was a party to trades between \$3.65 and \$5 trillion (notional), comprising approximately 8% of the total notional amount outstanding in the CDS sector.^{97, 98}

Given its substantial exposures and dependence on short-term repo financing, Lehman, the smallest of the major investment banks, was vulnerable to the same types of rumors that brought down Bear. Like Bear, Lehman battled these rumors, contending that it was being

90. *Id.*

91. See Carrick Mollenkamp et al., *The Two Faces of Lehman's Fall; Private Talks of Raising Capital Belied Firm's Public Optimism*, WALL ST. J., Oct. 6, 2008, at A:1.

92. See James B. Stewart, *Eight Days*, NEW YORKER, Sept. 21, 2009.

93. See Ben Hallman, *The Repo Man*, LEGAL WEEK, Sept. 16, 2010. In a Repo 105 transaction, immediately before the end of the quarter Lehman would transfer collateral worth 105% of the value of the cash it received in return from its counterparty in the deal. It would then use this cash to pay down short-term liabilities, thereby improving its balance sheet for financial reporting purposes. Soon after the quarter ended, Lehman would repurchase the collateral. See also Ben Hallman, *History Lessons*, AM. LAW., Sept. 2010.

94. See LEHMAN BROTHERS'S ANNUAL REPORT, *supra* note 88, at 29–30.

95. See Michael J. de la Merced & Andrew Ross Sorkin, *Lehman Bros. Hid Borrowing, Examiner Says*, N.Y. TIMES, Mar. 12, 2010, at A1. Such amounts increased to \$50 billion at the end of the second quarter 2008.

96. See HAL S. SCOTT, INTERCONNECTEDNESS AND CONTAGION, (2012), available at www.campktsreg.org/pdfs/2012.11.20_Interconnectedness_and_Contagion.pdf.

97. See Sheri Markose et al., *Too Interconnected to Fail: Financial Contagion and Systemic Risk in Network Model of CDS and Other Credit Enhancement Obligations of US Banks* (COMISEF, Working Paper No. WPS-033 2010).

98. In addition to these raw amounts of derivatives exposure, see also Chan-Lau, *supra* note 78 (analyzing both Lehman's susceptibility to the default of others and its role as a source of risk).

attacked by hedge funds shorting its stock, which therefore had an interest in seeing it fail.⁹⁹ The cost of a CDS covering \$10 million of Lehman debt for five years increased from \$219,000 at the end of May, 2008 to around \$800,000 by September.¹⁰⁰ It had approximately 1.1 million derivatives contracts with thousands of counterparties, amounting to hundreds of billions of dollars by notional value.¹⁰¹ Similar to Bear, when rumors as to its solvency gathered force in the marketplace due to questions about the true extent of losses on mortgage-backed securities on its books, counterparties to its derivatives trades began to flee, pulling valuable collateral from the firm, at the same time that other financial institutions refused to roll over the repo agreements that Lehman, like all the Wall Street banks, relied on for cash. This quickly pushed Lehman into bankruptcy during the second week of September; when it announced third quarter losses of almost \$4 billion on Friday, September 12, its clients and counterparties fled *en masse*. After spending the weekend in a fruitless attempt to find a buyer in either Bank of America or Barclays Bank, Lehman filed for bankruptcy on September 15. Its bankruptcy was the largest U.S. bankruptcy filing in history, with \$639 billion in assets.¹⁰²

3. The Federal Government Rescues AIG

The same weekend Lehman executives frantically searched for a buyer, while their lawyer Harvey Miller prepared a bankruptcy filing, AIG, the world's largest insurer, was also foundering. While AIG was not a bank, it carried out extensive operations in the financial system, most notably as the seller of CDS protection on asset-backed securities, and like Lehman and Bear it was vulnerable to the decline in the real estate markets. This vulnerability, however, came from a different set of internal and external factors, and its level of interconnection in the financial, insurance, and pension fund systems prompted the U.S. Federal Government to rescue it after spurning Lehman only days before.

AIG was also significantly larger than Lehman or Bear, both in terms of total assets and in interconnectedness in the wider economy. It was ranked tenth in the 2007 Fortune 500, with assets of \$1.06 trillion, supported by \$95.8 billion of shareholder equity.¹⁰³ It was the world's largest insurance company, with operations in over 130 countries, conducting all manner of insurance activities. Its problems grew out of its role as provider of CDS protection on ABS sold by its Financial

99. See Patrick Fitzgerald & Mike Spector, *Lehman: Och-Ziff Helped Spread Rumors*, WALL ST. J., Aug. 13, 2010, at C4.

100. See Mollenkamp et al., *supra* note 91.

101. See Mike Spector & Michael Corkery, *What Lehman's Central Players Knew; Examiner Gives Detailed Look Inside Doomed Firm; 'Reputational Risk' and Ignoring 'Red Flags'*, WALL ST. J., Mar. 19, 2010, at B3.

102. See Susanne Craig et al., *AIG, Lehman Shock Hits World Markets; Focus Moves to Fate of Giant Insurer After U.S. Allows Investment Bank to Fail; Barclays in Talks to Buy Core Lehman Unit*, WALL ST. J., Sept. 16, 2008, at A1.

103. See William K. Sjostrom, Jr., *The AIG Bailout*, 66 WASH. & LEE L. REV. 943, 946 (2009).

Products Division, AIGFP, based in London. Because its parent possessed a AAA credit rating and massive size, AIGFP was able to engage in its own form of regulatory arbitrage, using its creditworthiness to offer insurance on CDOs, RMBSs, and other complex securities at what was perceived at the time to be minimal cost.¹⁰⁴ Due to its size and credit rating, under the terms of many of its credit default swaps it was not required to post collateral on such contracts as long as it maintained its AAA rating, and the value of the underlying collateral did not decline.¹⁰⁵ While such a business seemed reasonable at the time, on account of the credit risks in the underlying ABSs indicated by the models used to price these CDSs,¹⁰⁶ in retrospect such a business amounted to “picking up nickels in front of a steam roller.”¹⁰⁷ As of year-end 2007, AIGFP had \$527 billion notional worth of CDSs outstanding, the bulk of which were on super-senior AAA ABSs.¹⁰⁸ Of this amount, \$61.4 billion were written on securities backed by subprime real estate in some way.¹⁰⁹

The cause of AIG’s unraveling was more complex than that of Bear or Lehman, and CDSs were more directly implicated. As fears grew concerning the value of securities backed by real estate assets, AIG was first required to post collateral on its CDSs to cover potential losses on the underlying securities.¹¹⁰ Due to a significant decline in their value, AIG needed to post \$6 billion of its available \$17.6 billion in cash by July 1, 2008. The strain on AIG’s cash reserves led to a dynamic similar to that experienced by the investment banks, as parties to AIG’s securities lending program, which lent to market participants upon posting cash collateral, unwound their transactions. As with Bear and Lehman, the effect of clients fleeing this program amounted to a run on the bank, depriving AIG of cash, which had been invested in real estate-backed securities and which it therefore had to supplement in order to return its clients’ collateral.¹¹¹ This amounted to an additional \$3.3 billion through August 31, 2008.

As AIG’s cash dwindled, it had difficulty rolling over its short-term debt in the commercial paper markets, as Bear and Lehman had before, and its credit rating was downgraded on September 15, 2008. The downgrades led to the final step in AIG’s faltering, because while it was not originally required to post collateral on its CDS because of its AAA rating, the CDS contracts required it to do so in the event of a downgrade. The sum of the collateral requirements the week of September 15 came to \$20 billion, forcing it to the brink of collapse. After meeting with Wall Street banks and Federal Reserve Bank of New York officials in an unsuccessful attempt to put together a \$75 billion lending

104. See BLINDER, *supra* note 12, at 130–35.

105. See McLEAN & NOCERA, *supra* note 69, at 190–91.

106. See Mollenkamp et al., *supra* note 38.

107. See Simon Johnson, *The Quiet Coup*, ATLANTIC, May 2009, at 50.

108. See Sjostrom, *supra* note 103, at 955.

109. *Id.* at 959.

110. *Id.* at 960.

111. *Id.* at 961–62.

facility for AIG, the U.S. government announced on September 16, 2008, that it was providing an \$85 billion dollar loan.¹¹² With the addition of a number of other lending facilities over the following months, this amount increased to a total of \$182.5 billion, of which \$126.1 billion was used.¹¹³

While the figures above provide a great deal of information about AIG's particular levels of exposure and its position in the financial system, the ultimate impact had it failed remains of course unknown.¹¹⁴ Regulators, however, were motivated by uncertainty over the possible effects of its collapse.¹¹⁵ The widespread fear of all informed participants as it teetered that its collapse could drag down the entire global financial system prompted the U.S. government to reverse its policy, enacted just days before with Lehman Brothers, of letting a systemically important institution fail so as not to encourage "moral hazard" in the financial system. Apparently the interconnection of AIG was too great to risk its collapse, with losses that would reverberate through the CDS markets, insurance markets of all sorts, and pension and mutual funds that held AIG stock. As with Bear Stearns, the Treasury Department and the Federal Reserve stepped in after gazing upon the abyss of a financial markets meltdown.

4. The Shadow Banking System: Too Interconnected To Fail?

The figures discussed above for the derivatives activities and counterparties of Bear Stearns, Lehman, and AIG present the basic information known about the three most important failures of 2007 to 2009. Other failures include three investment funds at BNP Paribas, two Bear Stearns hedge funds, and numerous mortgage lenders, as well as the looming collapse of Merrill Lynch, which was absorbed by Bank of America. But Bear, Lehman, and AIG represent the most important events of the crisis, as they were three of the most highly interconnected, systemically important financial institutions. Despite what is known about their substantial derivatives positions at the time, it is correct to say that derivatives were not the immediate or proximate cause of the failures of Bear Stearns or Lehman Brothers. Rather, that role instead goes to losses connected with real estate-backed structured finance securities and the difficulties the banks then faced in retaining

112. *Id.* at 963.

113. *Id.* at 974.

114. *But cf.* Chan-Lau, *supra* note 78 (Table 1 indicates that AIG had very high levels of conditional risk codependence, indicating susceptibility to failure of another major financial institution, but only average rankings as a source of systemic risk).

115. *See The Federal Bailout of AIG, Hearing before the H. Comm. on Oversight & Government Reform*, 111th Cong. 107 (2010) (statement of Henry Paulson, Treasury Secretary during the financial crisis, that "had AIG failed I believe we would have seen a complete collapse of our financial system . . ."). *See also* Sjostrom, *supra* note 103, at 977–78 (detailing fears of "a domino effect of failures reaching around the world" due to AIG's size and interconnection with corporations, financial institutions, investment and pension funds, and state and local governments). For various criticisms of the judgment from uncertainty that motivated U.S. federal officials, *see* Johnson, *supra* note 107, and Peter Wallison, *Lack of Candor and the AIG Bailout*, WALL ST. J., Nov. 28–29, 2009, at A15.

clients and collateral, and the challenge of obtaining fresh cash in the repo lending markets after suspicions concerning the extent of these losses grew. In the case of AIG, CDSs on CDOs were a much more direct cause of its near collapse.¹¹⁶

Conversely, it is likely that derivatives were a key indirect cause of their failures, and that federal government's pattern of action, inaction, then action with respect to Bear, Lehman, and AIG respectively illustrates that what was unknown at the time about the levels of interconnection in the financial markets was more important than what was known. In the pre-crisis world, there was a marked lack of awareness, and even data, concerning a number of important factors combining to produce systemic risk in the global financial system.¹¹⁷ This lack of awareness contributed to the vulnerability of the financial system and the widespread fear of financial contagion. It was precisely this fear that, writ small, led to the failures of Bear and Lehman, and, writ large, caused the financial markets to seize up and prompted the Fed to bailout AIG. *This fear was fundamentally grounded in the unknown.* When financial institutions observed the failure of an overleveraged Lehman Brothers, their first reaction was to curtail lending across the board in an effort to preserve capital in an environment where the solvency of other institutions was open to question as well as the general trajectory of the markets themselves.¹¹⁸ The first and most important way in which the CDS markets acted as indirect causes of the crisis was as part of the highly complex and interconnected financial architecture that inspired the element of fear. *Ex ante*, OTC derivatives exposures contributed to the uncertainty surrounding the consequences of the likely insolvency of the major financial institutions due to their exposure to real estate assets.¹¹⁹

It remains a matter of debate whether or not the fears on account of interconnectivity were justified *ex post*. Two recent theoretical papers suggest they were: the networks of connections created by OTC derivatives arguably functioned as key channels through which losses were propagated, leading to increased probability of defaults in the sys-

116. See Stulz, *supra* note 30, at 90, for the view that it was still the fall in real estate values that was ultimately to blame for AIG's woes. Even granting this, the direct transmission of this shock to AIG occurred through its CDSs written on real estate-backed CDOs, and so CDSs are implicated in its failure in a way they are not for Bear and Lehman.

117. See Markose et al., *supra* note 97, at 8–9; Lo, *supra* note 60. See also Willem Buiter, *The Unfortunate Uselessness of Most 'State of the Art' Academic Monetary Economics*, VOXEU.ORG (March 6, 2009), <http://www.voxeu.org/index.php?q=node/3210>.

118. See Prasanna Gai et al., *Complexity, Concentration and Contagion*, 58 J. MONETARY ECON. 453 (2011); Viral V. Acharya & David Skeie, *A Model of Liquidity Hoarding and Term Premia in Inter-bank Markets*, 58 J. MONETARY ECON. 1 (2011); William Sterling, *Looking Back at Lehman: An Empirical Analysis of the Financial Shock and the Effectiveness of Countermeasures*, 57 MUSASHI U. J. 53 (2009). See also BLINDER, *supra* note 12, at 141–42 (“Contagion and Financial Panics”).

119. See Scott, *supra* note 96, at 52 (although Scott believes these fears were in fact overblown, “Lehman’s positions” in the OTC derivatives universe “may have been the most significant cause of concern among market participants and regulators in the run-up to Lehman’s failure.”).

tem.¹²⁰ By creating channels through which contagion can be spread, OTC derivatives markets themselves can increase the severity of financial crises. On the other hand, although he acknowledges the reality of these fears *ex ante*,¹²¹ Professor Hal Scott argues that in the case of Lehman Brothers a retrospective analysis shows that its failure was due to contagion in the repo market, not interconnectedness created by OTC derivatives markets.¹²² Key evidence for this claim is that the settlement of Lehman's uncleared OTC derivatives went smoothly, with the vast bulk of these trades netting out, leaving only between \$14 and \$22 billion of final exposure.¹²³ Scott, therefore, argues that fears surrounding Lehman's derivatives exposures were "overblown owing to a general mischaracterization of the magnitude of the OTC derivatives market [I]t did not account for as much risk as commonly believed, due to netting agreements and the difference between notional and actual market value" ¹²⁴ This position is in line with those who emphasize that the direct cause of the failures of 2008 was the failure of short-term lending, not OTC derivatives.¹²⁵

Whichever way this debate is resolved, it remains the case that the *ex ante* phenomenon of uncertainty was an important element in the financial crisis, and so on the behavioral level alone connection through OTC derivatives markets was an important element contributing to the fears that drove the contagion.¹²⁶ Furthermore, even if the skeptics as to the causal role of derivatives in the crisis are correct on the second point above, there is no guarantee that private parties will act rationally in the future on this knowledge—old lessons may be forgotten, or more likely, new forms of complexity in the financial markets will arise that give rise to new unknowns and fears that can blossom into panic in a time of crisis.

120. See Markose et al. *supra* note 97; Sebastian Heise & Reimer Kühn, *Derivatives and Credit Contagion in Interconnected Networks*, 85 EUR. PHYS. J. B. 115 (2012).

121. See SCOTT, *supra* note 96, at 52.

122. *Id.* at 52–67.

123. *Id.* at 62.

124. *Id.* at 52–53.

125. Scott's conclusions are commensurate with those of Stulz, *supra* note 30; Craig Pirrong, *The Clearinghouse Cure*, REGULATION 44 (2009); and Roe, *supra* note 62. They are also commensurate with Chan-Lau's findings that while AIG, Lehman, and Bear were highly susceptible to the default of other financial institutions, they represented only average sources of financial risk. See Chan-Lau, *supra* note 78, at 16.

126. This point is supported by commentators who believe that a CCP regime may have beneficial effects on a general behavioral level. See Jorge Chan-Lau et al., *Assessing the Systemic Implications of Financial Linkages*, 2 IMF GLOBAL FINANCIAL STABILITY REPORT 34 (2009) ("financial markets might not have seen the same degree of turmoil" had the true net extent of Lehman's CDS positions been known); see also Scott, *supra* note 96, at 99–100 ("By making 'counterparty runs' less likely, clearing might forestall the failure of a weak financial institution.") citing Duffie et al., *supra* note 46, at 11; Adam Levitin, *The Tenuous Case for Derivatives Clearinghouses*, 101 GEO L.J. 445, 461–63 (2013) ("Clearinghouse as a Loss Absorber").

II. THE REGULATORY RESPONSE: THE WALL STREET TRANSPARENCY AND ACCOUNTABILITY ACT OF 2010

Due to the highly traumatic effects of the recession accompanying the financial crisis, most importantly the elevated unemployment and home foreclosures that persisted long after its official end in June 2009, political leaders faced intense demand for a major regulatory overhaul of the financial system. Congress and the Obama administration worked on various bills throughout 2009 and 2010, and President Obama signed the massive final product, the “Dodd-Frank Wall Street Reform and Consumer Protection Act,” into law on July 20, 2010. Dodd-Frank totals 847 pages and is divided into sixteen separate titles covering a host of topics directly and not so directly related to the financial crisis. Among its key provisions are the creation of a Financial Stability Oversight Council to oversee systemically important non-bank financial institutions (Title I), creation of an Orderly Liquidation Authority to oversee the winding up of systemically significant financial institutions that face failure (Title II), strengthening of the regulation of credit rating agencies (Title IX, Subtitle C), the creation of a Bureau of Consumer Financial Protection (Title X), and changes to the regulation of the residential mortgage industry (Title XIV). Despite its size and far-reaching impact, Dodd-Frank is to great extent more of a general map to future regulation than a final blueprint itself,¹²⁷ as it calls for an estimated 398 rule-making exercises on the part of the federal government and 87 studies concerning myriad aspects of the financial crisis and proposed regulatory efforts.¹²⁸

Title VII of Dodd-Frank, the “Wall Street Transparency and Accountability Act of 2010,” is Congress’s attempt to institute a new regulatory regime for derivatives activities. It employs a multi-faceted regulatory strategy: first, on the level of the derivatives markets as a whole, attempt to clear as many derivatives as possible through a CCP (referred to as a “clearing agency”),¹²⁹ and second, institute information provision requirements. Title VII also institutes capital, margin requirements and registration requirements and oversight on individual entities.¹³⁰ Furthermore, the swap desk “spin-off” rule also prohibits federal bailout assistance to entities engaging in riskier categories of derivatives activities, thereby forcing banks to carry out such activities in a separately capitalized affiliate.¹³¹ The so-called “Volcker Rule” of Title VI aims to curb proprietary trading on the part of banks; depending on its implementation it may have important effects on their deriva-

127. See John C. Coffee, Jr., *The Political Economy of Dodd-Frank: Why Financial Reform Tends to be Frustrated and Systemic Risk Perpetuated*, 97 CORNELL L. REV. 1019, 1050 (2012); BLINDER, *supra* note 12, at 314–17 (“It Ain’t Over ‘Til It’s Over”).

