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CLEARINGHOUSE OVERCONFIDENCE

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Abstract

Regulatory reaction to the 2008-2009 financial crisis focused on complex financial instruments that deepened the crisis. A consensus emerged that these risky financial instruments should move through safe, strong clearinghouses, which would be bulwarks against systemic risk, and that the destructive impact of the failures during the crisis of AIG, Lehman Brothers, and the Reserve Primary Fund could have been softened or eliminated were strong clearinghouses in place. Via the Dodd-Frank Wall Street Reform Act, Congress instructed regulators to construct clearinghouses through which these risky financial instruments would trade and settle. Clearinghouses could cut financial risk, reduce contagion, and halt a local financial problem before it becomes an economy-wide crisis.

But clearinghouses are weaker bulwarks against financial contagion, financial panic, and systemic risk than is commonly thought. They may well be unable to defend the economy against financial stress such as that of the 2008–2009 crisis. Although they are efficient financial platforms in ordinary times, they do little to reduce systemic risk in crisis times. They generally do not reduce the core risk targeted—that the failure of a financial firm will cause other firms to fail—but rather transfer that risk of loss to others. The major reduction in risk among the inside-the-clearinghouse traders is largely achieved by pushing that risk elsewhere, often to a systemically dangerous spot. Financial contagion can thus side-step the clearinghouse fortress and bring down other core financial institutions. Worse, clearinghouses could not have readily handled the major stresses that afflicted the economy in 2008–2009, could well have transmitted and magnified them, and can only weakly affect the type of financial stress that Congress targeted with Dodd-Frank. When we add in the other weaknesses of the new clearinghouses—as too-big-to-fail institutions, as institutions whose members' incentives to contain clearinghouse riskiness are weaker than the public's, and as institutions that will not be easy to regulate—even the direction of clearinghouses' impact on systemic risk is uncertain.

The stakes are high in correctly assessing the value of clearinghouses in containing systemic risk. Much like an overconfidence inspired by powerful military fortresses that an invading enemy can side-step, the reigning overconfidence in clearinghouses lulls regulators to be satisfied that they have done much to arrest problems of contagion and systemic risk by building up clearinghouses, when they have not.

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INTRODUCTION: THE DODD-FRANK ACT'S MAGINOT LINE

Clearinghouses' potential power to reduce systemic risk came to the fore in the aftermath of the 2008 financial crisis. Their attraction is easy to see: Financial institutions regularly trade risky investments. If a major trading institution fails to make good on its obligations to another, the first's failure could be contagious, spreading outward through the interconnected financial system, inducing inter-connected financial institutions to collapse one after another, like rows of dominoes, unless regulators can prop up one of the early dominoes before contagion knocks down the entire row. One strategically-placed financial institution's failure puts the entire financial system at risk of malfunctioning, rendering it unable to channel funds through the economy. As a result, economic activity weakens.

But, regulatory thinking now runs, if those risky trades moved through clearinghouses, then the clearinghouse firewall would stop contagion short. A major trading institution could fail, but the clearinghouse would stop the failure from pulling down others. The clearinghouse would vigilantly require its members to post collateral, which the clearinghouse would apply against a failing member's obligations. And the clearinghouse could call on its solvent members to contribute capital to allow the clearinghouse to make good on the failed firm's debts.

Had these risky trades cleared in 2008, the financial crisis would not have been as deep, proponents asserted. Consequently, Congress's major statutory reaction to the crisis, the Dodd-Frank Act, requires that the risky trades be cleared.[1] It's one of the few post-crisis regulatory efforts that is well along the road toward implementation. Dodd-Frank will move "trillions of dollars in derivatives transactions … into a clearing environment."[2] Clearinghouses will, it's thought, be fortress-like bulwarks against systemic risk.

Clearinghouses do improve trading efficiencies, reduce informational disparities among traders, compress complex trading rings into simpler obligations, can speed up settlements, and can yield more accurate market information to regulators. But the raison d'être for the current infatuation—containing contagion from spreading from a

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[1] Dodd-Frank Wall Street Reform and Consumer Protection Act, §§ 723, 725(c), 763, 124 Stat. at 1675-81, 1762-68, to be codified at 7 U.S.C. § 2 and 15 U.S.C. § 78a et seq. Clearing basics: When a trade clears, the two parties make their own deal, then give their trade over to the clearinghouse. The clearinghouse picks up the obligations to and from each side. Each party becomes obligated to the clearinghouse and no longer to the party with which it traded.

[2] Rena S. Miller, Cong. Research Serv., R41715, Conflicts of Interest in Derivatives Clearing 4 (2011).

failing but systemically important firm[3]—is over-sold, and often false. The analysis here will show that clearinghouses can only marginally lower systemic risk.

Two reasons explain why clearinghouses' potential to contain systemic risk is weaker than the Dodd-Frank enactors hoped. First, a clearinghouse cannot usually contain the central systemic risk of financial contagion from an undercollateralized counterparty's failure, because it cannot eliminate the targeted loss from the economy. It generally can only transfer the loss elsewhere. It can, as advertised, reduce the risk to the clearinghouse members if one critical financial institution fails to make good on a cleared product, but it does so mainly by moving that loss elsewhere. Some of this is known to some analysts but appears not to have been fully appreciated by policymakers; some core concepts can be extended and deepened for other ideas about clearinghouses.

Here I organize, deepen, and extend the general risk transfer principle to show how, for each visible benefit extolled for clearinghouses, the risk transfer principle reduces and often eliminates the clearinghouse's systemic benefit. Moreover, I extend prior thinking to show that (1) as long as the markets and institutions where the risks land are systemically important, the clearinghouse's systemic benefit will be reduced and often fully offset by this systemic cost and (2) the risk and loss transferred out can quite easily end up in a systemically dangerous spot. Indeed, the policy rationale behind clearinghouses is that some institutions are far too systemically connected to be allowed to fail. But removing one channel for the risk and loss to spread can readily just push the risk and loss into another connected channel. It is as if Congress and the regulators were building forts to halt systemic risk, when the construction's impact would largely induce the enemy—systemic risk—to detour and attack along another path, sliding around the fortress to enter the financial heartland on an equally destructive path. Multiple weaknesses of clearinghouses in controlling systemic risk—from the possibility of the clearinghouses just moving the risk elsewhere, to the possibility that risk mutualization inside the clearinghouse endangers some institutions when it saves others, to the possibility the clearinghouses will themselves be systemically dangerous and too-big-to-fail—are not separate and distinct problems but can all be organized around this risk transfer problem, which I do here in this Article.