128. See DAVIS POLK, DODD-FRANK PROGRESS REPORT, JUNE 2012, available at <http://www.davispolk.com/dodd-frank-rulemaking-progress-report>.

129. As defined in 15 U.S.C. § 78c(a)(23)(A) (2012).

130. Dodd-Frank Act § 764; 15 U.S.C. § 78o–10 (2012).

131. Dodd-Frank Act § 716; 15 U.S.C. § 8305 (2012).

tives activities.¹³² Since the first two strategies are most germane to the issues of this Article, this review of Title VII is limited to them.

A note about what follows: Title VII honors the general pre-existing regulatory division of labor (and territory) between the Commodity Futures Trading Commission and the Securities Exchange Commission tracing back to the Shad-Johnson Accord of 1982,¹³³ and has two largely identical halves: Subtitle A, “Regulation of Over-the-Counter Swaps Markets,” applies to swaps governed by the CFTC, and Subtitle B, “Regulation of Security-Based Swap Markets,” applies to “Security-based Swaps” (“SBSs”), swaps whose underlying obligations would fall under the jurisdiction of the SEC.¹³⁴ Since credit default swaps are the focus of this Article, and they generally fall under the jurisdiction of the SEC, in what follows I discuss only the applicable provisions from Subtitle B of Part VII.

A. *The Central Counterparty Clearing Mandate*

The heart of Title VII, the clearing requirement, is found in Section 763 of the Dodd-Frank Act. It adds new Section 3C, “Clearing for Security-Based Swaps,” to the Securities Exchange Act of 1934 (the Exchange Act). The clearing provisions allow for input from both the SEC and from clearing agencies, but the SEC has ultimate power to determine whether or not a SBS must be cleared. New Exchange Act Section 3C(a) reads:

[I]t shall be unlawful for any person to engage in a security-based swap unless that person submits such security-based swap for clearing to a clearing agency that is registered under this Act or a clearing agency that is exempt from registration under this Act if the security-based swap is required to be cleared.¹³⁵

This mandates that if a SBS is required to be cleared, then it must be submitted to a clearing agency by any party wishing to engage in it.

132. Dodd-Frank Act § 619; 12 U.S.C. § 1851 (2012). See generally Alison K. Gary, Comment, *Creating a Future Economic Crisis: Political Failure and the Loopholes of the Volcker Rule*, 90 OR. L. REV. 1339 (2012).

133. See Daniel P. Collins, *Gensler: Correcting the Record on OTC Regulation*, FUTURES MAG. 39.9 (Sept. 2010). On Shad-Johnson generally, see Roberta Romano, *The Political Dynamics of Derivative Securities Regulation*, 14 YALE J. REG. 279, 357–58 (1997).

134. A “security-based swap” is defined as:

[A]ny agreement, contract or transaction that (i) is a swap, as that term is defined under section 1a of the Commodity Exchange Act” and “(ii) is based on (I) an index that is a narrow-based security index, including any interest therein or on the value thereof; (II) a single security or loan, including any interest therein or on the value thereof, or (III) the occurrence, nonoccurrence, or extent of the occurrence of an event relating to a single issuer of a security or the issuers of securities in a narrow-based security index, provided that such event directly affects the financial statements, financial condition, or financial obligations of the issuer.

Dodd-Frank Act § 761; 15 U.S.C. § 78c(a)(68) (2012). SBSs also include master agreements and all supplements to a master agreement, such as those entered into pursuant to ISDA forms. 15 U.S.C. § 78c(a)(68)(B). (2012).

135. Dodd-Frank Act § 763; 15 U.S.C. § 78c-3(a)(1) (2012).

So far, so good—but what determines whether a SBS is required to be cleared in the first place?

Securities Exchange Act Release No. 34-67386 specifies that the Commission will ultimately determine whether a SBS is required to be cleared: “If the Commission makes a determination that a security-based swap is required to be cleared, then parties may not engage in such security-based swap without submitting it for clearing to a clearing agency that is either registered with the Commission (or exempt from registration) unless an exception to the clearing requirement applies.”¹³⁶ In making its determination, new Exchange Act Section 3C(b)(4)(B) lists five factors the SEC shall take into account in determining whether a particular SBS must be cleared: (i) the existence of significant outstanding notional exposures, trading liquidity, and adequate pricing data, (ii) the availability of proper financial infrastructure and operational expertise necessary to clear the contract “consistent with the material terms and trading conventions on which the contract is then traded”; (iii) “the effect on the mitigation of systemic risk,” (iv) “the effect on competition,” and (v) the “existence of reasonable legal certainty in the event of insolvency” of the relevant CCP.¹³⁷ New Exchange Act Section 3C(a)(1) provides a presumption in favor of clearing, reflecting the belief on the part of the drafters that it was important that as many derivatives as possible be centrally cleared and that exceptions to the mandate be narrowly construed.¹³⁸

Nevertheless, the clearing agencies appear to have a say on what is to be cleared, and there will be important categories of swaps that are not cleared. First, the structure of Exchange Act Section 3C makes it evident that clearing agencies have an input into the clearing requirement process: Section 3C(b)(2) requires clearing agencies to submit SBSs they plan to accept for approval to the SEC.¹³⁹ Second, there are important categories of swaps that are not required to be cleared: those used by non-financial businesses to hedge business risks (the “end user exemption”), and those that no clearing agency accepts for clearing.¹⁴⁰ The statute indicates this last category indirectly, as it is not explicitly listed but is the subject of Section 3C(d), “Prevention of Evasion.”¹⁴¹ The SEC is instructed to investigate when it finds that a SBS “would otherwise be subject to mandatory clearing but no clearing agency has

136. See *Process for Submissions for Review of Security-Based Swaps for Mandatory Clearing and Notice Filing Requirements for Clearing Agencies; Technical Amendments for Rule 19b-4 and Form 19b-4 Applicable to All Self-Regulatory Agencies*, Exchange Act Release 67286, 77 Fed. Reg. 41601, 41604 (July 13, 2012).

137. Dodd-Frank Act § 763; 15 U.S.C. § 78c-3(b)(4)(B) (2012)

138. See REPORT OF THE S. COMM. ON BANKING, HOUSING, AND URBAN AFFAIRS REGARDING THE RESTORING AMERICAN FINANCIAL STABILITY ACT OF 2010, S. REP. 111-176, at 35 (2010) (“the legislation permits regulators to exempt contracts from the exchange and clearing requirements based on . . . narrow criteria.”).

139. Dodd-Frank Act § 763; 15 U.S.C. § 78c-3(b)(2) (2012).

140. For discussions of the exceptions to the clearing mandate and their importance, see Coffee, *supra* note 127, at 1064; Kristin Johnson, *Things Fall Apart: Regulating the Credit Default Swap Commons*, 82 U. COLO. L. REV. 167, 239–42 (2011).

141. Dodd-Frank Act § 763; 15 U.S.C. § 78c-3(d) (2012).

listed" it.¹⁴² Although the SEC is prohibited from forcing a clearing agency to list a particular SBS for clearing, it has the authority to impose margin requirements on uncleared SBSs,¹⁴³ and presumably it could forbid the use of a particular SBS entirely under its general authority under 3C(a)(1).¹⁴⁴ Finally, Title VII also facilitates exchange trading of derivatives through the non-mandatory structure of a security-based swap execution facility (SBSEF). New Section 3C(h) instructs that SBSs subject to clearing shall be executed on exchanges or SBSEFs, but grants an exemption to this where no exchange or SBSEF lists the particular SBS.¹⁴⁵

The clearing requirement in new Exchange Act Section 3C presents a major change to the derivatives markets and has provoked extensive criticism as well as support, which Part III below examines. Like much else in Dodd-Frank, it is subject to regulatory implementation and its precise contours are only now, three years after its passage, coming into focus. While a certain portion of the derivatives markets currently trades through a CCP, the great majority of credit default swaps do not.¹⁴⁶ Central counterparty clearing has arisen through the independent initiative of dealers and other market participants in a variety of circumstances, but there are likely many circumstances in which market participants, acting alone without any governmental mandate, will not find it economically desirable.¹⁴⁷ While it is intended to reduce systemic risk, reaching this goal will require considerable effort on the part of government regulators and those running the CCPs, as well as the compliance of market participants.

B. Public Availability of Transaction Data

Equally important as the clearing requirement may be the public information requirements for the derivatives markets. In fact, because the major derivatives dealers have benefited so greatly from the lack of public information concerning derivatives prices, this may in the end have an even greater impact on the derivatives markets than the clearing requirements.¹⁴⁸ If transaction data becomes widely available, as it

142. Dodd-Frank Act § 763; 15 U.S.C. § 78c-3(d)(2) (2012).

143. See Dodd-Frank Act § 764; 15 U.S.C. § 78o-10(e)(2)(A)(ii) (2012).

144. See generally Barry Le Vine, Comment, *The Derivative Market's Black Sheep: Regulation of Non-Cleared Security-Based Swaps under Dodd-Frank*, 31 NW. INT'L. J. L. & BUS. 699 (2011). Le Vine observes that "to Congress, non-cleared [SBSs] were [generally] an afterthought, punted to the SEC and CFTC . . ." *Id.* at 703.

145. Dodd-Frank Act § 763; 15 U.S.C. § 78c-3(h) (2012).

146. BIS states that of the \$22.9 trillion total notional amount of CDS outstanding as of Dec. 31, 2011, \$2.7 trillion, or 11.7%, were reported by CCPs. See *Credit Default Swaps*, BANK FOR INTERNATIONAL SETTLEMENTS (June 2012), <http://www.bis.org/statistics/otcder/dt21.pdf>.

147. See Kroszner, *supra* note 18 (discussing the private development of structures in the OTC derivatives markets to control counterparty risk); Litan, *supra* note 22, at 8 (emphasizing the informational advantages derivatives dealers derive through the current system); Levitin, *supra* note 126, at 450 n.15.

148. See Levitin, *supra* note 126, at 456-58, for a discussion of the possible informational advantages of the CCP clearing regime over that of banks as dealers. *But cf.* Culp, *supra* note 41, at 34, for the argument that the market already supplies the relevant infor-

must under Dodd-Frank, the ability of the derivatives dealers to earn such great profits from their trading is likely to be substantially diminished. In fact, much of the resistance to CCP clearing on the part of major financial institutions may be a consequence of the requirement that the transaction data generated by the CCP be made publicly available.¹⁴⁹

New Exchange Act Section 13(m), entitled “Public Availability of Security-Based Swap Transaction Data,”¹⁵⁰ provides a blanket information reporting mandate for all SBS transactions. The SEC “is authorized to provide by rule for the public availability of security-based swap transaction, volume, and pricing data” in four categories of SBSs, which in fact cover all SBS transactions. Real-time public reporting is required for: (i) SBSs subject to the mandatory clearing requirement of 3C(a)(1), including those exempted under the 3C(g) hedging exception; (ii) those not subject to the mandatory clearing requirement but which are cleared at a registered clearing agency anyway; (iii) those not cleared under the [3C(f)]¹⁵¹ clearing transition rules, which require reporting to a Security-Based Swap Data Repository or to the Commission; and (iv) those under review by the SEC under Section 3C(b).¹⁵² Consequently, transaction data for all SBSs must be provided to the market through a Security-Based Swap Data Repository. Such reporting mechanisms shall ensure that the publicly reported information does not identify the participants, therefore keeping individual transaction information confidential.¹⁵³ Nevertheless, the reporting of data in real time is likely to deprive the dealers of some of the substantial informational advantages they have hitherto possessed over parties coming to them seeking derivatives transactions.

In addition to the public dissemination of transaction data, new Exchange Act Section 13(n), “Security-Based Swap Data Repositories,”¹⁵⁴ requires that the data collected from market participants be made available on a confidential basis to a variety of governmental departments, including prudential regulators, the Financial Stability

mation. See also Anne Duquettoy et al., *Credit Default Swaps and Financial Stability: Risks and Regulatory Issues*, BANQUE DE FRANCE, 13 FIN. STABILITY REV. 75 (2009) (Table 1: Main sources of global data on the CDS market).

149. See generally Litan, *supra* note 22; see also Chander & Costa, *supra* note 4, at 677; Awrey, *supra* note 37, at 261–62 (rents flowing to financial intermediaries on account of their informational advantages). See also Louise Story, *House Advantage: A Secret Banking Elite Rules Derivatives Trading*, N.Y. TIMES, Dec. 12, 2010, at A1; ADMATI & HELLWIG, *supra* note 12, at 71 (arguing that derivatives traders benefit from complex trading strategies that are opaque to both competitors and supervisors).

150. Dodd-Frank Act § 763; 15 U.S.C. § 78m(m) (2012).

151. Note that the text of the statute appears to be mistaken here, as it refers to “section 3C(a)(6),” which does not exist. By analogy with Dodd-Frank Act § 727, which provides for public information reporting requirement for derivatives under the jurisdiction of the CFTC, it is clear that the drafters intended to refer to the clearing transition provision, 15 U.S.C. § 78c-3(f) (2012).

152. Dodd-Frank Act § 763; 15 U.S.C. § 78m(m) (2012).

153. See also new Exchange Act § 13(n)(5)(F), which requires that an SBSDR maintain the privacy of data provided it by counterparties. 15 U.S.C. § 78m(n)(5)(F) (2012).

154. Dodd-Frank Act § 763; 15 U.S.C. § 78m(n) (2012).

Oversight Council, the CFTC, DOJ and “any other person that the Commission determines to be appropriate,” including foreign financial authorities. The SBSDRs are obviously intended to serve as data collectors for regulatory authorities in the event of financial crisis, or suspicions about the conduct of particular parties in the marketplace. The implications of Sections 13(m) and 13(n) are significant, as it should, if properly implemented, allow market participants and regulators access to a wide universe of data much of which has previously been unavailable or at least not easily accessible.

In sum, these requirements represent a major step forward in the regulation of entities conducting derivatives operations. Financial institutions will incur significant expense to comply with them, and the SEC, CFTC, and other regulators will bear significant burdens in writing regulations and coping with the flow of information the new regime channels their way. It is too soon to tell whether the government will be able to use this information in a manner that justifies the cost of producing it, but arguably government officials could have detected the systemic risk that resulted in the disasters discussed in Part I much sooner had such information been available. If information is not even available, it cannot be used.¹⁵⁵ More importantly, if a well-functioning clearing and information-provision regime were in place in 2008, the element of uncertainty that was, at least *ex ante*, attributable to interconnections in the shadow-banking system may have been removed from financial marketplace as participants and regulators dealt with the collapse in value of real estate-backed MBSs and CDOs.

III. ARGUMENTS FOR AND AGAINST DODD-FRANK TITLE VII

Title VII of Dodd-Frank represents a wholesale restructuring of a large and critical financial market, and as such was bound to be controversial. Intellectually, the introduction of a new and detailed regulatory schema challenges many long-standing beliefs about how markets populated largely by sophisticated parties function best, while politically Title VII responds to the desperation many in the public at large felt in the wake of the financial crisis and Great Recession. And as far as the major investment banks are concerned, new market infrastructure, information disclosure requirements and regulatory costs all represent threats to very profitable lines of business. The controversy surrounding the new derivatives regulation is multi-faceted, with purely intellectual and nakedly political concerns intersecting with powerful financial interests.

I argue that, with caveats, Title VII is superior both to doing nothing, and to certain proposals which advocate shifting the focus of regulatory efforts to a self-regulatory organization (SRO). While the critics of Title VII raise a number of important points, they are better understood as warnings regarding possible dangers that the regulators empowered by Dodd-Frank must watch out for than reasons to abandon

155. See Lo, *supra* note 60, at 12.

its regulatory project. My argument is ultimately grounded in Rawlsian political theory, though it also has strong, yet not uncontested, empirical support. I argue that the very fact of considerable uncertainty surrounding the derivatives markets, and the effect this uncertainty then had on market participants during the crisis of 2008, points to the usefulness of a Rawlsian framework in understanding the problem of derivatives regulation.

Part IV below presents this argument. Before reaching this point, Part III first examines the arguments heretofore offered both for and against Title VII, focusing on CCP clearing, looking at both the technical points each side in the debate makes as well as the more theoretical positions implicit in the arguments for and against.

A. *Arguments for the Central Counterparty Clearing Mechanism*

Given the disasters recounted in Part I above, many are inclined to support strong derivatives regulation, and indeed Congress and the Obama administration were able to pass a potentially strong reform bill in Title VII of Dodd-Frank, although its ultimate strength depends on the character of the regulations that will be written to implement it. The larger goal of Title VII is to reduce both the likelihood of an irruption of systemic risk as occurred in September, 2008 as well as the severity of a crisis should one occur.¹⁵⁶ While the decision not to rescue Lehman was grounded in a legitimate fear of moral hazard, as its rescue would have sent a powerful signal to market participants that there was a policy of bailing out teetering financial institutions, U.S. government officials were not able to maintain this stance days later when the larger and more interconnected AIG began to fail. It is important to emphasize that the bailout was fundamentally motivated by uncertainty, in the form of fear of the unknown: officials feared, but did not know, what the consequences of letting AIG fail would have been.¹⁵⁷ The proponents of derivatives regulation hope that by forcing as many derivatives currently traded OTC as possible to clear through a CCP clearing mechanism, they will fundamentally reduce the risk of failure of a major derivatives counterparty, with all its attendant effects. The reduction of systemic risk will result, it is hoped, from the operation of the various features used by a CCP to reduce counterparty risk.

I. Technical Points

The use of a CCP to clear derivatives transactions offers, at least in certain circumstances, significant benefits to market participants and by extension, the financial markets and society as a whole. By instituting what is essentially a risk mutualization scheme, the CCP functions as a sort of self-funded insurance program for market participants, and

156. See REPORT OF THE S. COMM. ON BANKING, HOUSING, AND URBAN AFFAIRS REGARDING THE RESTORING AMERICAN FINANCIAL STABILITY ACT OF 2010, S. REP. NO. 111-176, at 31-35 (2010); Gary Gensler, *Clearinghouses Are the Answer*, WALL ST. J., Apr. 21, 2010, at A21.