Second, the clearinghouse is defenseless against other potent channels of systemic risk beyond the failure of a vital stand-alone financial institution. Congress and the regulators needed to match up clearinghouses' potential uses against the core problems in the financial crisis, but did not do so. The clearinghouse is primarily targeted to contain the failure of a single firm from spreading through the interconnected financial system. But the financial crisis was not induced by the failure of a single firm. Multiple major institutions failed simultaneously, and others tottered dangerously. The crisis attacked the economy when financial markets rapidly revalued mortgage securities owned throughout the financial system, not when a single firm, or small number of firms, failed. Many interconnected firms started selling their assets to raise cash. As many sold, prices deteriorated and more newly-weakened institutions found their asset values deteriorating, inducing them to sell as well. And then the interconnected financial firms could no longer understand whether other firms with which they were dealing were or were not solvent. So they ceased dealing with one another. Panic ensued. Clearinghouses cannot contain this kind of downward asset

[3] For close general analysis of systemic risk, see George G. Kaufman & Kenneth E. Scott, *What Is Systemic Risk, and Do Bank Regulators Retard or Contribute to It?*, IND'T REV., Winter 2003.

price spiral and panic. Worse, they can exacerbate one. As such, the clearinghouse initiative is not targeted to contain enough of the core financial problems of the 2008–2009 financial crisis.

These then are the major contributions made in this paper: to deepen, extend, and organize the risk transfer principle. First, this paper shows how the principle applies across the board to clearinghouses' capacity to contain systemic risk and not just to one or two of its potential strengths. Then, it shows how clearinghouses, even at their best, cannot contain the types of risk that afflicted the financial system and the American economy during the 2008–2009 financial and economic crisis. The fit between the actual 2008–2009 crisis and the risks that clearinghouses target is a poor one. As such, the clearinghouse regulatory efforts are misguided. We have not even been designing a system that is strongly reactive to the real problems of the last financial crisis.

* * *

The roadmap for this Article: In Part I, I recount the elements of the recent financial crisis that clearinghouses are thought to be capable of curing, and I outline the major regulatory activity in building good clearinghouses. In Part II, I outline the efficiency advantages of clearinghouses in building a market in the cleared product by enhancing price transparency, by compressing dealer spreads (which makes trading cheaper), by centralizing collateral holding, by mutualizing risk, and by simplifying trade mechanics by netting. I also identify the major systematic advantage Congress and the regulators have claimed for clearinghouses: arresting financial contagion emanating from the failure of a major, interconnected financial firm,[4] by building better means to collect collateral that backs up the trades and by mutualizing risk among the traders.

In Part III, I show, however, that while clearinghouses can provide substantial basic trading efficiencies, they cannot provide this broad intended systemic advantage. Enhanced collateralization protects the clearinghouse, but exposes other financial players to greater loss. The misperceptions in current regulatory and analytic discourse are clarified when one analyzes the clearinghouse using the best bankruptcy scholarship on setoff. The clearinghouse, like bankruptcy setoff, primarily transfers losses, without decreasing the system's total riskiness, turning the key question into whether those who are made to bear the systemic risk can handle it better than those who transfer it. The answer is not evident. I then show that this risk transfer principle is analogous to well-known analytics of corporate debt. Debt does not, as proponents once thought, reduce corporate risk directly. Its first effect is to transfer that risk. These insights are captured in the famous Modigliani-Miller Irrelevance Propositions from finance.

In Part IV, I extend the risk transfer principle—that clearinghouses transfer risk and that the transfer can move risk from strong institutions to weak ones as readily as the converse—to show how the risk transfer problem reduces, and in some instances reverses, the other purported benefits of clearinghouses. For example, the second most widely extolled benefit of clearinghouses is their supposed capacity to insure,

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[4] E.g., Silla Brush & Phil Mattingly, *CFTC to Release Clearing Rule for Swaps in JPMorgan Trades*, BLOOMBERG.COM, May 22, 2013, *available at* www.bloomberg.com/news/print/2012-05-22/cftc-to-release-clearing-proposal-for-index-swaps-gensler-says.html ("'Standard swaps between financial firms will move into central clearing, which will significantly lower the risks of the highly interconnected financial system,' Gensler said.")

mutualize, and thereby dissipate the risk of a single firm's failure. But the risk transfer principle applies here as well, in that the clearinghouse could as easily gather, funnel, and expand systemic risk by pulling previously decentralized, discrete, and systemically containable risks into a single platform. Moreover, mutualization—a form of diversification—can sometimes handle the idiosyncratic risk from a single firm's failure; but diversification is not a viable strategy for arresting market-wide, systemic risk.

I then advance the concept that the clearinghouse cannot deal effectively with the actual systemic risks that afflicted the financial system in 2008. Clearinghouse proponents extol its capacity to thwart the contagion coming from the failure of a single, large, vital financial institution, aiming to stop that failure from taking down the rest of the financial system. But the core systemic risk problem of the 2008–2009 financial crisis came not from a single major institution's failure, but from multiple major American financial institutions all suffering similar large reverses simultaneously, due to an economy-wide over-investment in what turned out to be low-value mortgage securities. A simultaneous, common failure across major financial institutions is not something that a clearinghouse can, or is even designed to, handle.