157. See *supra* note 115 and accompanying text.

clearing organizations have on occasion arisen without government mandate.¹⁵⁸ A CCP uses a number of techniques to lessen the risk that the failure of a CM will disrupt the functioning of a particular derivatives market as a whole.

When counterparties clear a derivatives trade through a CCP, the CCP interposes itself between both parties, and the original trade is replaced by two new identical, offsetting trades. This is novation. The CCP therefore assumes all credit risk in the transaction, the risk that either counterparty will not fulfill its obligations. On the other hand, because the CCP holds two offsetting mirror contracts, it ordinarily bears no market risk in the transaction—if it loses money on one, it will gain an equal amount on the other.¹⁵⁹ In addition to the assumption of credit risk, a CCP, at least in certain circumstances, reduces risk through the following mechanisms.

a. Restriction of Trading to Clearing Members

The first line of defense against default is that trading is restricted to CMs, and a non-member institution may trade through the CCP only if it carries out this trade through a CM. Requirements for becoming and remaining a CM include allowing the CCP to monitor a party's creditworthiness, agreeing to follow risk management protocols, and maintaining adequate levels of capital.¹⁶⁰

b. Margin Requirements

Second, the risk embodied in particular derivatives is lessened through margin requirements for each transaction. Initial margin will be posted based on the perceived risk of the trade, and as this risk fluctuates on a daily or even twice daily basis, variation margin will be required to offset the current risk of the transaction. The CCP adjusts the variation margin required in response to changes in the perceived risk of a transaction. The amounts of variation required, or "settlement prices," are usually made available to the public, thereby increasing the transparency of the CDS trading system.¹⁶¹

c. Loss Mutualization Fund

CCPs require CMs to contribute to a loss mutualization fund, a standing insurance pool all members contribute to that can be drawn on in the event a CM defaults and the CCP is required to absorb losses from its trades.¹⁶² In addition to the insurance fund, a CCP also has a

158. See Kroszner, *supra* note 18, at 600–04.

159. This presumes that markets are functioning normally. See Bliss & Papathanassiou, *supra* note 54, at 4; Bliss & Steigerwald, *supra* note 18, at 25; Levitin, *supra* note 126, at 452. Cf. Yesha Yadav, *The Problematic Case of Clearinghouses in Complex Markets*, 101 GEO. L.J. 387, 428–29 (2012) (arguing that ultimately, clearinghouses are exposed to the economic risk inherent in derivatives contracts).

160. See Culp, *supra* note 41, at 15.

161. See Chander & Costa, *supra* note 4, at 15.

162. See Bliss & Steigerwald, *supra* note 18, at 25.

set of default protocols that ensure that defaults are processed in an orderly way, thereby removing much of the uncertainty and instability surrounding a member default. In this regard, it is noteworthy to compare the fate of the cleared versus uncleared trades that Lehman Brothers was a counterparty to at the time of its failure. The cleared trades in futures contracts suffered no losses, while Lehman's uncleared trades resulted in billions of dollars of losses.¹⁶³

d. Multilateral Netting

In addition to these three insurance-like mechanisms, a CCP reduces systemic risk through multilateral netting. It automatically cancels out chains of duplicating transactions that arise when parties, particularly major derivatives dealers, enter into trades to hedge the market risk of particular derivatives they have sold.¹⁶⁴ For example, assume that derivatives dealer JPMorgan sells credit protection to a hedge fund on General Electric debt. As a dealer, JPMorgan is likely to enter into an offsetting transaction with another derivatives dealer, purchasing the same credit protection from, say, Bank of America. Bank of America in turn may purchase offsetting credit protection on this trade, and so on. In this way, duplicating trades proliferate through the financial system, greatly increasing the sum of notional derivatives exposures. While such exposures would net out in the event of collapse of the market, the administrative and operational complications of sorting through and cancelling out such duplicative trades is substantial, greatly increasing the pain of default by a major counterparty. Multilateral netting operates by searching out duplicative trades among numerous counterparties and cancelling them out. It is an automatic risk reduction function carried out by a CCP that has access to the trade information of its CMs.

e. The CCP as Information Provision Center

CCPs also reduce systemic risk through the provision of information to their CMs, regulators and the public as a whole. By making settlement prices for derivatives publicly available, CCPs function as an information gathering and dissemination mechanism.¹⁶⁵ This information provision function has important effect on the market, greatly reducing the trading costs for CMs,¹⁶⁶ and ultimately reducing systemic risk by signaling to CMs the true risk they are exposed to as counterparties to derivatives transactions. The provision of more accurate risk

163. For the contrast of Lehman's cleared versus uncleared trades, see Chander & Costa, *supra* note 4, at 655-59. Professor Scott emphasizes that Lehman's OTC derivatives were eventually resolved with much less disruption than initially feared, but some of these derivatives were centrally cleared. See Scott, *supra* note 96, at 54-67.

164. See Bliss & Steigerwald, *supra* note 18, at 26. See also *infra*, Part III.B.1.b.

165. Chander & Costa emphasize this function of CCPs. See *supra* note 4, at 30-31. Duffie on the other hand disagrees; see Bill Snyder, *Credit Default Swap Clearing Plan Won't Work*, STAN. GRADUATE SCH. OF BUS. NEWS (Apr. 1, 2009), http://www.gsb.stanford.edu/news/research/duffie_clearinghouse.html.

166. See Bliss & Steigerwald, *supra* note 18, at 26.

information through the mechanism of price will enable market participants to have a clearer understanding of the risks they are exposed to, and to hedge where necessary¹⁶⁷ (As discussed below, this also cuts into the informational advantages of the major derivatives dealers.)¹⁶⁸ Another potentially crucial aspect of the information collection and provision function is that the CCP can reduce the opacity of the system as a whole for regulators.¹⁶⁹ In the case of AIG's CDSs on ABS CDOs, for example, while they would not have been subject to clearing since they were too customized, if the information provision requirements in Dodd-Frank had been in place in 2008 government officials would have had earlier and better knowledge of their existence, amounts, and counterparties.

f. The CCP as a Locus for Regulation

A final benefit of the new regime is that the CCP provides a locus for regulation. In the lead up to the credit crisis, the major derivatives dealers and institutions such as AIG acted as independent and, as far as their derivatives operations were concerned, unregulated hubs—each a mini-CCP.¹⁷⁰ Under the new regime, the CCP, or “clearing agency,” will be a locus for regulatory efforts. The SEC, CFTC and other government agencies will have a single set of institutions to focus their regulatory efforts on, with defined roles and obligations in the financial system.¹⁷¹ From a regulatory perspective, the institution of the clearing agency greatly simplifies and focuses the task of regulating OTC derivatives trading.

In sum, the proponents of Title VII believe that these various structural aspects of a CCP will reduce the systemic risk associated with OTC derivatives trading, and even its detractors acknowledge their benefits in certain circumstances.¹⁷² By lessening the likelihood that an institution engaging in derivatives transactions will fail, and the consequences if it does, membership requirements, margin requirements, a loss mutualization fund, agreed upon default protocols, and information dissemination all reduce the systemic risk inherent in the OTC derivatives market. The CCP itself serves to cabin the shockwaves to the finan-

167. See Chander & Costa, *supra* note 4, at 15.

168. See *infra* note 187 and accompanying text.

169. See Litan, *supra* note 22, at 31.

170. See Chander & Costa, *supra* note 4, at 677 (“It is important to recognize that Bear, Lehman, and AIG also each concentrated risk—they served as *de facto* unregulated central clearing counterparties, without the disciplines of a regulated CCP.”).

171. *Id.* at 37.

172. See Pirrong, *supra* note 30, at 3 (“In conditions of complete information, a clearinghouse can improve welfare by allocating default losses more efficiently.”); Duffie & Zhu, *supra* note 50, at 3 (“While the central clearing of derivatives can in principle offer substantial reductions in counterparty risk, we provide a foundation for concern that these benefits may be lost through a fragmentation of clearing services.”); Mark Roe, *Clearinghouse Over-Confidence*, PROJECT SYNDICATE (Oct. 26, 2011), <http://www.project-syndicate.org/commentary/roe6/English> (“Whether the clearinghouse reduces systemic risk depends on the relative systemic importance of those inside and outside the clearinghouse . . .”).

cial system that would otherwise reverberate out in the event of the failure of a member.¹⁷³

It is important to observe that the argument for the overall risk-reduction enabled by a CCP takes a broad view of the incentives counterparties will have under CCP clearing. Critics such as Craig Pirrong and Mark Roe argue that because of how multilateral netting operates, a CCP does not fundamentally eliminate risk, but instead redistributes it from the CMs to the non-CM counterparties of a failing CM.¹⁷⁴ Therefore, in the event of collapse of a CM, total losses will be equivalent with a CCP to those without a CCP; the difference is who will actually be forced to bear them. The argument that a CCP will fundamentally reduce systemic risk operates on a different and fundamentally broader plane: because a CCP is in place, the failure of an individual CM is less likely to begin with, as its counterparties (who in the case of the highly concentrated banking sector may also be other CMs) are less likely to engage in a ‘run’ on a weak institution because they will be assured that its derivatives will be backstopped by the CCP in the event of a crisis.¹⁷⁵ As well as acting to cabin risks should a failure occur, a CCP has a general prophylactic role, since its very existence serves to lessen the likelihood of an initial failure. By changing the incentives of counterparties, namely, removing the incentives to withdraw from all relationships with a clearing member who may be in distress, a CCP can be a confidence-bolstering device that reduces the spread of contagion in the financial markets.

2. Philosophic Character of the Arguments in Favor

Proponents of CCP clearing believe that the various mechanisms reviewed above will reduce systemic risk. On its face, the claim that they will do so is plausible: even its opponents believe that, in certain

173. See Levitin, *supra* note 126, at 451 (“Clearinghouses use their mutual insurance features to diffuse losses out across their membership on a pro rata basis, thereby avoiding catastrophic losses to any single institution and preventing cascades of failure.”). See also the authorities cited *supra*, note 126.

174. Craig Pirrong, *supra* note 125, at 47; Roe, *supra* note 172; Roe, *supra* note 62. On the other hand, Adam Levitin points out that “the problem Professor Roe identifies is one of systemic-risk transfer, not generation. Unless we believe that parties outside the clearinghouses are more systemically important than those in the clearinghouses, it is hard to see this transfer as deleterious.” Levitin, *supra* note 126, at 465.

175. For this line of argument, see Chan-Lau et al., *supra* note 126, at 34; Duffie et al., *supra* note 45, at 11; see also Scott, *supra* note 96, at 66–67 (“[C]learing houses may also have helped mitigate contagion problems by reducing reduce systemic risk across the OTC derivatives universe.”); Viral Acharya & Alberto Bisin, *Counterparty Risk Externality: Centralized Versus Over-the-Counter Markets* 37 (2011), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1788187. Although Pirrong is of course highly skeptical that CCPs will actually reduce systemic risk, he does acknowledge this argument; see Pirrong, *A Bill of Goods: CCPs and Systemic Risk* 11, available at http://web.law.columbia.edu/sites/default/files/microsites/law-economics-studies/Pirrong_Paper.pdf (“[R]aising priority of derivatives reduces the incentive of derivatives counterparties to run.”). See also *infra* Part IV.B.1, where I make a general argument for the effectiveness of the clearing mandate along Rawlsian lines.

circumstances, a CCP regime should reduce risk.¹⁷⁶ As Craig Pirrong remarks, however, in coming to an accurate understanding of clearing, “the devil is truly in the details.”¹⁷⁷ The argument then is whether risk reduction will really take place given the current institutional, regulatory, and economic circumstances surrounding derivatives trading. Debate arises at the point where the discussion necessarily takes leave of the purely factual and draws on theories of how markets work, as well as normative beliefs such as how they work best and their wider purpose for human society. The ‘theoretical’ here accordingly refers to the body of economic and philosophic positions that are implicit in the arguments for and against CCP clearing and the imposition of the other rules of Title VII. Part III.A.2 examines the wider theoretical supports for the pre-regulatory position.

a. Epistemological Tolerance, the Importance of the Behavioral, and the Priority of Safety Over Efficiency

If one is to argue for CCP clearing and the other features of Title VII, tolerance of a certain amount of uncertainty is required, because the argument for CCP clearing relies on the supposition that something probable was in fact the case: that interconnectivity due to OTC derivatives was a significant contributing cause of the credit crisis. As reviewed above in Part I.B.4, there is a strong argument for this view, but Pirrong, Roe, and others disagree.¹⁷⁸ Professor Scott, who acknowledges that interconnectivity could facilitate the spread of financial contagion, argues that in the case of Lehman Brothers at least, interconnectivity was not a significant underlying cause of its failure, although fears of a derivatives disaster could have played a significant role beforehand.¹⁷⁹ On the other hand, there are significant theoretical accounts of how interconnectivity through derivatives can lead to systemic failures, and the widespread conventional wisdom then and now is that linkage of institutions through derivatives was a significant cause of the crisis.¹⁸⁰ That said, in a system as complex as that of modern finance, and where knowledgeable commentators disagree, it is going too far to claim as a matter of absolute certainty that interconnection through derivatives was a central cause of the crisis. This may be likely, but it is not absolutely certain.

Following from and related to this point are two further theoretical supports to the argument for central clearing. The first is the role of the behavioral. As described above, at a very general level, a CCP should serve to reduce systemic risk by reassuring a troubled institution’s counterparties that in fact the CCP itself stands behind its CM’s trades, resulting in a reduced likelihood of a run in the first place.¹⁸¹

176. See *supra* note 172 and accompanying text.

177. Craig Pirrong, *The Economics of Central Clearing: Theory and Practice*, ISDA DISCUSSION PAPER SERIES, No. 1, at 4 (2011).

178. See *supra* notes 117–26 and accompanying text.

179. See *supra* notes 121–24 and accompanying text.

180. See *supra* note 120 and accompanying text.

181. See *supra* note 175 and accompanying text.

In its general prophylactic role, a CCP supplies a measure of confidence to the market.

Second, the argument for a CCP places a very high value on the safety and stability of the financial system. This value is so great that, despite imposing significant net efficiency costs on the derivatives trading regime itself, CCP clearing could still be thought desirable. As discussed further below, this gives rise to two questions: how wide is the frame of reference for evaluating costs and benefits here? And more radically, can factors other than the conventional ones included in cost benefit analyses be included as reasons for wanting a CCP regime? While these are very difficult questions to arrive at definitive conclusions on, because the complexity of the system makes it difficult to have confidence in whatever quantitative measures can be arrived at,¹⁸² an argument for CCP clearing is greatly strengthened by first taking a wide frame of reference in making any cost benefit analyses, and second, including factors not usually taken into account in such analyses.

b. Pragmatism

Second, the pro-CCP position appears to reflect a belief that it is better to act than to stand by in times of crisis, even when there is substantial uncertainty as to causes and consequences.¹⁸³ In the case of OTC derivatives, this results in the belief that it is better to attempt to institute some controls believed to reduce systemic risk than to turn away either because of uncertainty about the exact role of the derivatives market in the crisis or because of possible unintended consequences of instituting complex rules in an already complex and opaque system.¹⁸⁴ The stance of acting in the face of uncertainty can be characterized as “pragmatic” in the sense of acting without an overarching scientific or theoretical background, as when policymakers pursue policies thought to bring about desirable consequences without however attempting to justify these actions in terms of a larger theoretical framework.¹⁸⁵ It also evidences affective states of both fear and optimism: fear of the catastrophic consequences of an economic disaster resulting from an out-of-control financial system, and optimism concerning the government’s ability to regulate this system. To some extent, these emotional or affective spurs to action are beliefs outside the realm of

182. See Pirrong, *supra* note 125, at 45.

183. This is akin to the argument for the “precautionary principle” in environmental regulation, which mandates acting in the face of possible environmental threat even where such dangers are fully understood. See generally Stephen M. Gardiner, *A Core Precautionary Principle*, J. POL. PHIL. 14(1) 33–60 (2006); David A. Dana, *A Behavioral Economic Defense of the Precautionary Principle*, 97 NW. U. L. REV. 1315 (2003).

184. See ADMATI & HELLWIG, *supra* note 12, at 9–10 (discussion of “bugbears,” possible unintended consequences meant to “scare policymakers out of doing something”).

185. Pragmatism is an anti-foundationalist philosophy, abjuring the quest to ground knowledge in overarching theoretical frameworks. See Thomas F. Cotter, *Legal Pragmatism and the Law and Economics Movement*, 84 GEO. L.J. 2071, 2077–78 (1996). For a discussion of the Pragmatist philosophers John Dewey and William James in the context of American business practice and public policy, see generally William H. Simon, *The Institutional Configuration of Deweyan Democracy*, available at <http://ssrn.com/abstract=1957332>.

the provable and scientific, but they do seem to have played a part in motivating the regulatory project of Title VII.¹⁸⁶

c. Broad Motives for Regulation

A third and largely unspoken motive behind the pro-mandate argument seems to be to alter the distribution of economic benefits obtained from the derivatives markets, reducing the revenues flowing to the major banks that control the American derivatives markets while smaller institutions are allowed into the market and non-dealer counterparties trade on the basis of improved price information.¹⁸⁷ The five major derivatives dealers, characterized as the “Dealers Club” by Robert Litan, earn approximately \$30 billion a year from their derivatives activities.¹⁸⁸ For the period 2009 to 2011, this averages 7.75% of the largest five banks’ quarterly revenues, though it varies significantly for each bank, and for each bank from quarter to quarter.¹⁸⁹ In the case of Goldman Sachs, an average of 54.58% of its quarterly revenues in this period came from derivatives activities, with amounts varying from 7% in the 4th Quarter of 2010 to 72% in the 4th Quarter of 2009.¹⁹⁰ Clearing advocates hope that by requiring much greater dissemination of trade information, the informational advantages the dealer banks possess will be substantially lessened, and the costs to smaller institutions and end-users of hedges will correspondingly decrease.¹⁹¹ And by reducing one of the banks’ major income streams, perhaps the size and influence of these institutions in the United States and global financial systems will be reduced, thereby accomplishing indirectly what advocates of a break-up of the banks or the re-institution of Glass Steagall were unable to mandate directly in the reform process that led to Dodd-Frank.

To review, three key theoretical characteristics of the argument in favor of the clearing mandate are: 1) tolerance of less-than-certain knowledge as a key factual basis justifying clearing, as well as acknowl-

186. See, e.g., CHRIS DODD, REPORT OF THE S. COMM. ON BANKING, HOUSING, AND URBAN AFFAIRS REGARDING THE RESTORING AMERICAN FINANCIAL STABILITY ACT OF 2010, S. REP. NO. 111-176 at 29–32 (2010) (detailing “concerns” about possible “danger” and “harm” from unregulated derivatives trading). From a considerably different perspective, see Peter J. Wallison, *The Dodd-Frank Act: Creative Destruction, Destroyed*, AEI ONLINE (Aug. 30, 2010), <http://www.aei.org/article/economics/fiscal-policy/the-dodd-frank-act-creative-destruction-destroyed/> (characterizing the Dodd-Frank Act as a product of “fear of instability and change”).

187. See, e.g., Joe Rennison, *Brady’s Hunch*, RISK MAG., Nov. 2011 (“An unstated aim of the Dodd-Frank Act is to open up the over-the-counter derivatives market to new entrants, loosening the stranglehold enjoyed by the big dealers and dealer-backed clearing and trading venues.”).

188. See Litan, *supra* note 22, at 8.

189. See COMPTROLLER OF THE CURRENCY, OCC’S QUARTERLY REPORT ON BANK TRADING AND DERIVATIVES ACTIVITIES FIRST QUARTER 2012 (Graph 6B, Quarterly Trading Revenue as a Percentage of Gross Revenue Cash & Derivative Positions), available at www.occ.gov/topics/capital-markets/financial-markets/trading/derivatives/dq112.pdf.

190. *Id.*

191. See Sarah N. Lynch, *Gensler Criticizes Resistance to OTC Rules*, WALL ST. J., Mar. 12, 2010, at C7.

edgement of the likely behavioral effects of a CCP and a very high priority assigned to the safety and stability of the financial system; 2) “pragmatism,” with action favored over inaction even where we are forced to regulate in conditions of uncertainty; and 3) the use of regulation for a purpose extrinsic to the derivatives trading system itself, i.e., to reduce the size of the big banks. Common to all three characteristics is a methodological flexibility and broadness, where we do not demand knowledge of the highest scientific character to justify a path of action, and we acknowledge a spectrum of possible reasons broader than just the efficiency of the financial system itself as legitimate bases for financial regulation. In this way, the regulatory project of Dodd-Frank Title VII takes a holistic view of the financial system: since we strongly suspect, although we cannot really be certain, that derivatives trading was a major behind-the-scenes factor in the credit crisis, other outside reasons to regulate it, including the desire to reduce the size of the largest banks, are important in making this decision. This holistic view of the financial system is combined with a pragmatic perspective, where the bar for action is not set so high that we cannot act without absolutely, or even reasonably, certain knowledge. In the language of civil procedure, a “preponderance of the evidence” will suffice where the possible consequences of failing to act are thought to be potentially catastrophic.

B. *Arguments Against the Clearing Mandate*

Turning from the supporters of Title VII, the mandate’s critics present a variety of arguments why they believe it is unwise. The most sustained criticism of the clearing mandate has come from financial economist Craig Pirrong of the University of Houston, with Darrell Duffie of Stanford University and Mark Roe of Harvard Law School also issuing important cautionary warnings. Other legal scholars voicing skepticism concerning the Dodd-Frank derivatives reforms include Zachary Gubler, and to lesser extent, Kristin Johnson and Yesha Yadav.¹⁹² Part III.B presents a summary of the criticisms of Title VII, focusing on both feared consequences and questions surrounding the feasibility of implementation of the new regulatory structure, before moving to the more general philosophic implications of the arguments against Title VII.

192. Professor Scott offers qualified support for the CCP mandate at the same time that he argues that interconnectedness was not a primary cause of the financial crisis. See SCOTT, *supra* note 96, at 99–104. The title of Professor Adam Levitin’s *The Tenuous Case for Derivatives Clearinghouses* seems to belie its very plausible account of how CCP will reduce systemic risk; see Levitin, *supra* note 126, at 453, 461–63. He concludes that “[h]opefully clearinghouses will be a belt-and-suspenders approach that results in better risk management and more resilience to losses. But on both counts, the devil lies in the details, which are ultimately in control of federal regulators, and thus it is still too early for clarity on clearinghouses.” *Id.* at 466.

1. Technical Points

a. *Exacerbation of Informational Asymmetries*

At the center of the argument against clearing is the claim that, in practice, a CCP is subject to significant informational asymmetries arising from the varying abilities and incentives of its own managers and its clearing members. In the case of bilateral trading, a party has a great incentive to accurately assess the risk of trading with any particular counterparty. The current bilateral market dominated by the five largest banks allows counterparties to do this. The derivatives dealers possess detailed, often proprietary, information on their counterparties as well as the resources necessary to analyze it, employing sophisticated technology to gauge the risk embodied in a potential counterparty. Non-dealer counterparties do not usually have the ability to gather and analyze risk information on their counterparties, so they rely on the implicit creditworthiness of dealing with a major banking institution.¹⁹³

When OTC derivatives are cleared through a CCP, by contrast, the ability and incentives of the parties to gauge credit risk differ in important ways. Here, the CCP is responsible for judging the credit risk of a transaction. A CCP is protected to some extent from “balance sheet” risk by the fact that trading parties must be CMs; in ordinary circumstances it is also protected from “position risk” because it holds offsetting, mirror contracts for each trade. But if a CM were to default, the CCP functions as a mutual insurance scheme, and the other CMs will collectively be on the hook for any losses. Credit risk is priced indirectly, by assessing the amount and riskiness of a CM’s positions and then assessing initial and variation margin on its net positions.¹⁹⁴ Because this assessment of credit risk is done indirectly, however, by judging the risk of the particular trades, not the individual risk presented by a particular CM, it is likely that the CCP will err on the side of requiring too much collateral, in effect overcharging its more creditworthy CMs for its services. Such an overcharging may have a significant cost on the market, in terms of suppressing otherwise beneficial transactions.¹⁹⁵

Because a CCP is unlikely to possess the ability to gauge the credit risk of a particular transaction as accurately as a dealer bank can,¹⁹⁶ a significant informational asymmetry therefore exists in a centrally cleared market that is absent in a bilaterally cleared one.¹⁹⁷ Following

193. For a discussion of the “balance sheet” advantages the large derivative dealers possess, see Chander & Costa, *supra* note 4, at 677. See also Awrey, *supra* note 37, at 265 (the role of derivative dealers as market makers).

194. See Pirrong, *The Inefficiency of Clearing Mandates*, CATO INSTITUTE POLICY ANALYSIS No. 665, July 21, 2010, at 9; Pirrong, *supra* note 30, at 18–19. See also *supra* note 159 and accompanying text.

195. See Duffie et al., *supra* note 46, at 9 (contrasting OTC and exchange trading).

196. But see Levitin, *supra* note 126, at 457 (“It is not clear that dealer banks’ risk modeling will necessarily be superior to that of clearinghouses.”).

197. The difference between the competencies of the major derivative dealers and the CCPs also forms an important plank of Gubler’s argument. See Gubler, *supra* note 62, at 96–100.

from this, because a dealer bank is likely to have better information, an “adverse selection” problem arises. A dealer bank will avoid trading in derivatives it believes the CCP is overpricing in terms of collateral, because these are too costly with respect to the likely payoff. On the other hand, where the CCP underprices the trade (i.e., requires less collateral than the dealer’s own estimate tells it is prudent), the dealer will intensively trade such contracts.¹⁹⁸

The adverse selection problem exists on the level of specific trades. Moving to the level of dealer banks as a whole, Pirrong sees an analogous moral hazard problem. Because a CCP ultimately takes on all balance sheet risk, i.e., the risk that a CM will default, individual CMs have an incentive to act in a risky way, knowing that their fellow CMs will ultimately be responsible for the losses in the event of default.¹⁹⁹ Pirrong likens this to a “tragedy of the commons” type situation, where each individual actor captures the benefits of risky activity while the group as a whole bears the cost of its detrimental effects.²⁰⁰ Of course, a CCP imposes margin and CM capital requirements in an attempt to control the moral hazard implicit in the insurance mutualization scheme, which in turn may lead to less trading and decreased efficiency. Informational asymmetries leading to inefficiencies and inappropriate incentives are the centerpiece of Pirrong’s criticism of the CCP mandate.

b. Inefficiency of Multilateral Netting

Prominent among the other criticisms of CCP clearing is the fear that the multilateral netting regime used in CCP clearing will not be as efficient as the bilateral netting regime in the OTC market.²⁰¹ With bilateral netting, a counterparty (typically a dealer bank) can cancel out duplicative exposures with a counterparty, thereby reducing the total notional amount outstanding in its economic relationship with the other party. Most importantly, bilateral netting allows for reduction of total notional amounts across product categories, i.e., for different types of derivatives, as long as they are between the same two parties. Imagine that Party A has purchased credit protection from Party B on two separate reference obligations in amounts of \$10 and \$20 million (denoted as CDS X and CDS Y, respectively). Party A has also entered into interest rate swaps with Party B on two other reference obligations in the amounts of \$10 and \$15 million (denoted as IRS W and IRS Z, respectively). While the four contracts will vary in terms of the cost of the protection in each one, based on the risk embodied in underlying reference obligation as well as the counterparty risk, there is a net exposure of \$5 million here, the amount by which the total protection A has purchased exceeds the total protection it has sold to B. While the indi-

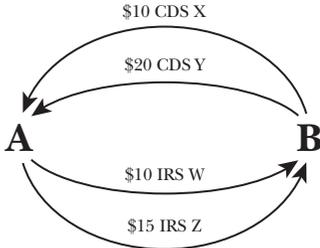
198. Yesha Yadav offers a variation on this argument. See Yadav, *supra* note 159, at 416–17.

199. See Pirrong, *supra* note 194, at 11.

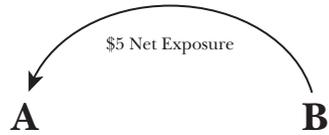
200. *Id.* at 12. See also Johnson, *supra* note 140, arguing that financial markets are like a “commons” that will benefit from a “community governance” model of regulation.

201. See Duffie & Zhu, *supra* note 50.

vidual contracts will vary in terms of their underlying risks, with bilateral netting the total gross amounts provide a beginning point for netting out the total exposures. This has important practical effects, as it reduces the total amount of exposure of individual parties to one another that must be settled in the event of a default, and by extension, reduces total systemic risk in the financial system.

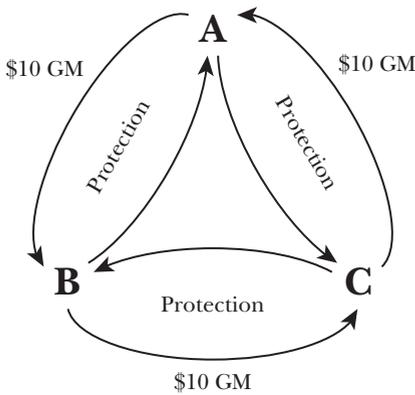


Before Bilateral Netting

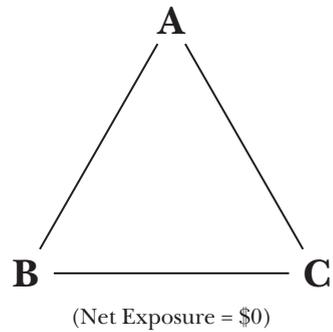


After Bilateral Netting

In a CCP regime, by contrast, netting does not take place across product category, but instead includes all counterparties with exposure to the same class of derivatives, i.e., CDSs, interest rate swaps, or foreign exchange swaps. Multilateral netting eliminates duplicative exposure in a “daisy chain” situation. Assume that Party A purchases a CDS from Party B on \$10 million of GM bonds; Party B has hedged its exposure on this trade by buying credit protection in turn on the same bonds for the same amount from Party C. Party C, however, has also hedged itself by purchasing protection on the very same bonds from Party A. While this is a simple example, it illustrates how the net exposure on a particular risk can be zero, or at least relatively small compared to the total amounts outstanding if the individual contracts are not netted out against one another. The fact that there can be substantial multilateral netting opportunities for certain derivatives indicates the overlapping nature of the derivatives dealers’ business, and shows that they make money on the spreads of these contracts while simultaneously attempting to hedge their own exposure.



Before Multilateral Netting



After Multilateral Netting

Multilateral netting then is one of the prime objectives of a CCP regime: total exposure in the system will be reduced by cancelling out overlapping obligations on the same reference entities among CMs exposed to them. Duffie and Zhu identify three main benefits of multilateral netting: 1) systemic risk can be reduced by lowering the likelihood that defaults propagate from counterparty to counterparty, 2) clearing can reduce the degree to which solvency problems of a market participant are compounded by the flight of OTC derivatives counterparties, and 3) multilateral netting can reduce the risk of disruptions to financial markets through fire sales of derivatives positions or collateral held against them.²⁰² They also conclude that given the current amounts of CDS and other exposures in the derivatives markets, it is unlikely the benefits from multilateral clearing will outweigh the benefits from bilateral clearing in a bilateral market.²⁰³ For multilateral clearing through a CCP to be beneficial, the "introduction of a CCP for a particular class such as standard credit derivatives is effective if and only if the opportunity for multilateral netting in that class dominates the resulting loss in bilateral netting opportunities across all uncleared derivatives, such as uncleared CDS and uncleared OTC derivatives of equities, interest rates, commodities, and foreign exchange, among others."²⁰⁴ The model of CCP clearing efficiency Duffie and Zhu construct implies that "clearing CDS through a dedicated CCP improves netting efficiency for twelve similar sized dealers if and only if the fraction of a typical dealer's total expected exposure attributable to cleared CDS is at least 66% of the total expected expo-

202. Duffie & Zhu, *supra* note 50, at 2.

203. Duffie & Zhu point out that bilateral netting across six asset classes in data provided by the Bank of International Settlements reduced total gross exposures in OTC derivatives from \$24.7 trillion to \$3.6 trillion in data for June 2010. *Id.* at 14. *But see* Rama Cont & Thomas Kokholm, *Central Clearing of OTC Derivatives: Bilateral Vs. Multilateral Netting*, 31 *STAT. & RISK MODELING* 3 (2014) (finding that Duffie & Zhu's conclusion is highly sensitive to assumptions).

204. Duffie & Zhu, *supra* note 50, at 3.

sure” of the remaining bilaterally netted derivatives.²⁰⁵ They believe it is unlikely that would be the case. Even if the group of dealers were expanded to twenty-six, it would still require that the typical dealer’s total exposure attributable to cleared CDSs be 41.7%.²⁰⁶ Since the five largest derivatives dealers account for 95% of the total notional credit derivatives positions of U.S. banks, it is all the more unlikely that the benefits of multilateral netting will exceed those of bilateral netting.²⁰⁷

c. Loss Shifting, Not Loss Reduction

A third objection to CCP clearing is that in the event of a failure of a CM, the losses incurred are not reduced but merely shifted, and in a possibly unfair manner: from the failing institution’s derivatives counterparties it trades with through the CCP to its other creditors. Both Mark Roe and Craig Pirrong highlight this shortcoming.²⁰⁸ In bilaterally cleared derivatives markets, should a market participant fail, its counterparties will suffer losses on the gross positions of their profitable contracts; in CCP-cleared markets, by contrast, they will only suffer net losses on their positions. Assume that Dealer A has three contracts: Derivatives Contract 1, where it owes Party B \$100, Derivatives Contract 2, where Party C owes it \$100 and Loan 1, where it owes Bank D \$100. Dealer A’s total obligations here are \$200, and its assets \$100. In the event of Dealer A’s failure without CCP clearing, it will have a \$100 asset to split between Party B and Bank D. Assume CCP clearing, however, and Bank D suffers a total loss: because Derivatives Contract 1 and Derivatives Contract 2 are netted out against one another, Party B will suffer a loss of zero here, while Bank D will be forced to bear the loss of its entire \$100 loan.

This simple example demonstrates that CCP clearing protects derivatives counterparties at the expense of non-derivatives counterparties. As a result, both Roe and Pirrong argue that a CCP does not eliminate the market risk of a transaction, it just shifts it to parties other than the derivatives counterparties at that CCP that the failing institution carries out business with.

d. Inefficiency Due to Reduction in “Bespoke” Trades

A fourth potential disadvantage to CCP clearing is that if regulators institute rigorous clearing requirements under new Exchange Act Section 3C(a),²⁰⁹ i.e., are sparing in their allowance of exemptions, many otherwise economically beneficial trades will be discouraged or even prohibited. Many derivatives are “bespoke,” with specific terms that parties use to tailor a derivative to the particular risk one is trying to

205. *Id.* at 4; *see also id.* at 13–14.

206. *Id.* at 11.

207. *Id.* at 16–17.

208. *See* Roe, *supra* note 172; Pirrong, *supra* note 125, at 47. This objection to multilateral netting forms the core of Roe’s *The Dodd-Frank Act’s Maginot Line*, *supra* note 62. *But see* Levitin’s rejoinder that this is only a problem of risk transfer, not risk generation. Levitin, *supra* note 126, at 465.

209. *See supra* notes 136–38 and accompanying text.

hedge. It is unclear how significant this problem will be in practice, as the end-user exemption will allow non-financial companies hedging business risks to sidestep the clearing requirement,²¹⁰ but requiring standardization of terms will be a challenge for many derivatives.²¹¹ For example, the CDSs on CDOs that brought AIG to the brink of failure are sufficiently customized that they would presumably be exempt from the Dodd-Frank clearing mandate.²¹² Regulators could make a decision not to allow trading in such instruments, but this would have the effect of “playing God” with the financial markets and, critics argue, stifling financial innovation and restricting arguably beneficial transactions.²¹³

e. Unintended Consequences of Collateral Requirements

In an attempt to reduce the risk of derivatives trades, Title VII mandates collateral requirements for both cleared and exempted trades in new Exchange Act Section 15F(e).²¹⁴ While dealers in the bilateral markets usually demand collateral of their counterparties, they formerly had discretion over whether and how much collateral to demand. Collateral requirements under the CCP regime are expected to increase, and uncleared trades exempted from the clearing requirement will now require collateral.²¹⁵ While collateral can be thought of as a good thing, as a sort of insurance on a trade, Craig Pirrong points out the far-reaching unintended consequences that could result.²¹⁶ The end result of the collateral requirements is, in Pirrong’s view, the increased exposure of the banking system to the derivatives markets.²¹⁷

First, under the new rules the amount of collateral required of counterparties is likely to increase. This increase will result in increased demand for high-quality assets to be used as collateral posted with the CCPs. “Collateral transformation” services are already in operation in order to meet this demand, essentially engaging in a form of “repo” (repurchase) agreements to supply parties with the grade of collateral required by CCPs, secured by lesser quality assets such as junk bonds or other more speculative securities.²¹⁸ These transformation services create another set of nodes of connection in an already complex financial system. According to Pirrong, demand for collateral will create more demand for AAA assets such as the types of structured finance securities

210. See *supra* note 140 and accompanying text.

211. See Stulz, *supra* note 30, at 88–89. Cf. Chander & Costa, *supra* note 4, at 677 (pointing out that the bulk of CDSs are standardized CDS on corporate names and are appropriate for CCP clearing).