More was happening in the financial crisis than a single major firm's failure that a well-functioning clearinghouse might have contained. Even the list of actual failures is large—AIG, Bear Stearns, Lehman Brothers, the Reserve Primary Fund, Wachovia, and Washington Mutual—and an extended list would need to include the major near failures of Bank of America, Citigroup, Merrill Lynch, and the deterioration of Fannie Mae and Freddie Mac. Systemic risk was pervasive, not isolated in a single firm. It appeared via the sudden system-wide realization that many financial institutions were over-invested in over-valued mortgage assets. Further, from 2007 to 2009, there was a downward asset price spiral as firms liquidated collateral at fire sale prices, driving more firms to be worth less (because they held assets of the type that other firms were selling at fire sale prices), which drove those firms to sell more collateral to raise cash. Even clearinghouse proponents do not offer the clearinghouse as a bulwark to thwart this kind of downward asset price spiral. They do not make that claim for good reason, because the clearinghouse cannot thwart that spiral, and, as I show below, can readily exacerbate it.

In Part V, I deepen existing doubts as to clearinghouses, again by using the risk transfer uncertainty principle, and also show that potential rebuttals to the limits to clearinghouses do not reverse the paper's core argument. The benefits remaining after we account for the risks transferred are much smaller than these other benefits attributed to clearinghouses. Moreover, while clearinghouses are reputed to be unsinkable, they are not. Hence, clearinghouse construction may move regulators from having to bail out a systemically dangerous failed financial institution to having to bail out a systemically dangerous clearinghouse. This scenario is not far-fetched: during the 1987 stock market crash, the Chicago Mercantile Exchange came within minutes of failing, which would have deeply damaged the New York Stock Exchange's capacity to operate, with catastrophic consequences.[5]

Lastly, I conclude. Clearinghouses' key posited value is to contain counterparty failure. But their basic management of counterparty failure does not actually contain systemic risk. They do not eliminate the loss emanating from counterparty failure, but

[5] *See* Ben S. Bernanke, *Clearing and Settlement during the Crash*, 3 REV. FIN. STUD. 133, 143-45 (1990). On the text's "within minutes," see infra Part V.B., note 130 & accompanying text.

instead primarily redirect it elsewhere, where other financial institutions can readily fail. These other institutions will often be systemically vital. Second, clearinghouse construction does not respond well to the systemic problems that afflicted American finance in the 2008–2009 crisis, with regulators mainly aiming to deal with a problem that was not in play.

Regulators may succeed in building powerful, indestructible clearinghouses. But just as the twentieth century's powerful, indestructible Maginot Line of fortresses in northern France only displaced the path of an enemy invasion, without deterring it or stopping it, the twenty-first century's clearinghouse fortresses will largely fail to stymie systemic risk in the next crisis.[6]

I. THE FINANCIAL CRISIS AND THE MISSING CLEARINGHOUSE

The financial crisis began when failures in the mortgage market hit financial giants, disabling Bear Stearns, Lehman Brothers, and AIG, attacking Fannie Mae and Freddie Mac, inducing large banks like Washington Mutual to fail, and threatening the viability of other major financial institutions, like Bank of America, Citibank, and Merrill Lynch. The entire financial system was at risk and, for a time, basic financial activity slowed.

A. The Crisis, in Brief

1. Financial failure at AIG, Bear Stearns, Citigroup, and Lehman Brothers. AIG, the massive insurer that failed in 2008, wrote credit default swaps, in which it promised for a fee to buy up loans that its customers had extended to firms, governments, and—indirectly via investment in mortgage pools—homeowners.[7] If a

[6] A brief descriptive of the Maginot line for its metaphoric applicability to the clearinghouse thesis:

> The Maginot Line … was a line of concrete fortifications … and other defenses, which France constructed along its borders with Germany [before World War II] ….
>
> The French established the fortification to provide time for their army to mobilize in the event of attack. … Military experts extolled the Maginot Line as a work of genius, believing it would prevent any further invasions from the east (notably, from Germany).
>
> While the fortification system successfully prevented a direct attack, it was strategically ineffective … . Germany flanked the Maginot Line, … sweeping by the line [through Belgium] and conquer[ed] France in about 6 weeks. As such, reference to the Maginot Line is used to recall a strategy or object that people hope will prove effective but instead fails miserably. …
>
> [True, t]he Maginot Line was impervious to most forms of attack … . However, it proved costly to keep, … and … led to other parts of the French Armed Forces being underfunded.

From Wikipedia, *available at* www.en.wikipedia.org/wiki/Maginot_Line. See also MARC ROMANYCH & MARTIN RUPP, MAGINOT LINE 1940: BATTLES ON THE FRENCH FRONTIER 5 (2010); WILLIAM ALCORN, THE MAGINOT LINE 1928-45, at 4 (2003). The systemic risk that the clearinghouse is targeted to contain will largely be diverted, will appear elsewhere, and will not be eliminated. But policymakers, satisfied now that they have done the right thing, will be less likely to attend to more efficacious strategies and they will lack the resources to do so.

The Maginot Line metaphor has occurred to others. Steven A. Ramirez, *The Dodd-Frank Act as Maginot Line*, 15 CHAPMAN L. REV. 109 (2011).

[7] The official account is in Office of the Special Inspector Gen. for the Troubled Asset Relief Program, Factors Affecting Efforts to Limit Payments to AIG Counterparties, SIGTARP-10-003 at 3 (Nov. 17, 2009), *available at* http://www.sigtarp.gov/reports/audit/2009/Factors_Affecting_Efforts_to_Limit_Payments_to_AIG_Counterparties.pdf ["SIGTARP AIG"]; Adam Davidson, *How AIG Fell Apart*, Reuters (Sept. 18, 2008), http://www.reuters.com/article/2008/09/18/us-how-aig-fell-apart-idUSMAR85972720080918

defined credit event occurred—such as if the borrower failed to pay a lender that had bought a credit default swap from AIG—AIG obliged itself to buy the weakened claim at a previously-agreed price. AIG's counterparties thereby obtained both assurance for their investment and regulatory benefits, in that banks could treat their loans as if they were as safe as AIG itself was perceived to be, and not risky like their underlying borrowers.[8]