212. See Chander & Costa, *supra* note 4, at 677.

213. Duffie et al., *supra* note 46, at 9–10.

214. Dodd-Frank Act § 764; 15 U.S.C. 78o-10(e) (2012). See also Margin and Capital Requirements for Covered Swap Entities, 76 Fed. Reg. 27564 (May 11, 2011).

215. Dodd-Frank § 764; 15 U.S.C. 78o-10(e)(2)(A)(ii) (2012).

216. See Craig Pirrong, *Clearing and Collateral Mandates: A New Liquidity Trap?*, 24 J. APPLIED CORP. FIN. 67 (2012). See also Pirrong, *supra* note 175, at 12–15.

217. *Id.* at 73.

218. See *Security Services: The Rising Demand for Collateral Spells a Moneymaking Opportunity*, THE ECONOMIST, May 26, 2012, at 74.

that were integral to the crash of 2008.²¹⁹ Second, the collateral requirements will increase procyclicality in the financial markets, as CCPs will demand more collateral in times of stress, often using variance at risk or “VaR” models to justify increased amounts of collateral in times of financial stress.²²⁰ All this has the effect of leading to increased rigidity in the financial system and, ultimately, greater exposure of the banking system to events in the derivatives markets. Consequently, Pirrong sees the unintended consequences of the new collateral requirements as likely contributing to increased systemic risk in the financial system, rather than reducing it.

f. Regulatory Infeasibility

An important line of criticism of Dodd-Frank offered by legal scholars, and echoed by Pirrong, is that the regulatory authorities are not up to the task of implementing the regulatory oversight required by Dodd-Frank, and by extension, of policing the derivatives markets. Kristin Johnson offers the fullest exposition of this criticism, though Dan Awrey and Zachary Gubler voice it as well.²²¹

This argument stems first of all from the incredible complexity of the markets and the risks embodied in particular derivatives trades. Because of this complexity, the main derivatives dealers invest millions of dollars in employees with advanced quantitative and information technology skills in an attempt to accurately understand the risks their traders confront in the markets; these privately-funded efforts result in proprietary knowledge and software which only exist because the dealers have the exclusive opportunity to profit from their investments.²²² Government agencies, on the other hand, will not have the budgets to fund such knowledge that could be used to understand the markets they are charged with regulating. Perhaps more importantly, neither may the CCPs. Because of this gap between what Dodd-Frank requires of regulators and their indirect agents in the markets, the CCPs, and what financial markets participants know about the markets, the regulatory structure of Title VII is open to serious criticism that it requires a regulatory structure that is unworkable in practice.

Given these considerations, Johnson advocates a self-regulatory organization or “SRO” to govern derivatives markets. Drawing on the “commons” literature stemming from Garrett Hardin’s work, she believes a SRO will likely be far more successful than the top-down, reg-

219. See Pirrong, *supra* note 216, at 69.

220. *Id.* at 70.

221. See Johnson, *supra* note 140, at 220-21; 234-42; Dan Awrey, *The Dynamics of OTC Derivatives Regulation: Bridging the Public-Private Divide*, 11 EUROPEAN BUS. ORG. L. REV. 155, 185-87 (2010); Gubler, *supra* note 62 (proposing collaborative regulatory structures as an alternative to both “top down” and “bottom up” alternatives). See also Colleen Baker, *Regulating the Invisible: The Case of Over-the-Counter Derivatives*, 85 NOTRE DAME L. REV. 1287, 1318-22 (2010) (reviewing the challenges any regulatory effort concerning derivatives faces).

222. See Pirrong, *supra* note 194, at 15; Awrey, *supra* note 221, at 186.

ulatory model embodied in Dodd-Frank.²²³ In particular, she believes that a SRO acting under community governance principles would be far more successful in determining which derivatives are eligible for exemption from the clearing requirement and the margin and collateral requirements for such transactions.²²⁴ Zachary Gubler presents a related argument, drawing on the new institutional economics literature to argue that markets are not an efficient substitute for banks in the derivatives markets, and therefore a regulatory approach focused on CCPs (which function as a market substitute) is unlikely to be successful.²²⁵ Finally, the superior ability of individual market participants to deal with informational challenges in the derivatives markets is a lynchpin of Pirrong's approach, which sees potential inefficiencies, and even more dangerously, the creation of moral hazard as resulting from the practical inability CCPs will have in matching sophisticated counterparties in the race for accurate knowledge about the risks embodied in derivatives transactions.²²⁶

g. Creation of a "Too Interconnected to Fail" Entity

Finally, the CCP mandate runs the risk of creating one or multiple "Too Big to Fail," or perhaps more accurately, "Too Interconnected to Fail," entities. Commentators have focused on this paradox of the new derivatives regulation, which is heightened by the fact that the fewer CCPs there are, the greater benefits that can be expected to result.²²⁷ Since a CCP will be a central node in the financial system, its failure could have the effect that was feared if AIG had collapsed.²²⁸ The urge to backstop such an institution in the event of a market crisis would be considerable, and governments could then be faced with the ultimate "TBTF" entity.

2. Philosophical Characteristics of the Arguments Against

The arguments above combine to present a forceful case against the clearing mandate and other new requirements of Title VII. This Article of course argues in favor of Title VII, though I believe that the new regulations can only be justified by simultaneously emphasizing the uncertainty inherent in our attempts to understand the workings of the contemporary financial system as well as the broader framework for financial regulation presented in Part IV. Before we reach that point, it is important to ask if there is any philosophic framework implicit in the arguments of the opponents of central clearing. I believe the argu-

223. Johnson, *supra* note 140, at 178–79 (citing Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968)). See also Pirrong, *supra* note 194, at 12 (using the concept of the tragedy of the commons in *The Inefficiency of Clearing Mandates*).

224. See Johnson, *supra* note 140, at 252.

225. See Gubler, *supra* note 62.

226. See Pirrong, *supra* note 194.

227. See generally Duffie & Zhu, *supra* note 50. See also Baker, *supra* note 221, at 1355; Pirrong, *supra* note 177, at 14–15.

228. As Chander & Costa point out, derivative dealers really function as “de facto unregulated central clearing counterparties . . .” Chander & Costa, *supra* note 4, at 677.

ments against central clearing reflect three key aspects of the dominant mode of economic argument over the past half century: scientism, Panglossianism, and utilitarianism. It is important to contrast these with the epistemological tolerance, pragmatism, and holism required by the argument for Title VII reviewed above in Part III.A.2.

a. *Scientism*

Pirrong is honest about the inherent difficulty of attaining certain, formalizable and quantifiable knowledge of the contemporary derivatives trading markets at the same time that he illustrates a commitment to the traditional goals and methods of mainstream financial economics. He acknowledges our epistemological limitations, conceding that it is very difficult to come to quantifiable measures of the various factors at play in making an empirical evaluation as to the desirability of clearing, while downplaying the likely beneficial second-order, behavioral effects of a CCP regime that form the crux of the argument for clearing.

The dominant methodological trend in economics, including financial economics, over the past fifty years has been to model economics on the “hard” sciences, preeminently physics.²²⁹ Were this quest successful, it would result in a science of economics that had at its core testable propositions yielding empirically verifiable statements. Where possible, such propositions would be formally expressed in mathematical language, which provides the framework for quantitative analysis of economic systems and effects. Pirrong acknowledges the difficulty in reaching this standard with a system as complex as the derivatives trading markets when he states:

The nature of this analysis is inherently qualitative. It is difficult for anyone, be they academics, market participants or regulators, to determine definitively whether a clearinghouse would improve the efficiency of the CDS market. I certainly do not claim to possess such definitive knowledge.²³⁰

That said, Pirrong still hews to scientific goals of mainstream financial economics. In his most extensive analysis, *The Economics of Clearing in Derivatives Markets*, he constructs formal models to illustrate the default risk posed by financial intermediaries as well as the equilibrium effects of clearing.²³¹ More importantly, he downplays the prophylactic psychological effect that a CCP may have on the market.

Pirrong’s understanding of CCP clearing appears to demonstrate a commitment to the understanding of economic agents as rational actors that is a cornerstone of mainstream economics.²³² In particular, Pirrong downplays the effects that a CCP may have on forestalling runs

229. See Andrew W. Lo & Mark T. Mueller, *Physics Envy May Be Hazardous to Your Wealth* 3–7, (2010), available at <http://ssrn.com/abstract=1563882>.

230. See Pirrong, *supra* note 125, at 45.

231. See Pirrong, *supra* note 30, at 8–14, 66–73.

232. See Daniel McFadden, *Rationality for Economists?*, 19 J. RISK & UNCERTAINTY 73 (1999).

on a CM. The implication of Professor Scott's *Interconnectedness and Contagion* is that since interconnectedness did not play a significant role in the downfall of Lehman Brothers, derivatives trading and the institution of CCPs should not be the focus of financial reforms. Nevertheless, Professor Scott does not go quite this far; despite the clear implication of his results, he adopts an agnostic position on CCPs, citing the research of Duffie and others.²³³ Pirrong however ignores any possible beneficial 'behavioral' effect CCPs may play in this way, instead focusing on other second-order effects of a clearing mandate such as the unintended consequences of clearing mandates and exacerbation of information asymmetries.²³⁴ Note however that if parties prior to the downfall of Lehman Brothers were in fact motivated by a general, nonspecific fear that included uncertainty over the effects of derivatives exposures and interconnection, for one to conclude that in the future such concerns would not play an important role seems to require of the rationality of market participants that they learn from their mistakes and not repeat them again in the future.

It is important not to exaggerate Pirrong's scientism, however. Part of the persuasiveness of his work is his deep understanding of the institutional mechanics of the derivatives markets, and his acknowledgement of the difficulty of coming to definitive conclusions about a system as complex as this. Nevertheless, his views bear the imprint of an emphasis on the rationality of market participants and a neglect of purely behavioral explanations for important elements of the financial crisis and the concomitant prophylactic effects central clearing may have.

b. *Panglossianism*

Pirrong's arguments also betray a "Panglossian" character sometimes observed in economic arguments: the notion that if something were actually beneficial, i.e. promoted efficiency, market actors would have already created it.²³⁵ By extension, what is seen in the markets independent of government regulation (insofar as this can be identified) must be the "best of all possible worlds," or at least efficient. In his writings against the CCP mandate, Pirrong argues that if a CCP regime were beneficial, market participants would have developed one already for their derivatives activities; the fact that they haven't implies

233. See Scott, *supra* note 96, at 99–104.

234. See Pirrong, *supra* note 30, at 43–53. See also Pirrong, *supra* note 175, at 11–12. For Pirrong's analysis of Scott's *Interconnectedness and Contagion*, see his blog post at Streetwise Professor, Nov. 21, 2012, <http://streetwiseprofessor.com>.

235. VOLTAIRE, *CANDIDE OR OPTIMISM* 114 (Norman L. Torrey ed., 1946) ("All is for the best in this best of all possible worlds."). For discussion of the "Panglossian argument" in law and economics scholarship, see Lucian Ayre Bebchuk, *The Case for Increasing Shareholder Power*, 118 HARV. L. REV. F. 833, 888–90 (2005). For an interesting discussion of Panglossianism in economics, see James A. Yunker, *Panglossian Tendencies in Economics: The Case of Theoretical Welfare Economics*, 43 J. ECON. ISSUES 759, 762 (2009) (arguing that "in the real world, there are many Pareto-inefficient equilibria that are nevertheless social welfare superior to other Pareto-efficient equilibria.").

that it is inappropriate in this context.²³⁶ This ignores the possibility the markets could be stuck in a position of sub-optimal equilibrium, where a certain few parties benefit, while less powerful market participants, and perhaps society as a whole, suffer.²³⁷ In this type of market failure, government regulation may be necessary to bring the market to a more optimal point. Just as state automobile insurance laws are necessary to force many individuals to purchase insurance who would otherwise drive uninsured, a government CCP mandate may play a legitimate role in mandating that market participants pay the insurance cost of becoming a clearing member of a CCP, since the effects of trading without such insurance can be so disastrous. The assumption that if something were beneficial it would have been developed already ignores the possibility that markets can get stuck in a less than optimal equilibrium, as is likely the case with the “derivative dealers club.” (This line of argument also implicitly downplays the risks, and effects, of market failure.)

While not “Panglossian” in this sense, the criticisms of the regulatory structure of Dodd-Frank offered by Gubler, Johnson, and Baker display another sort of optimism, optimism in the ability of market actors to police themselves.²³⁸ While there are significant reasons to doubt that government regulators will be able to perform this job themselves, primarily due to resource limitations, a “community governance” model operating as a self-regulatory organization or “SRO” that requires market participants to be actively involved in determining the standards to apply in these markets ought also to be viewed skeptically after the failures of 2008.²³⁹ Even as strong a believer in free markets as

236. Pirrong, *supra* note 125, at 44 (The advantages of clearinghouses “cannot be gainsaid, but the testimonials beg an important question: If the benefits of centralized clearing are so great, why haven’t CDS market participants embraced the concept before now, and then only under regulatory pressure?”). To be fair, Pirrong himself is aware of the Panglossian critique. See Pirrong, *supra* note 30, at 65 (“Some may find this analysis Panglossian, in that it suggests that the existing methods for sharing default risks in the OTC markets are the optimal ones. I would respond by saying that at the very least, one must give some deference to the survivorship principle.”).

237. See generally Litan, *supra* note 22 (arguing that the major derivatives dealers benefit from with bilateral trading at the expense of their customers); Awrey, *supra* note 37, at 265 (complexity in new financial markets has “often been used by intermediaries as a group to prevent the commoditization of many financial innovations, ultimately forestalling the redistribution of rents from innovators to consumers which one might otherwise expect to take place over time.”); Chander & Costa, *supra* note 4, at 677 (“If CCPs provide such numerous benefits, why have the private derivatives markets not moved to them absent government pressure? As already indicated, dealers have incentives to prefer the status quo.”); Levitin, *supra* note 126, at 450 n.15 (“The private dealer benefits from opacity in the OTC markets may answer Professor Craig Pirrong’s question of why centralized clearing did not emerge on its own for credit derivatives; dealers did not want to give up the spread.”).

238. Johnson proposes a “community governance” model for an SRO to govern CDS trading. See Johnson, *supra* note 140, at 242–56. Gubler’s work draws on the new institutional economics to propose a “new governance” model. See Gubler, *supra* note 62, at 112–18. Baker proposes a “public-private partnership” on the international level. See Baker, *supra* note 221, at 1369–76.

239. Cf. Howell Jackson & Mark Roe, *Public and Private Enforcement of Securities Laws: Resource-Based Evidence*, 93 J. FIN. ECON. 207 (2009) (finding that public enforcement of

Alan Greenspan famously acknowledged that he had been wrong in assuming that financial market participants possessed the proper incentives to police themselves in the years leading up to 2008.²⁴⁰ The internal structure of the massive banks that dominate the derivatives markets, and the incentives individual traders and managers have inside these institutions, offer reasons to be skeptical of the notion that the banks will act in ways that further the interest of the institution as a whole, as opposed to the interest of a particular individual within it. If the actions of these banks in individual cases are not tethered to their own medium and long-term health, it is difficult to have faith that they can be prompted, through a SRO-type organization, to act for the good of the financial markets as a whole.

c. *Utilitarianism*

As with the scientism discussed above, the arguments against CCP clearing bear the implicit stamp of the utilitarianism that is a non-necessary but common feature of economic argument. Evidence of this is found not only in the manner in which alternative economic arrangements are evaluated, the cost-benefit analysis, but also in the specific content of the measure of benefit: social welfare. The definition of social welfare is essential, as what is ordinarily taken into account in making a cost-benefit analysis contributes to the goal of elevating economic analysis to the status of a science. At the same time, it exposes this analysis to criticism that it ignores very important societal values that intersect with an economic system, as will be explored further in Part IV.

Utilitarianism is the default philosophic worldview of much economic analysis.²⁴¹ Economics may not necessarily be utilitarian, as Judge Posner argues,²⁴² but both history and methodology align the two.²⁴³ Not only did economics develop alongside utilitarianism in nineteenth century England, but the founders of utilitarianism, Jeremy Bentham and John Stuart Mill, both made important contributions to economics. On a deeper level, utilitarianism's "Greatest Happiness Principle" or "Proportionality Doctrine" points towards the quantitative. John Stuart Mill states "that actions are right in proportion as they

financial markets law is positively associated with deeper capital markets than private enforcement).

240. Brian Knowlton & Michael M. Grynbaum, *Greenspan 'Shocked' that Free Markets Are Flawed*, N.Y. TIMES (Oct. 23, 2008), <http://www.nytimes.com/2008/10/23/business/worldbusiness/23iht-gspan.4.17206624.html> (quoting Alan Greenspan, who stated that he "made a mistake in presuming that the self-interests of organizations, specifically banks and others, were such as that they were best capable of protecting their own shareholders and their equity in the firms.").

241. See Kenneth J. Arrow, *Some Ordinalist-Utilitarian Notes on Rawls' Theory of Justice*, 70(9) J. PHILOS. 246 (1979) ("The implicit ethical basis of economic policy judgment is some version of utilitarianism.").

242. See Richard A. Posner, *Utilitarianism, Economics, and Legal Theory*, 8 J. LEGAL STUD. 103 (1979).

243. See Russell J. Hardin, *Magic on the Frontier: The Norm of Efficiency*, 144 U. PA. L. REV. 1987 (1996).

tend to promote happiness, wrong as they tend to produce the reverse of happiness. By happiness is intended pleasure, and the absence of pain; by unhappiness, pain and the privation of pleasure.”²⁴⁴ Since making any particular moral judgment requires tallying pleasures and pains, this conception of the good is intrinsically quantitative, as the best state of affairs or path of action is conceived of as the one containing the greatest amount of pleasure and the least amount of pain.

The Greatest Happiness Principle has its obvious analog in the cost-benefit analysis of welfare economics and public policy, where the economic cost of various alternatives or proposals are computed, with the one resulting in the least total cost being deemed the best or most desirable. Implicit in both utilitarianism and the cost-benefit analysis is the assumption that there is one single standard of value by which all aspects of alternative arrangements can be measured.²⁴⁵ Also important for the connection between utilitarianism and economics is the concept of “social welfare.” Dan Awrey sets forth the concept of social welfare as used in welfare economics as the appropriate standard for evaluation of regulation in the financial sphere.²⁴⁶ Social welfare is defined as “a function of the aggregate well-being (or utility) of the members of a society.”²⁴⁷ While this utility can include anything an individual values, such as material items, aesthetic or altruistic experience, or even abstract values such as morality, fairness and justice, Awrey explains that social welfare analyses usually exclude abstract and subjective concepts such as fairness due to the inherent difficulty of using such “amorphous” notions.²⁴⁸ Even if social welfare were defined to include the utility of abstract and philosophical values to individuals, though, it would still be fundamentally utilitarian, as it attempts to assign some determinate measure of worth to those concepts in relation to individuals in society.