AIG's counterparties did not typically require collateral from AIG, because they originally saw AIG as a strong, AAA-rated financial institution, beyond financial reproach, with a balance sheet seemingly stronger than that of its counterparties.[9] (A typical arrangement among less strong financial parties is that each initially posts some collateral for its obligation and then they adjust their collateral levels as the underlying contract becomes more or less valuable to one party or the other.) AIG wrote such investments for more than $500 billion worth of obligations, including $60 billion in the mortgage-backed securities industry.[10]

But AIG lost massive sums elsewhere, largely in its own mortgage-related investments.[11] When those losses weakened AIG, counterparties to its credit default swaps finally demanded collateral from AIG, but by then AIG was too weak to post enough good collateral to support its deals.[12] In the end, the United States picked up the bill and paid off AIG's obligations for fear that, if AIG's obligations were not paid, further financial havoc would ensue.

The authorities' decision to bail out AIG was eased by the market reaction to the prior collapse of Lehman Brothers, the huge investment bank. "Lehman was a major participant in both the cleared futures markets … and in the bilateral[, over-the-counter, off-the-clearinghouse] derivatives markets, where it [directly] faced dealer and customer counterparties."[13] As rumors spread of Lehman's cash shortfall, its trading partners closed out their positions with Lehman or demanded that it post more collateral.[14] When Lehman, lacking both cash and good collateral, could not comply, its trading partners were left exposed to not being paid. One-by-one, it looked like the financial dominoes might topple. The Reserve Fund, a large money market fund, failed, in part because it held obligations from Lehman, which Lehman could not

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[8] SIGTARP AIG, supra note 7, at 3-4.

[9] Id., at 8.

[10] *See* American International Group, Annual Report (Form 10-K), at 122 (Feb. 28, 2008), *available at* http://www.ezodproxy.com/AIG/2008/AR2007/images/AIG_10K2007.pdf.

[11] FIN. CRISIS INQUIRY COMM'N, PRELIMINARY STAFF REPORT, GOVERNMENTAL RESCUES OF "TOO-BIG-TO-FAIL" FINANCIAL INSTITUTIONS 25 (Aug. 31, 2010), *available at* http://fcic-static.law.stanford.edu/cdn_media/fcic-reports/2010-0831-Governmental-Rescues.pdf.

[12] SIGTARP AIG, supra note 7; Richard Squire, *Shareholder Opportunism in a World of Risky Debt*, 123 HARV. L. REV. 1151, 1185, 1188 n.99 (2010); Rajna Brandon & Carsten Murawski, *Margining of Derivatives Markets and the Stability of the Banking Sector*, J. BANKING & FIN. (forthcoming).

[13] Anupam Chander & Randall Costa, *Clearing Credit Default Swaps: A Case Study in Global Legal Convergence*, 10 CHI. J. INT'L L. 639, 655 (2010).

[14] 4 ANTON R. VALUKAS, REPORT OF THE EXAMINER, *In re* Lehman Brothers Holdings Inc., No. 08-3555, at 1101 (Bankr. S.D.N.Y. 2010).

pay.[15] This led to the government guaranteeing all money market deposits for a time, to prevent a run of money market investors from the funds.[16]

The government stabilized other unsteady financial institutions that lenders and borrowers had come reluctant to deal with. Citigroup, which includes the huge Citibank, was at risk, leading the government to infuse $45 billion in new capital and to guarantee $300 billion of Citi's risky assets.[17] The Bank of America similarly received a capital infusion from the government of $45 billion and guarantees of $118 billion of its illiquid assets.[18] Both big banks are major players in the market for risky financial assets, like derivatives, and the opacity of the two banks' derivatives exposure exacerbated market fears of the banks' solvency.[19]

Bear Stearns' earlier failure was also relevant to the regulatory reform impulse. Bear had failed and was merged into JP Morgan at the authorities' behest in March 2008.[20] Prior to its failure, from 2004 to 2007, Bear had been one of the top underwriters of risky, subprime mortgage-backed securities, and negative reports about its mortgage exposures in early 2008 caused many of its clients to withdraw their investments with Bear.[21] Bear was also counterparty to 750,000 open derivatives trades—often sitting in the middle as buyer and seller—with an aggregate notional value of $14.2 trillion.[22] Regulators worried that Bear's failure could cause investors to question the health of other firms heavily invested in subprime mortgages and worried

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[15] FIN. CRISIS INQUIRY COMM'N, *supra* note 11, at 25. Money market funds take cash from their customers and promise to be ready to pay the cash back. They invest the cash from their customers in short-term obligations from other entities. The Reserve Fund invested enough in Lehman Brothers such that when Lehman failed, it failed as well.

[16] U.S. Dep't of the Treasury, Treasury Announces Temporary Guarantee Program for Money Market Funds (Sept. 29 2008), *available at* http://www.treasury.gov/press-center/press-releases/Pages/hp1161.aspx

[17] OFFICE OF THE SPECIAL INSPECTOR GEN. FOR THE TROUBLED ASSET RELIEF PROGRAM, EXTRAORDINARY FINANCIAL ASSISTANCE PROVIDED TO CITIGROUP, INC., SIGTARP-11-002, at 4-32, 41-44 (2011), *available at* http://www.sigtarp.gov/Audit%20Reports/Extraordinary%20Financial%20Assistance%20Provided%20to%20Citigroup,%20Inc.pdf; FINANCIAL CRISIS INQUIRY COMM'N, FINAL REPORT ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES 374, 375 (Jan. 2011); Liz Moyer, *Citi on Fire?*, FORBES, Jan. 30, 2009.

[18] Financial Crisis Inquiry Comm'n, supra note 17, at 374, 375; Office of the Special Inspector Gen. for the Troubled Asset Relief Program, Emergency Capital Injections Provided to Support the Viability of Bank of America, Other Major Banks, and the U.S. Financial System, SIGTARP-10-001, at 1-2, 14-31 (2009), *available at* http://www.sigtarp.gov/Audit%20Reports/Emergency_Capital_Injections_Provided_to_Support_the_Viability_of_Bank_of_America.pdf; Matthew Saltmarsh, *Citi to split itself after posting massive quarterly loss*, N.Y. Times, Jan. 16, 2009.

[19] OFFICE OF THE SPECIAL INSPECTOR GEN. FOR THE TROUBLED ASSET RELIEF PROGRAM, EMERGENCY CAPITAL INJECTIONS PROVIDED TO SUPPORT THE VIABILITY OF BANK OF AMERICA, OTHER MAJOR BANKS, AND THE U.S. FINANCIAL SYSTEM SIGTARP-10-001, at 24 (2009), *available at* http://www.sigtarp.gov/Audit%20Reports/Emergency_Capital_Injections_Provided_to_Support_the_Viability_of_Bank_of_America.pdf; FIN. CRISIS INQUIRY COMM'N, *supra* note 11, at 25; Janet Morrissey, *Credit Default Swaps: The Next Crisis?*, TIME (Mar. 17, 2008), *available at* http://www.time.com/time/business/article/0,8599,1723152,00.html

[20] MARC LABONTE, CONG. RESEARCH SERV., RL 34427, FINANCIAL TURMOIL: FEDERAL RESERVE POLICY RESPONSES 17 (2009), *available at* http://waxman.house.gov/sites/waxman.house.gov/files/documents/UploadedFiles/Fed_Policy_Responses.pdf.

[21] FIN. CRISIS INQUIRY COMM'N, supra note 11, at 21.

[22] *Id*. Notional value is the gross amount referenced. If, for a fee, you promise to pay me the amount by which dollar-based interest rates exceed euro-based interest rates on $1 million over the next year, the notional amount is $1 million.

that an unwinding of Bear's positions with thousands of counterparties would be chaotic, sparking an uncontainable chain reaction of failures.[23]

* * *

After each big failure, authorities saw clearinghouses as a means to improve on the status quo. If a large financial institution's risky obligations had gone through clearinghouses, the conventional wisdom came to hold, the institution might not have failed[24] and, even if it did fail, the clearinghouse would have diffused the costs sufficiently to avoid both the massive bailouts and the economic downturn that ensued.

2. Systemic risk. To evaluate whether clearinghouses can ameliorate systemic risk, we need to have a conceptualization of systemic risk in mind. The most general way to conceive of systemic risk is of a local but major financial failure spinning out of control to hurt the whole financial system first and the overall economy next.

Classic systemic risk comes from contagion. A key institution fails and cannot pay its debts to other financial institutions, which in turn fail. The failures cascade through the interconnected financial sector.[25] Lending to the real economy dries up and economic activity weakens. Clearinghouses are thought to contain counterparty risk and any resulting contagion by assuring that the first failed firm's counterparties are paid.[26] "First and foremost, the debate on the effects of central clearing is concentrated on counterparty risk, which is the expected loss sustained by the party to a contract when the other party fails to fulfill its obligations under the terms of the contract."[27] "[W]ith adequate capitalization, the clearinghouse can reduce systemic risk by insulating the financial system from the failure of large participants."[28]

This then—a major firm's failure that would drag down interconnected financial firms—is the core systemic risk that clearinghouse proponents seek to contain.[29] As

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[23] Ben S. Bernanke, Chair, Fed. Reserve Board, Financial Regulation and Financial Stability, Address at the FDIC's Forum on Mortgage Lending for Low and Moderate Income Households (July 8, 2009), *available at* http://www.federalreserve.gov/newsevents/speech/bernanke20080708a.htm; FIN. CRISIS INQUIRY COMM'N. supra note 21.

[24] G-20 PITTSBURGH SUMMIT, LEADERS' STATEMENT 7 (2009), *available at* http://ec.europa.eu/commission_2010-2014/president/pdf/statement_20090826_en_2.pdf ("All standardized OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties..."). Cf. Yesha Yadav, The Problematic Case of Clearinghouses in Complex Markets, 101 GEO. L.J. 387 388-89 (2013) (describing scramble for clearinghouse-type relationships to prevent Bear Stearns from failing); Miller, supra note 2 (Congressional research concludes: "Clearinghouses … [can] prevent any firm from building up a large uncapitalized exposure, as happened in the case of … AIG").

[25] Kaufman & Scott, supra note 3; Labonte, supra note 19 (Congressional systemic risk research summary states that policymakers are "concern[ed] that [uncleared,] over-the counter [derivatives] contracts were overly vulnerable to counterparty risk"); MARKUS BRUNNERMEIER, ANDREW CROCKETT, CHARLES GOODHART, AVINASH PERSAUD & HYUN SHIN, THE FUNDAMENTAL PRINCIPLES OF FINANCIAL REGULATION 13-24 (2009).

[26] Brunnermeier et al., supra note 25, at 55.

[27] Yee Cheng Loon & Ken Zhong, The Impact of Central Clearing on Counterparty Risk, Liquidity, and Trading: Evidence from the Credit Default Swap Market (2012), *available at* http://ssrn.com/abstract=2176561.

[28] Squam Lake Working Group on Financial Regulation, Council on Foreign Relations, Center for Geoeconomic Studies, Credit Default Swaps, Clearinghouse, and Exchange, at 3 (working paper, July 2009), *available at* http://www.cfr.org/financial-crises/credit-default-swaps-clearinghouses-exchanges/p19756 (emphasis supplied); Adam J. Levitin, *In Defense of Bailouts*, 99 GEO. L.J. 435, 443-47 (2011); Steven L. Schwarcz, *Systemic Risk*, 97 GEO. L.J. 193, 196-204 (2008).

[29] E.g., Stephen G. Cecchetti et al., *Central counterparties for over-the-counter derivatives*, BIS Q.

such, I will first focus our attention in Parts II and III on how and whether a clearinghouse can contain it.