Pirrong’s criticism of CCP clearing uses a cost-benefit analysis with the concept of social welfare as an evaluative standard. Section 8 of *The Economics of Clearing in Derivatives Markets* offers a cost-benefit analysis of default risk sharing in bilateral markets versus that of central clearing. Pirrong focuses on the costs of monitoring and pricing balance sheet risks, as well as the costs of risk assessment of complex derivatives, working through various factors which are likely to increase or decrease costs in each alternative. He concludes that “sharing default risks as is

244. John Stuart Mill, *Utilitarianism*, in THE COLLECTED WORKS OF JOHN STUART MILL 203, 210 (John M. Robson ed., 1969).

245. For a discussion of the significance of a single standard, see Richard A. Epstein, *Are Values Incommensurable, or is Utility the Ruler of the World?*, 1995 UTAH L. REV. 683.

246. See Awrey, *supra* note 221, at 165–70 (Section 3, “Regulating OTC Derivatives: An Evaluative Framework”).

247. *Id.* at 166 n.51.

248. *Id.* Awrey also states that “the regulation of OTC derivatives arguably does not engage any pressing moral, social, cultural or other imperatives which might be thought to reside outside the evaluative scope of economic theory.” *Id.* at 167. This Article argues otherwise, although those within the conventional evaluative scope of economic theory are the focus.

done on bilateral OTC markets offers certain efficiency advantages over centralized default risk sharing” where complex derivatives are traded by opaque firms with complex balance sheets.²⁴⁹ Thus, he offers a standard cost-benefit analysis where costs and benefits are tallied on behalf of each alternative and the alternative with the least total cost, i.e., the most efficient, is deemed superior.²⁵⁰ Section 9, “Systemic Risk,” sets these alternatives in the context of the larger issue of derivatives trading and systemic risk. Again, Pirrong tallies what he sees as the likely costs and benefits of each system; while central clearing can reduce losses from dealer default, because replacement costs are reduced when parties net their exposures, there are also significant costs, including the costs of redistributing losses from CMs to non-CMs, the effects on trading activity of misplaced incentives, mispricing of risk and the effects of the formation of a CCP on incentives of counterparties to monitor dealers.

The standard Pirrong uses to compare bilateral and CCP clearing regimes is efficiency, i.e., the greatest output of the system for a given amount of inputs.²⁵¹ He also uses the term “social welfare,” again appearing to indicate the total economic output of the economic system in question.²⁵² Efficiency and social welfare have a utilitarian cast to them, as they imply that the standard for evaluation of various alternatives is the one that produces the greatest amount of economic output for the least possible cost. While Pirrong’s approach is not at all unusual, it is important to note that the wider and more diffuse effects of the economic crisis do not fall within the categories of costs and benefits enumerated by Pirrong.²⁵³ Both tangible costs such as the loss in home equity values and the costs of the foreclosure crisis, as well as the more subjective, psychological costs of the personal misery caused by extended, elevated unemployment levels due to the recession, are not included in either his cost-benefit analyses or even his definition of social welfare.²⁵⁴ While the causal connection between these societal traumas and derivatives trading is complex and clouded by uncertainty, they are very real phenomena that are connected to derivatives trading, and this analysis neglects them. The standard economic analysis achieves a certain measure of precision by limiting itself to tangible

249. Pirrong, *supra* note 30, at 51.

250. For another cost-benefit analysis of clearing, see Gubler, *supra* note 62, at 14–17; see also Awrey, *supra* note 221.

251. See, e.g., Pirrong, *supra* note 194, at 14 (in discussing the costs of requiring CMs to back up one another’s trades, “the formation of a clearinghouse may not be efficient if the benefits of fungibility, net of its costs, are lower than the net benefits of alternative means for trading of derivatives and sharing default risks.”)

252. Pirrong, *supra* note 30, at 21.

253. For an example of a broader consideration of such costs, see ADMATI & HELLWIG, *supra* note 12, at 82 (“When bankers complain that banking regulation is expensive, they typically do not take into account the costs of their harming the rest of the financial system and the overall economy with the risks they take. Public policy, however, must consider all the costs and not simply those to the bankers.”).

254. See Edward M. Gramlich, *Subprime Mortgage Lending: Benefits, Costs, and Challenges* (Remarks at the Financial Services Roundtable Annual Housing Policy Meeting, Chicago, Illinois, May 21, 2004).

items within the derivatives trading system itself, but this precision comes at the expense of ignoring the more general and diffuse effects of the financial system on society at large.

The defense and criticism of Title VII each betray certain philosophical tendencies—a tolerance for uncertainty, a pragmatic stance, and the use of regulation to accomplish goals extrinsic to the derivatives trading regime itself, on the one hand, versus a certain measure of scientism found in standard economic analysis, as well as Panglossianism and utilitarianism. It is important to remember, however, that the debate reviewed above in Part III is ultimately an empirical one: to what extent does the evidence suggest that CCP clearing reduces systemic risk? As we have seen, there are arguments on both sides and the question is at this point unresolved. Furthermore, important commentators such as Duffie and Scott, who are skeptical of clearing in some respects, appear to shrink back from Pirrong's full-throated skepticism. This unresolved debate is the point of departure for Part IV.

IV. RAWLSIAN POLITICAL THEORY AND THE ARGUMENT FOR STRONG DERIVATIVES REGULATION

Given that the relatively strong derivatives provisions of Dodd-Frank Title VII were enacted, legislators and regulators chose not to listen to the warnings of critics but instead embraced the path espoused by CFTC Chair Gary Gensler and other reform-minded advocates. As with Dodd-Frank in general, enactment of a regulatory scheme with detailed requirements for financial institutions to follow and a large role for government agencies charged with oversight runs counter to the deregulatory trend that has prevailed in many areas of the American regulatory state since the late 1970s. Obviously, such a turn was supported by public anger over the financial crisis and the attendant bailouts, as well as Democratic majorities in both houses of Congress.

The question I will address in Part IV, however, is not only political but philosophical: what philosophical perspective best explains, and even more importantly, justifies the strong derivatives regulation in Dodd-Frank? Pirrong's argument against CCP clearing reviewed above in Part III uses the standard concept of social welfare, with the aggregate utility directly produced by a system as its evaluative measure. This measure fails to take into account costs or benefits incurred by parties indirectly connected to the system of derivatives trading (e.g., the real estate losses suffered by homeowners who bought at the crest of a bubble market inflated by real estate investment through structured finance securities, which were reliant on CDSs), and once we do move outside those narrow confines, the factors involved are probably too complex and multifarious to reach any definitive answer for or against CCP trading. (A utilitarian argument for CCP clearing, that the interests of millions of individuals affected by financial crises, caused in large part by a highly interconnected financial system, amounts to a massive quantity of benefit obtaining in a financial system that values safety above all else, is likewise confronted with the difficulty of accurately

enumerating, let alone measuring, all the possible effects and linkages and interests of individuals.) As a result, on empirical grounds alone, there is too much uncertainty to come to a definitive answer for or against CCP trading. Utilitarianism, and the scientific perspective that financial economics aims for, neither clearly supports nor militates against the Dodd-Frank derivatives provisions; the utilitarian argument against them relies on the narrow ambit offered by Pirrong, where “social welfare” is understood as the efficiency of the derivatives trading system itself, thereby neglecting important second-order effects of derivatives in the financial system.

On utilitarian grounds, then, there is no clear answer to the question of whether Dodd-Frank’s reforms should be beneficial. In this context of fundamental uncertainty, however, Rawlsian political theory offers a much different analysis, which moreover supports the regulations, with important caveats. My central argument is that Rawls offers a particularly valuable lens through which the project of regulating derivatives ought to be understood, particularly in its approach to decision-making under conditions of extreme uncertainty, but also in its emphasis on democratic equality and its conception of markets as fundamentally constituted by rules. Rawlsian theory is a comprehensive philosophic platform from which to respond to the objections of Pirrong and others, and one that provides an alternative to the scientism, Panglossianism, and utilitarianism evident in the lines of argument offered by the critics of Title VII. Most importantly, the Rawlsian perspective does not demand *certainty* concerning what happened or what the exact effects of the new rules will be, but instead justifies governmental action in the face of substantial *uncertainty*.

A. *Basic Planks of Rawls’s Political Theory Applicable to Financial Regulation*

John Rawls’s central achievement is a theory of justice offering a strong alternative to the utilitarian theories dominant in nineteenth and twentieth century thought. In formulating his theory, Rawls draws extensively on the thought of Immanuel Kant, as well as that of the other social contract theorists.²⁵⁵ Kant’s categorical imperative, the “universal form of law as such,” can be used as an algorithm of sorts to test the moral status of possible plans of action, and is therefore an alternative to the utilitarian practice of relying on what are essentially cost-benefit analyses in making moral judgments. Rawls was attracted to Kantian deontology because he believed that utilitarianism failed to explain the institutions of constitutional democracy;²⁵⁶ he also saw that the utilitarian doctrine that we “are to arrange institutions so as to obtain the greatest sum of satisfactions” leads to problems such as the

255. For an overview of Rawls’s thought, including its relation to the thought of not only Kant but Locke, Rousseau, and others, see Samuel Freeman, *Introduction: John Rawls — An Overview*, in THE CAMBRIDGE COMPANION TO RAWLS (Samuel Freeman ed., 2003).

256. JOHN RAWLS, A THEORY OF JUSTICE, at xi–xii (Revised ed. 1999).

necessity of weighting the satisfaction of desires that harm others.²⁵⁷ Rawls's vision of "justice as fairness" avoids these problems by prioritizing the right over the good and adopting a principled position concerning what desires ought to be counted as legitimate.²⁵⁸ Since mainstream economics is deeply bound up with utilitarian modes of thought, Rawls is especially important for a response to standard economic arguments that presume a utilitarian framework. Indeed, Rawls himself devoted considerable attention to economics in *A Theory of Justice* and elsewhere.

1. Foundational Principles

Rawls begins *A Theory of Justice* with the following thought experiment, that of a person in the "Original Position": Imagine you could choose the fundamental characteristics of the social world you would be born into, while at the same time your particular circumstances in that world, such as your family, class, race, and even personal talents were hidden from you behind a "veil of ignorance."²⁵⁹ In this position of extreme uncertainty, what would you choose as the fundamental governing principles of your social world? Rawls believes that a person in this hypothetical Original Position would choose a world governed by two fundamental principles, which he terms the "two principles of justice":

First: each person is to have an equal right to the most extensive scheme of equal basic liberties compatible with a similar scheme of liberties for others.

Second: social and economic inequalities are to be arranged so that they are both (a) reasonably expected to be to everyone's advantage, and (b) attached to positions and offices open to all.²⁶⁰

The first principle secures the basic liberties, such as political liberty (including the right to vote and to hold public office), freedom of speech and liberty of conscience, the right to hold private property and freedom from arbitrary arrest and seizure, while the second concerns the distribution of various goods in society. This scheme requires "serial" or "lexical" ordering,²⁶¹ so that political rights cannot be exchanged or comprised for the sake of economic and social gains.²⁶²

The second principle, the "difference principle," concerns questions of the proper arrangement of the economy and the institutions which determine the distribution of goods in society, e.g., wealth and positions of authority. In particular, Rawls believes that in the Original Position a person would choose a world in which inequalities of wealth are ultimately to everyone's advantage, or, put another way, which

257. *Id.* at 27.

258. *Id.* at 28.

259. *Id.* at 10–11.

260. *Id.* at 53.

261. *Id.* at 37–38.

262. *Id.* at 55.

“result in compensating benefits for everyone, and in particular for the least advantaged members of society.”²⁶³ Rawls does not believe these principles of justice mandate a particular form of the economy, though, and various capitalist and socialist systems alike are compatible with the two basic principles of justice.²⁶⁴ The test of whether a possible economic system containing an inequality is acceptable is “that it must be reasonable for each relevant representative man defined by this structure, when he views it as a going concern, to prefer his prospects with the inequality to his prospects without it.”²⁶⁵ For example, a property-owning democracy could entail members of the entrepreneurial class starting out with better prospects than those who begin as unskilled laborers.²⁶⁶ Such a system would be justified if “the greater expectations allowed to entrepreneurs encourages them to do things which raise the prospects of [the] laboring class.”²⁶⁷ If the system without such an inequality would make the representative unskilled worker even worse off than otherwise, so that he would choose this system containing an inequality, the inequality would be justified. As will be discussed below, the question this raises for a Rawlsian analysis of the financial system is whether the present system with its gross inequalities in fact raises the prospects of the various classes in society.

The two principles of justice together can be thought of as the “maximin solution to the problem of social justice.”²⁶⁸ Under the “maximin rule” we are to maximize the benefits flowing to the least-advantaged individuals in the social structure. Key to the application of Rawls to the question of financial regulation is that the maximin solution is deeply bound up with decision-making under conditions of fundamental uncertainty. Rawls believes that application of the maximin rule is appropriate in situations marked by three conditions: 1) knowledge of the likelihood (probability) of various possible outcomes “is impossible, or at best extremely insecure”; 2) extreme risk aversion: the person making the decision is not nearly as concerned with taking a chance for additional advantage as with the risk of “losing much that is important to him”; and 3) the situation involves grave risks, where the alternatives to be avoided “have outcomes that one can hardly accept.”²⁶⁹ Rawls recognizes that in most ordinary instances of choice under uncertainty these conditions are lacking; his argument is that the maximin rule is appropriate where these three conditions obtain, and that they are present to a high degree in the original position.²⁷⁰ In Part IV.B below I will argue that the legislators and regulators charged with responding to the financial crisis were presented with a similar sit-

263. *Id.* at 13.

264. *Id.* at 57 (“I assume in all interpretations that the first principle of equal liberty is satisfied and that the economy is roughly a free market system, although the means of production may or may not be privately owned.”).

265. *Id.* at 56.

266. *Id.* at 67.

267. *Id.* at 68.

268. *Id.* at 132.

269. *Id.* at 134.

270. *Id.* at 135.

uation, and due to the extreme risks that emanate from the financial system, the question of how best to regulate derivatives trading ought also to be seen as one where the maximin rule applies.

Next, the just world that will be chosen through the use of the maximin rule has a complex relation to economic efficiency. According to Rawls, justice is prior to efficiency.²⁷¹ Whereas for utilitarians efficiency is generally desirable as it increases the sum of total goods available for consumption, for Rawls efficiency comports with justice only if it benefits the representative individual from the least-advantaged class. There may be a variety of efficient economic arrangements, some of which meet the requirements of the difference principle and some of which do not, and we must draw on the principles of justice to determine which among them is best;²⁷² “the principle of efficiency cannot serve alone as a conception of justice.”²⁷³ As a result, there may be changes required to an unjust economic system that lower the expectations of certain classes, so it is not the case that “only changes which improve everyone’s prospects are allowed. Justice is prior to efficiency and requires some changes that are not efficient in this sense.”²⁷⁴ And while within the class of just arrangements the best arrangement of a social system will be Pareto-efficient from the perspective of the representative individual of the least-advantaged class, i.e., it will be impossible to change the existing arrangement in such a way that would improve his or her expectations, Rawls argues that less efficient arrangements can still be just, even though they are not ideal.²⁷⁵ This consequence of the difference principle has great importance for questions of financial regulation from a Rawlsian point of view.

Last but not least, Rawls understands markets as “institutions.”²⁷⁶ An “institution” is “a public system of rules which defines offices and positions with their rights and duties, powers and immunities, and the like.”²⁷⁷ Rawls therefore sees markets as fundamentally constituted by rules humans enact, not as social phenomena somehow existing independently of, or prior to, human rulemaking. As constituted by rules, and not existing in some fashion “in and of themselves,” Rawls thus rejects “market fundamentalism,” the tendency to view markets as acting best when they are affected least by regulation.²⁷⁸ Of course there can be good and bad regulatory regimes, but conceiving of markets as institutions directly challenges the tendency to think of markets as in

271. *Id.* at 61.

272. *Id.*

273. *Id.* at 62.

274. *Id.* at 69.

275. *Id.* at 68.

276. “As examples of institutions, or more generally, social practices, we may think of games and rituals, trials and parliaments, markets and systems of property.” *Id.* at 48. See also Rawls’s discussion of markets, *id.* at 239–42.

277. *Id.* at 47.

278. See Awrey’s discussion of market fundamentalism, *supra* note 37, at 237 (describing “the widely held belief in the self-correcting nature of markets and their consequent optimality as mechanisms for the allocation of society’s resources” and “the social desirability of unfettered markets . . .”).

principle existing independently of law and its accompanying structures of enforcement and regulation.

2. Political Principles

The foundational principles outlined so far provide the basis for responding to the critics of the CCP mandate and other derivatives provisions in Dodd-Frank. Three other, more explicitly political concepts buttress the Rawlsian defense of derivatives regulation: social stability, income inequality, and the nature of public goods.

According to Rawls, stability is a key characteristic of a just social system: “A just system must generate its own support.”²⁷⁹ Rawls is well aware that individuals have many reasons not to obey laws and follow norms that promote justice, and that if a substantial amount of individuals decide not to act fairly but instead to act as “free riders” on the system of social cooperation, a just social system cannot be maintained.²⁸⁰ Just systems ultimately depend on a public sense of justice, where individuals are motivated on a psychological level to act out of concern for others or from a basic sense of justice: “Meeting one’s duties and obligations is now regarded by each person as a correct answer to the actions of others. His rational plan of life regulated by his sense of justice leads to this conclusion.”²⁸¹ As discussed below, widespread public skepticism concerning the actions of leaders in the finance industry appears to be deeply corrosive of the social fabric of the United States, and movements such as Occupy Wall Street, and perhaps less directly, the Tea Party, may be seen as reactions to the excesses of the financial system that in turn threaten social stability.

Also relevant is income inequality. In his discussion of “Background Institutions for Distributive Justice,” Rawls notes that conditions of significant income inequality put into question the fair equality of opportunity.²⁸² Where fair equality of opportunity is lacking, “political liberty likewise tends to lose its value, and representative government to become such in name only.”²⁸³ Rawls believes that such income inequality can be mitigated through progressive taxation, including a consumption tax. While the topic of income inequality and its possible countermeasures is complex, the role of outsize compensation in the financial industry in the United States is certainly a major cause of such inequality.²⁸⁴

Finally, there is Rawls’s discussion of public goods.²⁸⁵ According to Rawls, these are characterized by their indivisibility and publicness:

279. RAWLS, *supra* note 256, at 230.

280. See George Klosko, *Rawls’s Argument from Political Stability*, 94 COLUM. L. REV. 1882 (1994). Klosko notes that moral stability is prior to political stability in *A Theory of Justice*. *Id.* at 1886.

281. RAWLS, *supra* note 256, at 435.

282. *Id.* at 245–46.

283. *Id.* at 246.

284. See generally Margaret M. Blair, *Financial Innovation, Leverage, Bubbles and the Distribution of Income*, 30 REV. BANKING & FIN. L. 225 (2010–2011).

285. RAWLS, *supra* note 256, at 235–39.

while individuals may want more or less of them, public goods are consumed to the same extent by the members of a society, and are freely available to all to partake of. And even though they are indivisible, public goods do display variability in the degree of their indivisibility and publicness. The provision of public goods is characterized by two well-known problems: the free-rider problem is that while individuals may desire such goods, they can shirk by taking advantage of them without contributing to their provision. A coercive agreement to provide these goods, by levying taxes for example, is typically necessary to ensure their existence. Second, the provision of public goods involves externalities, where their production causes “benefits and losses to others that may not be taken into account by those who arrange for these goods or who decide to produce them.”²⁸⁶ As a result, a discrepancy between their private costs and benefits, on the hand, and their social costs and benefits on the other, can arise, and government is required to insure that enough public goods are in fact produced. Public goods are also subject to externalities when private parties appropriate the benefits of their use of a public good to themselves while leaving costs of the negative consequences of their behavior on the public at large through the use, or abuse, of the good. The famous “problem of the commons” involves such a good, whereby villagers would exploit the common pasture areas by keeping more cows there than the fields could sustain.²⁸⁷ The question for legislators and financial regulators is, to what extent are financial markets public goods?²⁸⁸ To the extent they are, created through government regulation and sustained through the tax revenues that pay for regulators that police them, Rawls’s theory illuminates an important aspect of their creation and maintenance.

B. *Rawlsian Theory, the Financial System, and Derivatives Trading*

I. Foundational Analysis

Central among the ideas reviewed above is the maximin solution: social institutions are to be arranged to the benefit of the representative individual from the least-advantaged class. The other concepts—markets as institutions, social stability, income inequality, and public goods—play a supporting role in the argument for CCP clearing, but the maximin solution is its key.

Recall that the maximin solution is only applicable where knowledge of possible outcomes is extremely uncertain, the person making the decision is far more concerned with losing something important than with any possible gain and the situation involves grave risks.²⁸⁹ All three of these conditions obtain in a serious financial crisis such as that of 2008. Both during the crisis, when government officials were forced

286. *Id.* at 237.

287. See Hardin, *supra* note 223, at 179.

288. For an extensive treatment of this question, see Johnson, *supra* note 140; see also Pirrong, *supra* note 194, at 12 (characterizing the collective capital of a CCP as a commons).

289. See *supra* notes 268–70 and accompanying text.

to respond to fast-moving events in September and October 2008, and afterwards, when legislators debated how to prevent such crises in the future, action could only take place in conditions of fundamental uncertainty. The true nature and extent of the interconnection between financial institutions, and indeed, the true map of causes of the crisis itself, were to a large extent unknown. Neither the complex systems that legislators were tasked with regulating were (or are) wholly understood, and so the consequences of various possible regulatory interventions could not be wholly understood either. Second, insofar as legislators were acting in the interests of their constituents, they recognized that what was at stake in crafting financial legislation was to forestall future disasters, where the interests of individuals were primarily in avoiding loss, such as the loss of a job, home, or retirement savings, and not in realizing possible upside gains. Third, financial crises involve grave risks not only to a society's economy, but by extension its entire social fabric. Witness the trauma that the long-term elevation of the unemployment level has inflicted on workers of all age groups and classes in the United States, and the even greater social dislocation occurring in countries such as Greece and Spain as they confront the European currency crisis. The result of these reflections is that reduction of systemic risk should be the overriding goal of financial reform. Even where such reduction carries with it efficiency costs, the societal interest in avoiding severe financial crises justifies these costs. Privileging the safety and stability of the financial system over possible upside gains from improvements in efficiency follows directly from the application of the maximin rule in the context of financial crises.

Even though the response to the financial crisis calls for application of the maximin rule, this does not in itself justify the package of reforms outlined above in Part II. In order to embrace Title VII on Rawlsian grounds, two further steps are required:

First, it is necessary to determine whether the specific reforms of Title VII will, or are likely to, reduce systemic risk. This inquiry necessarily begins with the empirical. There is, I believe, a strong argument that Title VII will in fact accomplish this, but as we have seen in Part III, expert opinion is divided, and the matter should be considered fundamentally uncertain. Not only do experts disagree, but the success or failure of the reforms is dependent on the future actions of regulators and market participants. Given this uncertainty, an argument either for or against on purely empirical grounds is ultimately inconclusive—even though there is a good argument for such regulation, it is not definitive. By extension, this means that there is no final answer to be had within the utilitarian framework; the task of tallying costs and benefits involves either far too much complexity and uncertainty if one tries to make a relatively complete accounting of the various relevant costs and benefits, or excludes important categories and makes questionable assumptions if one tries to limit the scope of the relevant costs and benefits.

The second step therefore involves stepping back from the empirical debate, and considering the best option given the information avail-

able to us and our guiding political values. The argument in favor of the Dodd-Frank derivatives reforms is grounded in the combination of the *likelihood* of the reduction in systemic risk resulting from the reforms, assuming they are implemented effectively, on the one hand, and the political goal of maintaining a healthy polity, with the financial system playing an appropriate role in the economy at large, on the other. The holistic Rawlsian framework set forth in Part IV.A provides a structure for grappling with complex and uncertain phenomena, as well as giving a legitimate place to the important societal values that provided the political fuel behind financial reform in 2009 and 2010. The remainder of Part IV.B.1 takes the first additional step, and Part IV.B.2 takes the second.

What argument then is there that a CCP is likely to reduce systemic risk? Building on the discussions above of the role of interconnection in the financial crisis (Part I.B.4) and the specific mechanisms by which a CCP is thought to reduce systemic risk (Part III.A.1), because derivatives dealers were themselves functioning as “*de facto* unregulated” CCPs²⁹⁰ at the same time that they conducted a host of other financial activities, a comparison of CCPs with independent derivatives dealers on four key axes indicates that a well-run CCP should be significantly safer than a major bank acting as a derivative dealer in a bilateral market. CCPs differ greatly from derivatives dealers in terms of the nature of their interconnection in the financial system, transparency, financial isolation and corporate governance.

Interconnection. Due to their array of financial activities, modern investment banks are highly interconnected not only among a wide array of parties, but in a wide array of markets: not only derivatives, but investment banking, commercial banking, private wealth management, asset management, etc. These multifarious activities give rise to what Professor Scott terms “asset interconnectedness,” the exposure of one financial institution to another through direct credit exposures.²⁹¹ Examples of creditors with asset interconnectedness to the major derivatives dealers include derivatives counterparties, prime brokerage clients, investors in structured finance securities and investors in money market funds holding the debt of such banks.²⁹² Aside from asset interconnectedness, Scott also discusses “liability interconnectedness,” the exposure of one institution to another on account of short-term funding needs.

The institution of a CCP clearing regime will have significant effects on asset interconnectedness. While Scott believes that neither variety of interconnectedness was a significant cause of the financial crisis, and that contagion instead was to blame, he does allow for the possibility that fears on the part of Lehman’s counterparties due to asset interconnectedness played a significant role in Lehman’s demise.²⁹³ A

290. Chander & Costa, *supra* note 4, at 677.

291. See SCOTT, *supra* note 96, at 2.

292. *Id.*

293. *Id.* at 4 (the government’s failure to rescue Lehman, “along with overall uncertainty about the *potential* risks of asset interconnectedness, spurred a contagious liquidity

CCP will remove asset interconnectedness on account of derivatives activities from the financial system by interposing itself between counterparties.²⁹⁴ While it is subject to risks of its own, primarily that it becomes a dangerous node of risk in the system itself, and can give rise to others as well,²⁹⁵ when performing its functions successfully, it will remove a significant portion of total asset interconnectedness risk from the system. As for liability interconnectedness, Scott notes that a CCP rearranges this risk in the system, and such effects will require further study.

Transparency. The interconnectedness and creditworthiness of a major derivatives dealer was (and is) to a large degree unknown.²⁹⁶ Consequently, for their regulators and counterparties they are essentially opaque institutions. This qualitative factor surely heightened the fears of the counterparties to Bear and Lehman, fears that prompted them to refuse to engage in transactions with Bear and Lehman, and to pull their collateral in the days before their respective failures.²⁹⁷

Unlike investment banks, which guard their proprietary information closely, CCPs are fundamentally open. As quasi-utilities, regulators will have much greater access to information regarding CCPs in the event of a crisis, and their relative simplicity and focus should make action in the event of intervention easier than in the case of the sprawling financial behemoths that foundered in 2008.²⁹⁸ Under Title VII, regulators will have access to all information concerning the CCP, and aggregate information concerning trades will be publicly reported. Unlike a dealer bank, therefore, CMs and regulators will not encounter a CCP that is a “black box,” but rather one that is a regulated, transparent entity.

Financial isolation. Although they are highly interconnected, the independence of banks clearing in bilateral markets results in their financial isolation, because they lack the ability to spread their losses around.²⁹⁹ As independent entities, should they suffer losses in their derivatives operations or elsewhere, they lack the ability to lessen the pain by forcing their counterparties to bear some of these losses. The dangerousness of this situation may have contributed to the panic behind the fall of Lehman and Bear, as parties in a variety of commer-

crisis in the short-term funding market.”); *id.* at 44 (“At the time [of Lehman’s collapse], derivatives, particularly OTC contracts, fuelled significant concerns among market observers who feared that positions to which Lehman was a counterparty or for which Lehman was a reference entity could lead to substantial losses among major financial institutions upon Lehman’s collapse.”).

294. *Id.* at 5–6 (“Central clearing of derivatives and other financial markets contracts has the potential benefit of removing counterparty risk, which can stem market concerns and uncertainty relating to asset interconnectedness”); *id.* at 100 (“central clearing can completely insulate market participants from losses associated with the default of a major dealer.”).

295. See generally Pirrong, *supra* note 175.

296. See Part I.B.4 *supra*. See also Frank Partnoy & Jesse Eisinger, *What’s Inside America’s Banks?*, ATLANTIC, Jan.-Feb. 2012, at 60.

297. See *supra* notes 117–18 and accompanying text.

298. See *supra* notes 154 & 169 and accompanying text.

299. See Bliss & Papathanassiou, *supra* note 54, at 9.

cial relationships with these entities pulled away from them upon the mere spread of rumors of their stability.

A CCP, on the other hand, is not fundamentally isolated in this way, as its very *raison d'être* is to function as a mutual insurance scheme for its CMs. In its role as insurer, it has the ability to call on its members for support. In addition, under Dodd-Frank Act Title VIII, "Payment, Clearing, and Settlement Supervision," the Federal Reserve Board retains the authority to offer financial support to a CCP in limited circumstances.³⁰⁰

Corporate Governance. CCPs are now subject to corporate governance and risk management rules under Dodd-Frank that are specifically tailored to their derivatives activities.³⁰¹ Investment banks acting as nodes in the derivatives markets were not subject to similar rules focusing on their derivatives activities. Again, for both CMs and regulators, such rules should add a level of assurance for counterparties that management is focused on monitoring risk in inherently risky complex derivatives activity.³⁰²

Given these four factors, there is a strong argument to be made that a CCP will lessen the likelihood of serious disruption in the financial markets by serving to "cabin" or isolate shocks to the financial system should a major derivatives dealer that is a CM fail, and more fundamentally, to remove the element of contagion that spread, however irrationally, on the fears that asset interconnectedness could cause counterparties to a bank such as Lehman to fail.³⁰³

Just as with other fundamental questions about the role of derivatives in the financial system though, at least *ex ante*, this argument contains a certain amount of uncertainty. Perhaps most of all, the uncertainty stems from the caveat that the success of the new regime is fundamentally dependent on the performance of regulatory authorities and the management of the various CCPs;³⁰⁴ the inherent complexity of the factors involved in making a determination as to the benefits and dangers of using CCPs for derivatives also contributes. Since we cannot come to a definitive, determinate answer to the question of whether a

300. See Jeremy C. Kress, *Credit Default Swaps, Clearinghouses, and Systemic Risk: Why Centralized Counterparties Must Have Access to Central Bank Liquidity*, 48 HARV. J. LEGIS. 49, 91–92 (2011); see also Christian Chamorro-Courtland, *The Trillion Dollar Question: Can a Central Bank Bailout a Central Counterparty Clearing House which is "Too Big to Fail"?*, 6 BROOK. J. CORP. FIN. & COM. L. 433 (2012).

301. Dodd-Frank Act § 763; 15 U.S.C. 78q-1 (2012). S.E.C. Release No. 34-680680, *Clearing Agency Standards*, contains new rules applicable to clearing agencies governing risk management and ongoing compliance under the Exchange Act.

302. On the topic of corporate governance of CCPs generally, see Sean J. Griffith, *Governing Systemic Risk: Towards A Governance Structure for Derivatives Clearinghouses*, 61 EMORY L. J. 1153 (2012). See generally RUBEN LEE, *RUNNING THE WORLD'S MARKETS: THE GOVERNANCE OF FINANCIAL INFRASTRUCTURE* (2011).

303. See *supra* notes 126, 173, and accompanying text.

304. See, e.g., Levitin, *supra* note 126, at 466 (concluding that the success of clearinghouses depends on "better risk management and more resilience to losses . . . which are ultimately in the control of federal regulators.").

CCP will be beneficial or not, a conclusive cost-benefit-type calculation is unavailable.

In turn, this means that utilitarianism fails to offer a satisfactory framework for deciding whether or not to support the Dodd-Frank derivatives reform provisions. Other factors in Rawls's *Theory of Justice* are relevant here, however, if one is willing to take an expansive view of the financial system, placing the derivatives trading operations of the major banks in the context of their entire operations, and then the role of the major banks in the context of the economy and society at large. The foundational principle of avoidance of systemic risk that follows from application of the maximin principle in the context of a severe financial crisis is supported by the likely economic and political implications of Title VII and the various political principles reviewed above in Part IV.A.2.

2. Political Analysis

As reviewed above, Rawls notes that a just social system achieves stability by generating its own support, avoids extreme income inequality, and provides for a certain amount of public goods.³⁰⁵ All these characteristics of just societies are relevant to the debate over financial regulation generally, and while the connection between derivatives trading and these larger political concerns is admittedly indirect, the social effects of an out-of-control financial system have fueled the push for strong derivatives regulation. Because the social effects reflect what Rawls saw as indicators of an unjust system, his thought provides further justification for financial reform on political grounds, supplementing the qualified support that comes from the foundational argument reviewed above.

While the fundamental stability of the American political system is not currently in question, the widespread discontent over the financial crisis and its deep effects on Americans are reflected in political movements that could blossom into serious challenges to governmental legitimacy in the future. The "tips of the iceberg" so to speak in the U.S. are the twin movements of Occupy Wall Street and the Tea Party, both grounded in phenomena including anger over the financial sector bailouts, elevated unemployment in the wake of the financial crisis, Congress's dysfunction, and the seeming reluctance of the Obama administration to prosecute financial executives for crimes related to the crisis, among other causes. The animus of the Tea Party is aimed primarily at the perceived role and size of the U.S. federal government, but the government bailouts of Wall Street are also targets of its anger, and it displays a "Main Street" versus "Wall Street" sensibility that decries the role of elites in the U.S. political system, including financial and corporate executives. Under the surface, the trends and forces that generate corruption and income inequality call into question the stability of our current economic and political system, as well as the status of the financial markets as a public good. From a Rawlsian perspective,

305. See *supra* notes 279–288 and accompanying text.

these crisis phenomena are evidence that the U.S. economic system is not generating its own support.³⁰⁶

While the causal linkages between the specific features of the regulatory regime governing derivatives trading and these larger social and political phenomena are indirect, and many details uncertain, by setting forth the key facts about the financial industry and the role of derivatives trading within it, it is possible to draw some lines of connection between sophisticated finance and the social phenomena at stake in current political debates. These lines of connection arise out of the role derivatives trading plays in the overall profitability of the large banks. Keeping in mind the complexity of both the financial system and larger social phenomena, as well as the necessary caveats to claims of knowledge this complexity leads to—similar to the uncertainty that plagued decision-makers in the Fall of 2008—what is the role of OTC derivatives trading within the larger financial system, and what linkages might there be between this activity and the larger societal effects the financial system has?

The American economy has undergone a gradual “financialization” in recent decades. Data compiled by the U.S. Bureau of Economic Analysis shows that while in the past decade, financial profits have ranged from highs of 40.19% in 2002 to a low of 27.6% in 2008,³⁰⁷ in the 1970s and 1980s they ranged from 15.08% in 1984 to 25.94% in 1989.³⁰⁸ Financial profits here are defined as the profits of finance, insurance, bank, and other holding companies, so this is a broad category,³⁰⁹ but it does illustrate the growing dominance of finance in the American economy. Regardless of whether this represents a natural evolution of the American economy away from a manufacturing-based economy towards a service-based economy, it does illustrate the dominance of financial services within the economy.

Within the group of institutions making financial profits, the largest banks have grown radically in size in recent years. Their expansion has occurred primarily through acquisitions, as smaller players in both the commercial and investment banking sectors have been purchased by larger institutions;³¹⁰ the repeal of the Glass-Steagall Act in 1999 fostered this trend, as it allowed institutions in different sectors to com-

306. It is important to note that for Rawls, “stability” as discussed in *A THEORY OF JUSTICE* means primarily the stability of moral principles, not of a political system. See Klosko, *supra* note 280, at 1883–84. That said, moral stability leads to political stability, “which is a necessary condition for acceptable lives.” *Id.* at 1886.

307. Bureau of Economic Analysis data, *available at* http://www.econstats.com/nipa/NIPA6_6_16D_.htm (Table 6.16D, Corporate Profits by Industry, Domestic Industries data). Financial profits consist of finance, insurance, bank and other holding companies).

308. *Id.* (Table 6.16B, Corporate Profits by Industry, Domestic Industries data).

309. See *id.* at Table 6.16D, n.1 (“Consists of finance and insurance and bank and other holding companies”). Because this category encompasses Berkshire Hathaway-type holding companies, non-financial industry profits can be included in this category.