Systemic risk, however, also comes via other channels, two of the most important of which are system-wide asset price deterioration and system-wide information opacity. For the first: Financial firms borrow heavily and own assets, such as loans and securities. If a major firm suffers an unexpected loss, it makes itself safer by raising new capital or by selling assets to raise cash. If it sells assets and its sales are big enough, then the market price for those assets declines. *Other* financial institutions with similar assets see that the value of *their* assets is falling, forcing them as well to raise new capital, lend less, or sell *their* own assets to raise cash. If they lower their selling prices to sell more, then other financial institutions' total asset values will deteriorate and also they will also be pushed to sell their assets. With the economy's major financial institutions selling and few of them buying other than at bargain values, asset prices plummet and the economy suffers a financial panic.[30] Financial institutions can no longer channel capital through the economy. Federal Reserve analysts report:

> [D]eterioration in the collateral value of borrower assets was an important amplification mechanism during the recent financial crisis. Falling asset prices caused lenders to demand more collateral, which caused borrowers to dump risky assets, thereby exacerbating declines in their market values and leading to further demands for more collateral . . . .[31]

Information contagion, the second additional channel, is related. For example, when AIG suffers visible losses, many players stop dealing with AIG. This freeze in finance might be limited to AIG. But if the market is opaque, financiers will be unsure whether, say, Citibank faces losses similar to AIG's if it invested in similarly over-valued assets. The market will also be also uncertain of the extent to which Citibank is directly exposed to AIG's failure, because if AIG owes Citi too much and AIG cannot pay, then Citi could fail. Financial players then hesitate to deal with Citi because they cannot readily assess whether Citi is or is not solvent.[32]

The financial crisis suffered deeply from both a downward asset price spiral of collateral value and from information contagion. The current promoters of

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REV., Sept. 2009, at 45 ("improve market resilience by lowering counterparty risk"); Andrew G. Haldane, *On counterparty risk*, 5 J. RISK MGMT. FIN. INST. 224 (2012); Alistair Milne, *OTC central counterparty clearing: Myths and reality*, 4 J. RISK MGMT FIN. INST. 335, 340 (2012) (clearinghouses will "coordinate[] management of open positions following the failure of a systemically important financial institution").

[30] Squam Lake Working Group, supra note 22, at 3. Proponents do not say the clearinghouse can contain this systemic risk. Prominent analysts say this spiral triggered the financial crisis. Gary Gorton & Andrew Metrick, *Securitized Banking and the Run on Repo*, 104 J. FIN. ECON. 421 (2012); Gaetano Antinolfi, Frencesca Carapella, Charles Kahn, Antoine Martin, David Mills & Nosal, Repos, Fire Sales, and Bankruptcy Policy (Federal Reserve working paper, WP 2012-15), *available at* http://ssrn.com/abstract=2189583.

[31] James Bullard, Christopher J. Neely & David C. Wheelock, *Systemic Risk and the Financial Crisis: A Primer*, FED. RES. BANK ST. LOUIS REV., Sept./Oct. 2009, at 403, 408. For rapid asset price deterioration as a major systemic risk, see generally CARMEN M. REINHART & KENNETH S. ROGOFF, THIS TIME IS DIFFERENT: EIGHT CENTURIES OF FINANCIAL FOLLY 142, 158-63, 216-20 (2009); Andrei Shleifer & Robert Vishny, *Fire Sales in Finance and Macroeconomics*, 25 J. ECON. PERSP. 29 (2011).

[32] Cf. Jeffrey N. Gordon & Christopher Muller, Confronting Financial Crisis: Dodd-Frank's Dangers and the Case for a Systemic Emergency Fund, 28 YALE J. REG. 151, 160 (2011).

clearinghouses, however, focus largely on contagion risk from a single firm's failure instead of these other important channels of risk.

I return to this problem of misspecified goals after first analyzing the limits to clearinghouses' capacity to contain their intended nemesis: contagion risk emanating from the failure of a major financial institution with extensive interconnected financial counterparties. Clearinghouses may well reduce counterparty risk. But when they do so, we must further ask, how much *systemic* risk are they reducing?

B. A Clearinghouse Bulwark in the Crisis

Consider AIG's failure. To prevent it from defaulting on its obligations, the government injected $180 billion of aid to keep it afloat.[33] Post-failure, the thinking ran, AIG might not have failed, or its failure would not have been as consequential, if AIG's obligations had been cleared.[34] The clearing mechanics are straightforward here: Financial players trade obligations with one another. When they use a clearinghouse, each turns the obligation over to the clearinghouse, which takes over both parties' obligations. If AIG had swapped, say, dollars for euros with Citibank, then the clearinghouse would take over (novate, in the industry vocabulary) the dollars-for-euros trade and would have become obliged to pay the contracted-for euros to AIG and the contracted-for dollars to Citibank. Both AIG and Citibank would owe the clearinghouse the corresponding amounts.

Had AIG cleared its trades, then the clearinghouse could have sought collateral from AIG upfront, when the trade came to the clearinghouse. A clearinghouse would have watched AIG, understood its deteriorating condition and the declining value of its trades, and, in the conventional post-crisis narrative, required it to post more collateral earlier.[35] Even if it were blind-sided by AIG's deterioration, as was the market overall, the clearinghouse could have called on AIG-posted collateral, as well as the capital posted by the other members, and the obligations owed *to* AIG by the clearinghouse for transactions that had turned out to be profitable for AIG. A clearinghouse would have intercepted those amounts owed to AIG before they went to AIG and given their value to the clearinghouse members.

Using the collateral and capital in its own hands, as well as value the clearinghouse owed to AIG, the clearinghouse could have quickly made good on AIG's underlying obligations, the conventional thinking runs. Contagion and a deep financial crisis would have been averted, it's thought. As one review of the regulatory work thus far reports: "A global consensus has emerged among financial market regulators that [credit default swaps] should be . . . centrally cleared."[36] (Ironically,

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[33] U.S. Dep't of Treasury, Overall $182 Billion Committed to Stabilize AIG During Financial Crisis Now Fully Recovered (Sept. 11, 2012), *available at* http://www.treasury.gov/connect/blog/Pages/aig-182-billion.aspx.