310. For an overview of the process of banking consolidation in recent decades, see Kenneth D. Jones & Tim Critchfield, *Consolidation in the U.S. Banking Industry: Is the “Long, Strange Trip” About to End?*, 17 FDIC BANKING REV. 31 (2005).

bine under one roof. The banking behemoths Bank of America and Citigroup were set in their present form through acquisitions of numerous smaller banks and financial services institutions. And in the wake of the credit crisis, the number of American “bulge bracket” investment banks has shrunk to just five, as JPMorgan Chase acquired Bear Stearns, Bank of America acquired Merrill Lynch, and Lehman Brothers went out of existence.³¹¹

JPMorgan Chase, Bank of America, Citibank, Goldman Sachs, and HSBC comprise the five major banks in the “dealers club” of derivatives market-makers. A member of the first four of these banks is currently one or both counterparties to 93% of derivative contracts.³¹² Trading revenue is approximately \$30 billion a year for U.S. banks in total, constituting a major source of their total profits.³¹³ Excluding Goldman Sachs, trading revenue for the largest four banks varies from loss positions to 16% of their profits over the past three years; for Goldman, trading revenue is typically much higher, amounting to 50–70% of revenue.³¹⁴ (This has the effect of making Goldman a “giant hedge fund with a small investment bank attached.”³¹⁵) While such numbers are diminishing as Dodd-Frank takes effect, they do illustrate how trading has displaced the traditional investment banking activities of underwriting and advisory services during the past decade. The main engine of this growth has been the increase in derivatives trading operations.

At the same time that financial industry profits have comprised a greater share of the total domestic economy, and trading revenues have grown within the largest institutions themselves, pay within the financial industry has grown much faster than pay in other sectors of the economy. New York State statistics on Wall Street pay indicate that whereas in the early 1980s pay on Wall Street was just twice that of other wages in New York City, in the past decade it reached multiples of five times as much.³¹⁶ In 2007, it reached a high of over \$400,000, versus approximately \$65,000 for other industries.³¹⁷

311. Present American “bulge bracket” banks are Bank of America/Merrill Lynch, JPMorgan, Citigroup, Goldman Sachs, and Morgan Stanley.

312. See OFFICE OF THE COMPTROLLER OF THE CURRENCY, OCC’S QUARTERLY REPORT ON BANK TRADING AND DERIVATIVES ACTIVITIES FIRST QUARTER 2012, at 9 (“The four banks with the most derivatives activity hold 93 percent of all derivatives, while the largest 25 banks account for nearly 100% of all contracts.”).

313. See *id.* (Graph 6A, Quarterly Trading Revenues Cash & Derivatives Positions).

314. See *id.* (Graph 6B, Quarterly Trading Revenue as a Percentage of Gross Revenue Cash & Derivative Positions).

315. Stephen Foley, *Goldman Sachs Forced to Withdraw Hedge Fund*, THE INDEPENDENT (Sept. 16, 2011), <http://www.independent.co.uk/news/business/news/goldman-sachs-forced-to-withdraw-hedge-fund-2355644.html>.

316. See THOMAS P. DiNAPOLI & KENNETH B. BLEIWAS, STATE OF NEW YORK COMPTROLLER, THE SECURITIES INDUSTRY IN NEW YORK, REPORT 12-2012, available at <http://www.osc.state.ny.us/osdc/rpt12-2012.pdf>.

317. See *id.* (Figure 5, Average Salaries in New York City).

The dominance of finance and its outsized pay scale relative to other occupations is a main driver of income inequality in America.³¹⁸ According to Rawls, extremes of income are only justified where they will bring about benefits for the lowest representative person in a given society. In the wake of the financial crisis and ensuing “Great Recession” it now appears doubtful that such high pay packages for financial industry bosses and workers in fact benefit society as a whole; instead, they likely incentivized reckless risk-taking that rewards short-term trading profits at the expense not only of the institutions employing these individuals, but of society as a whole. Approximately \$7 trillion of housing equity has disappeared with the collapse of the housing bubble,³¹⁹ and unemployment rose to 8.1% or above from February 2009 to August 2012.³²⁰ Fueling the housing bubble was a boom in predatory lending on the part of the mortgage brokers, many of whom were owned or acquired by the major financial institutions.³²¹ Of the approximately 130 million private dwelling units in the United States,³²² about 75 million have some form of mortgage debt; of these, at least 11 million are underwater, and to date there have been approximately 7 million foreclosures, with another 8 to 10 million homes currently at risk. In sum, it is difficult to argue that compensation in the financial industry in fact incentivized activities benefitting society as a whole, which would be chosen by the “representative man” from the lower classes in Rawls’s Original Position. On the contrary, some prominent economists are now exploring the idea that the deregulated financial system of the past decade in fact amounted to a wasteful, rent-seeking enterprise.³²³

318. See Stephen N. Kaplan & Joshua D. Rauh, *Wall Street and Main Street: What Contributes to the Rise in the Highest Incomes?* (Ctr. Research Sec. Prices, Working Paper No. 615, 2007), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=931280.

319. See William C. Dudley, *Housing and the Economic Recovery*, remarks at the New Jersey Bankers Association Economic Forum, Iselin, New Jersey, Jan. 6, 2012; see also RAJASHRI CHAKRABARTI ET AL., HOUSEHOLD DEBT AND SAVING DURING THE 2007 RECESSION, FEDERAL RESERVE BANK OF NEW YORK STAFF REPORT NO. 482 (2011).

320. See *Databases, Tables, & Calculators by Subject*, BUREAU OF LABOR STATISTICS, <http://data.bls.gov/timeseries/LNS14000000>. Note also that the broader U-6 unemployment gauge was at 15.1% or higher from February 2009 to January 2012; the U-6 measure counts “Total unemployed, plus all marginally attached workers plus total employed part time for economic reasons, as a percent of all civilian labor force plus all marginally attached workers.” *Id.*

321. See generally Christopher L. Peterson, *Predatory Structured Finance*, 28 CARDOZO L. REV. 2185 (2007); Kathleen C. Engle & Patricia A. McCoy, *Turning A Blind Eye: Wall Street Finance of Predatory Lending*, 75 FORDHAM L. REV. 2039 (2006–2007).

322. The U.S. Census Bureau lists 131,704,730 housing units. See *State & County QuickFacts*, U.S. CENSUS BUREAU, quickfacts.census.gov/qfd/states/00000.html (last visited Mar. 31, 2014).

323. See, e.g., Joseph Stiglitz, *THE PRICE OF INEQUALITY* (2012); Robert J. Shiller, *The Best, Brightest, and Least Productive?*, PROJECT SYNDICATE (Sep. 20, 2013), <http://www.project-syndicate.org/commentary/the-rent-seeking-problem-in-contemporary-finance-by-robert-j-shiller> (exploring the idea that too many top university graduates choose careers in branches of finance such as trading and investment banking “whose activities may be economically and socially useless, if not harmful.”).

In addition to the effects of income inequality, systemic risk, and the political instability that result from these factors is the problem of regulatory capture of the governmental authorities responsible for oversight of the financial industry. In Rawlsian terms, the inability or unwillingness of governing officials to regulate a particular sector of the economy or “institution” amounts to political corruption. Rawls observes that in situations of income inequality, wealthy individuals have both the means and the incentive to corrupt the governing process, turning democracy into an empty shell.³²⁴ Numerous commentators have explored the role of regulatory capture in the context of the financial crisis.³²⁵ Not only are federal agencies such as the SEC underfunded and understaffed, regulators are subject to the implicit temptation of the “revolving door” of employment in the industries they formerly regulated upon leaving government service.

The main way the new regulations will work to ameliorate these negative political phenomena Rawls describes is through a reduction in the profitability and then the size of the major banks that also happen to be derivative dealers. This is therefore a roundabout way to achieve a reduction in their status as “Too Big to Fail,” and also their economic and political influence.³²⁶ Should the new regime reduce the size of the largest banks, in addition to reducing the overall systemic risk they present to the economy, this may also further the political goals of reducing income inequality, restoring public esteem for the financial sector, and fostering the health of the financial markets at large, thereby promoting a valuable public good. These goals are rather abstract, but they are legitimate political desiderata of the financial reform legislation from a holistic, Rawlsian perspective. That a well-managed CCP regime is likely to reduce the likelihood of the failure of its systemically important clearing members, preventing a repeat of 2008, is the key to the argument in favor of Dodd-Frank Title VII; that it may also advance these political goals offers further support.

C. Regulatory Danger Zones

Even though the CCP regime will likely be beneficial, this does not mean that it does not carry with it various risks arising from both the nature of the global financial system and the CCP mechanism itself.

324. RAWLS, *supra* note 256, at 246; see also C.M.A. McCauliff, *Didn't Your Mother Teach You to Share? Wealth, Lobbying and Distributive Justice in the Wake of the Economic Crisis*, 62 RUTGERS L. REV. 383 (2010).

325. See, e.g., Saule T. Omarova, *Bankers, Bureaucrats, and Guardians: Toward Tripartism in Financial Regulation*, 37 IOWA J. CORP. L. 621, 629–32 (2012); Adam J. Levitin, *Hydraulic Regulation: Regulating Credit Markets Upstream*, 26 YALE J. REG. 143, 159–61 (2009); Erik Gerding, *Deregulation Pas De Deux: Dual Regulatory Classes of Financial Institutions and the Path to Financial Crisis in Sweden and the United States*, 15 NEXUS J. OP. 135, 151–60 (2009).

326. See Roe, *supra* note 62, at 40–41 (observing that the building of “largely centralized clearinghouses in the hope (but not the certainty) that the industry will decentralize seems a peculiar policy in its indirectness, although perhaps regulators have concluded that they cannot otherwise induce market restructuring and deconcentration.”).

Some of the criticisms reviewed in Part III.B.1 above still retain their force, and others need to be taken into account as well. While a Rawlsian public policy will embrace this regulatory schema, it admittedly places a heavy burden on financial regulators to properly implement this law.

Regulators implementing and overseeing a CCP-based regulatory structure will have to monitor four principle areas of danger: 1) the risk inherent in the CCP itself; 2) the trade-off between systemic risk and efficiency of netting as the number of CCPs decreases; 3) the unintended consequences of the collateral requirements; and 4) the threat to the competitiveness of the American financial system (and through the European Market Infrastructure Regulation or “EMIR,” to Europe’s as well) that strong derivatives regulation represents. All four issues are serious concerns, and the choice to adopt Title VII, instead of pursuing an alternative path, such as Gubler’s or Johnson’s proposals, or doing nothing, forces regulators to confront these concerns.

1. Creation of a “Too Interconnected to Fail” Entity

To begin, the overarching risk of the CCP mandate is that a CCP itself will become “too big to fail,” or more accurately, “too interconnected to fail.” A highly negative outcome for Title VII would be that the mandate simply replaces individual dealer banks with CCPs as centers of risk in the financial system.³²⁷ In order to forestall this, regulators need to lay out clear requirements for the CCP itself to insure that it does not itself become so risky that it is prone to catastrophic failure. Fortunately, market participants are already approaching this issue and grappling with possible solutions to prevent the implosion of a CCP. As discussed above, this is perhaps the central concern with the Dodd-Frank clearing mandate. If the likelihood of a catastrophic failure is minimal, the effect of the mandate will be to cabin the risk of default of any one member firm. If CCP failure is a significant possibility, on the other hand, we are likely in no better a position than in September 2008, and possibly in a much worse one. While market participants have strong incentives to push for strong CCPs,³²⁸ in the regulator-centric model of regulation argued for here, ultimately governmental authorities bear the responsibility of ensuring the safety of the financial system.

2. The Trade-Off Between Systemic Risk Reduction and Netting Efficiency

The second area of focus should be efficiency of netting. As Duffie & Zhu demonstrate, there is an inherent trade-off between efficient multilateral netting and the size of a CCP.³²⁹ Therefore, what is most

327. See Roe, *supra* note 62, at 1691–92.

328. See Matt Cameron, *Blow Your Clearing House Down*, RISK MAG., Oct. 3, 2011, at 16.

329. See Duffie & Zhu, *supra* note 50; see also *supra* notes 201–07 and accompanying text.

beneficial in terms of systemic risk reduction on the level of counterparties, by reducing the amount of derivatives obligations outstanding, is in tension with the first point reviewed above: creation of a “too interconnected to fail” entity. A massive CCP facilitates multilateral clearing, clearing which only occurs among individually commensurate derivatives, not across product category, as in the case of bilateral clearing. But the fewer the amount of CCPs, the greater the disaster should one fail. Regulators will have to focus on this threat, including searching for solutions to the problem such as TriOptima’s clearing system.

3. Unintended Consequences of Collateral Requirements

Third, the collateral requirements instituted by Dodd-Frank have the potential to create significant new linkages in the financial system, thereby ushering in through the backdoor the unknown and unpoliced interconnections the mandate attempts to reduce in the first place. Once again, Craig Pirrong has drawn attention to this risk.³³⁰ This highlights the difficulty of mandating structures to curb risky activities in the face of profitable opportunities for market participants to engage in them. While further regulation of collateral provision services may ultimately be necessary, it comes at the expense of introducing a further layer of complexity to the system, which only arises because of the first-order regulation to begin with.

4. Threats to Competitiveness

Finally, financial regulators need to push for international harmonization of the regulation of OTC derivatives in order to create a level playing field for American, European, and other financial institutions and effective regulation of risky financial products.³³¹ While it is possible that the United States and the E.U. may arrive at harmonization on this point, as EMIR³³² calls for CCP clearing, at this point it is too soon to tell how the final regulatory landscape concerning OTC derivatives will look in Europe.³³³ Japan now requires CCP clearing for certain categories of derivatives as well.³³⁴ In order to preserve equality of opportunity among financial institutions, and prevent risk from migrating to other corners of the financial system, uniform regulation is desir-

330. See Pirrong, *supra* note 216, at 67–73.

331. See generally Baker, *supra* note 221; see also Edward F. Greene & Joshua L. Boehm, *The Limits of “Name-and-Shame” in International Financial Regulation*, 97 CORNELL L. REV. 1083, 1120–29 (2012).

332. *European Market Infrastructure Regulation (EMIR)*, EUROPEAN SECURITIES AND MARKETS AUTHORITY (ESMA), http://ec.europa.eu/internal/_market/securities/isd/mifid_en.htm (last visited Mar. 31, 2014).

333. See Georges Ugeux, *Can Europe Produce a Coherent and Effective Financial Regulation?*, 18 COLUM. J. EUR. L. 20, 31–32 (2012).

334. See Leng-Fong Lai et al., *Development in CCP in Japan – Interest Rate Swap Clearing*, CLIFFORD CHANCE (April 27 2012), http://www.cliffordchance.com/briefings/2012/04/development_of_ccpinjapaninterestrateswa0.html; see also Keith Noyes, *How Asia is Progressing Towards OTC Clearing Deadline*, RISK.NET (June 25, 2012), <http://www.risk.net/asia-risk/opinion/2184559/asia-progressing-otc-clearing-deadline>.

able.³³⁵ Given that the financial system is largely globalized, the international effects of regulation, and regulatory gaps, cannot be ignored.

Monitoring these areas will take diligence and resources on the part of regulators, a diligence and ability that was often lacking in the run-up to the financial crisis and beyond. This Article argues that due to misplaced incentives, it is too optimistic to believe that financial institutions will effectively combat the problem of systemic risk on their own, and that more direct oversight is preferable to a SRO-type regulatory structure. This is not to say however that individual institutions will not have much to contribute to this effort, and there are promising signs that many of them are aware of the risks derivatives transactions can pose and are attempting to mitigate them proactively. It does however argue that ultimately, a strong and agile governmental regulator is necessary as a policeman in financial markets with the final responsibility for policing market actors and monitoring the markets. This view is commensurate with the position that financial markets pose unique risks to economies, and that unchecked financial markets sooner or later crash.

CONCLUSION

Despite the prospective burdens that Dodd-Frank places on regulators and market participants, Title VII is a proper response to the uncertainty inherent in complex financial markets. Because of the extreme complexity of financial instruments and institutional arrangements among market participants, a clear cost-benefit analysis is unavailable to help us determine whether or not the new regulations should be beneficial. And even if one were available, the standard cost-benefit analyses of economic policy carry with them assumptions that the events of recent years have called into question. This Article therefore comes to two main conclusions.

First, because a cost-benefit analysis does not provide a clear result, the utilitarian perspective of conventional economic analysis alone cannot ultimately be relied on to determine whether the Dodd-Frank derivatives reforms are desirable or not. While a cost-benefit analysis is obviously a crucial input to the decision-making process of public policy, here its results are indeterminate. Moreover, a standard cost-benefit analysis fails to take into account important societal and political considerations that necessarily influence legislative and regulatory processes. By contrast, under a Rawlsian framework the Dodd-Frank derivatives reforms make good sense. Beginning with the position that financial crises ought to be viewed as societally traumatic events in which the maximin rule applies, the safety of the financial system

335. For an interesting counter-argument, see ADMATI & HELLWIG, *supra* note 12, at 10 (“A country’s public policy should not be concerned about the success of its banks or other firms as such, because success that is achieved by taxpayer subsidies or exposing the public to excessive risks—for example, the risks of pollution or of a financial crisis—is not beneficial to the economy and to society.”).

should be given priority over other values, particularly its potential efficiency. There is a solid argument that CCP clearing and the other new regulations will in fact reduce systemic risk in the financial system, though this is ultimately uncertain and dependent on future actions of regulators and market participants. Even given this uncertainty, a Rawlsian understanding of markets and their larger role in society shows that the political benefits of a reduction in the profitability and therefore size of the largest banks may be substantial.

Second, the analysis in this Article highlights the shortcomings of traditional financial economics and economic policy in coming to terms with complicated events that contain a large measure of “Knightian uncertainty.” Taking Pirrong’s analysis of CCP clearing as representative, it ignores the likely spillover of contagion effects through channels of interconnection created by derivatives trading between financial institutions, assumes that what is beneficial for the efficiency of the derivatives trading system itself is beneficial to society at large, and attempts to achieve precision by limiting itself to a relatively narrow set of factors in carrying out its cost-benefit analysis. An important effect of the global financial crisis has been to call into question the intellectual framework used to understand financial markets and their role in the larger economy and society in general in recent decades.³³⁶ This Article is intended to be a contribution to this process and an advocacy of policy positions which draw on thought outside of the utilitarian tradition.

336. See, e.g., D. Colander et al., *The Financial Crisis and the Systemic Failure of Academic Economics*, (U. Copenhagen Dept. Econ. Discussion Paper No. 09-03, 2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1355882; GEORGE A. AKERLOF & ROBERT J. SHILLER, *ANIMAL SPIRITS: HOW HUMAN PSYCHOLOGY DRIVES THE ECONOMY, AND WHY IT MATTERS FOR GLOBAL CAPITALISM* (2009); see also Andrew W. Lo, *Reading About the Financial Crisis: A 21-Book Review*, 50 J. ECON. LIT. 151 (2012).