[34] Yadav, *supra* note 23, at 421.

[35] Whether the new clearinghouses will manage counterparty risk by eyeing the riskiness of the member firm, or by only examining the riskiness of the cleared trade, is as of now uncertain. Traditional clearinghouses have done the latter more than the former.

[36] Richard A. Miller, *Editorial*, 29 FUTURES & DERIV. L REP., Apr. 2009, at 3 (2009). See also Simon Boughey, *After Bear Stearns Scare, Fed Pushes Banks to Form Central Clearing House for CDS Market*, EUROWEEK, June 13, 2008, at 64; Stephen G. Cecchetti et al., *Central Counterparties for Over-the-Counter Derivatives*, BIS Q. REV., Sept. 2009, at 45-46, 52; Chander & Costa, supra note 13, at 642.

although AIG's derivatives failures induced regulatory confidence in clearing, the understanding now is that AIG's derivatives were too complex to clear.[37])

Similarly, the Federal Reserve's chair, Ben Bernanke, worried that unwinding Bear's bilateral, uncleared positions would have been chaotic.[38] Hence, the Fed induced Bear to be merged into JP Morgan.[39] Shortly afterwards, Timothy Geithner, then heading New York's Federal Reserve Bank, urged banks to create a central clearinghouse for credit default swaps.[40] Financial firms decided that they should pursue a centralized clearinghouse as a "risk-reducing effort[] within the [financial] industry."[41] "[R]egulators … touted the value of clearing houses as a way to safeguard the financial system from the catastrophic effects of another Lehman-style default."[42]

Bills to require clearinghouses arose in Congress,[43] the Treasury concurred,[44] and the pro-clearinghouse consensus culminated in Dodd-Frank's command to regulators to establish clearinghouses for credit default swaps and similar risky trades. Section 723 of Dodd-Frank showed the legislators' confidence in clearinghouses, mandating that: "It shall be unlawful for any person to engage in a swap unless that person submits such swap for clearing to a derivatives clearing organization."[45] The statute sought "mitigation of systemic risk" via derivatives clearing organizations.[46] The chief regulator of the American derivatives markets said that "to stop another derivatives inferno," these risky instruments must "be brought to clearing houses. Clearing houses . . . guarantee the obligations of both parties. Transactions are moved off the books of derivatives dealers, which are part of financial institutions that may be . . . 'too big to fail' and . . . on to those of well-regulated central counter-parties."[47] Another commissioner put clearinghouses at the top of a list of ways to ameliorate systemic risk, because they "mutualiz[e] credit risks."[48] Congress's financial

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[37] *See* Darrell Duffie, *The Failure Mechanics of Dealer Banks*, 24 J. ECON. PERSP. 51, 67 (2010).

[38] Yalman Onaran, *Fed Aided Bear Stearns as Firm Faced Chapter 11, Bernanke Says*, BLOOMBERG, Apr. 2, 2008, http://www.bloomberg.com/apps/news?pid=newsarchive&sid=a7coicThgaEE; Bernanke, *supra* note 22.

[39] CONG. RES. SERV., *supra* note 19, at 17.

[40] Chander & Costa, supra note 13, at 663; PETER NORMAN, THE RISK CONTROLLERS: CENTRAL COUNTERPARTY CLEARING IN GLOBALISED FINANCIAL MARKET 222-25, 285-87, 291, 297 (2011).

[41] *See* Counterparty Risk Management Policy Group, Containing Systemic Risk: The Road to Reform 126 (Aug. 6, 2008), *available a*t http://www.crmpolicygroup.org/indel.html.

[42] Jeremy Grant, Push to underpin clearing house foundations, FT.COM, June 7, 2010.

[43] *Id.* at 672-73.

[44] U.S. Dep't of the Treasury, Financial Regulatory Reform: A New Foundation (2009), *available at* http://www.financial stability.gov/docs/regs/FinalReport_web.pdf.; U.S. Dep't of Treasury Outlines Framework for Regulatory Reform … Focuses First on Containing Systemic Risk (Mar. 26, 2009), *available at* http://www.treas.gov/press/releases/tg72.htm; U.S. Dep't of the Treasury, Press Release, Regulatory Reform of Over-the-Counter (OTC) Derivatives, May 13, 2009, *available at* http://www.treasury.gov/press-center/press-releases/Pages/tg129.aspx.

[45] Dodd-Frank, §§ 723, 725(c), 763, 124 Stat. at 1675-81, 1762-68, to be codified at 7 U.S.C. § 2 and 15 U.S.C. § 78a et seq.

[46] Id. § 723(a)(3), adding 7 U.S.C. § 2(h)(1)(D)(ii)(III) (In constructing clearinghouses, "[t]he Commission shall take into account … [t]he effect on the mitigation of systemic risk").

[47] Gary Gensler, *How to stop another derivatives inferno*, FT.COM, Feb. 24, 2010, http://www.ft.com/intl/cms/s/0/3b52b642-217c-11df-830e-00144feab49a.html#axzz1nmEBFEAt. See also Gary Gensler, Remarks, Over-the-Counter Derivatives Reform, Council of Institutional Investors, Apr. 13, 2010, *available at* http://www.cftc.gov/PressRoom/SpeechesTestimony/opagensler-38.

[48] Commissioner Jill E. Sommers, Clearinghouses as Mitigators of Systemic Risk, Sept. 30, 2010, *available at* http://www.cftc.gov/PressRoom/SpeechesTestimony/opasommers-10.

investigatory arm concluded: "[A] clearinghouse . . . can limit counterparty credit risk by absorbing counterparty defaults and *preventing transmission of their impacts to other market participants*."[49] The regulatory consensus decidedly favors clearinghouses conceptually, and has now turned to implementation.

The Federal Reserve, the Securities and Exchange Commission, and the Commodity Futures Trading Commission (CFTC)—three of the country's major financial regulators—are working on risk-management standards for clearinghouses, such as their collateral rules. The CFTC has finalized the review process for determining which swaps must be centrally cleared.[50] The president of the Federal Reserve Bank of New York, with substantial responsibilities for implementing the clearinghouse mechanisms for derivatives, wants derivatives to move through clearinghouses to stabilize financial markets.[51] Timothy Geithner, Secretary of the Treasury, put clearinghouses for derivatives at the top of his list of financial infrastructure fixes for the fractures that the financial crisis revealed.[52]

Regulators around the world saw the need for clearinghouses similarly.[53] The British Treasury concluded that "clearinghouses can impose consistent and robust risk management practices . . . . [G]reater use of [clearinghouses] can . . . reduce systemic risk."[54] "At the EU level . . . [clearinghouses] for all classes of . . . derivatives ha[ve] been [sought] with enthusiasm."[55] The European Union's post-crisis financial reforms demanded central clearing.[56] The 2009, crisis-influenced G20 conference of the

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[49] U.S. Gov't Accountability Office, GAO-09-397T, Systemic Risk: Regulatory Oversight and Recent Initiatives to Address Risk Posed by Credit Default Swaps 13 (2009) (Statement of Orice M. Williams, Director Financial Markets and Community Investment on the Regulation of Systems Risk in the Financial Services Industry), *available at* http://www.house.gov/apps/ list/hearing/financialsvcs_dem/gao_-_williams030509.pdf (emphasis supplied). Cf. Cass, supra note 19 (The "financial stock meltdown put new impetus behind the drive for a central clearinghouse for credit default swaps.").

[50] Gary Gensler, Chair, Commodity Futures Trading Comm'n, Testimony Before U.S. House Comm. on Agriculture (Feb. 29, 2012); http://agriculture.house.gov/sites/republicans.agriculture.house.gov/ files/pdf/hearings/Gensler120229.pdf.

[51] William Dudley, *How we will stop derivatives magnifying future crisis*, FIN. TIMES, Apr. 16, 2012, at 11.

[52] Timothy Geithner, Reducing Systemic Risk in a Dynamic Financial System, Remarks at the Econ. Club of N.Y., June 9, 2009, available at http://www.bis.org/review/r080612b.pdf.

[53] European Commission, Proposal for a Regulation of the European Parliament and of the Council on OTC Derivatives, Central Counterparties and Trade Repositories 14 (2010), *available at* http://ec.europa.eu/internal_market/financial-markets/docs/derivatives/20100915_proposal_en.pdf; European Central Bank, The Eurosystem's Policy Line with Regard to Consolidation in Central Counterparty Clearing (Sept. 27, 2001), *available at* http://www.ecb.int/pub/pdf/other/centralcounterpartyclearingen.pdf; Chander & Costa, supra note 13, at 676 et seq.

[54] [UK] Financial Services Authority & HM Treasury, Reforming OTC Derivatives Markets, Dec. 2009, at 11; Janis Sarra, *Credit derivatives market design*, *in* THE EMBEDDED FIRM: CORPORATE GOVERNANCE, LABOR, AND FINANCE CAPITALISM 205, 217-18 (Cynthia Williams & Peer Zumbansen, eds., 2011). An earlier set of British financial regulators had a more guarded view of clearinghouses' capacity to reduce systemic risk. Bob Hills et al., *Central Counterparty Clearing Houses and Financial Stability*, FIN. STABILITY REV., June 1999, at 122, 126-27.

[55] Joanne P. Braithwaite, Private Law and the Public Sector's Central Counterparty Prescription for the Derivatives Markets 8 (working paper, Mar. 21, 2011), *available at* http://ssrn.com/abstract=1791740.

[56] Proposal for a Regulation of the European Parliament and of the Council on OTC derivatives, central counterparties and trade repositories, COM (2010) 484 final (Sept. 15, 2010), Directive 2004/39/EC, of the European Parliament and of the Council of 21 April 2004 on markets in financial instruments; OECD AD HOC EXPERT GROUP, REGULATORY REFORM OF OTC DERIVATIVES, Nov. 2011, available at http://www.oecd.org/dataoecd/40/35/49242481.pdf.

world's twenty largest economies concluded that clearinghouses for modern financial products were vital and must be built by the end of 2012.[57]

There is thus considerable regulatory activity, much of it based on a highly optimistic sense of what a clearinghouse can do to reduce systemic risk.

II. WHAT A CLEARINGHOUSE CAN DO

Before examining clearinghouses' limited capacity to reduce systemic risk, consider first how they provide economic value, via trading efficiencies, particularly in normal times.

Clearinghouses can smoothly sort out and compress a tangle of trades. They can enhance price transparency and require standardization, thereby expanding the size of the market for the product traded. They make trading more efficient and narrow dealer profits. They make it easier for new firms to trade the cleared instrument, thereby enhancing competition. They centralize collecting collateral, can be the locus of regulation to assure strong collateral posts for risky trades, can mutualize losses among the clearinghouse members, and can even adjust collateral posting levels by assessing counterparty risk. The clearinghouse offsets obligations to a failing financial institution—profitable transactions that are assets of the failed institutions—against the failing institution's debts to the clearinghouse, allowing other participants to collect a greater share of the failed institution's value. Further explanation follows.

A. Standardizing and Price Transparency

Many financial markets are opaque. An occasional trader is unaware of the average price for similar transactions and, uninformed, can over-pay. A repeat trader knows more and can better assess if an offered price is too low or too high. This experienced trader turns its knowledge of the market into a stream of value. In such informationally-opaque markets, spreads widen between the occasional trader's buying price and another occasional trader's selling price, with experienced, knowledgeable traders profiting from the wide spreads.[58]

In contrast, a clearinghouse can make pricing public. It uses standardized financial products and can report trades regularly. Standardization facilitates price comparison for occasional traders,[59] inducing regulars to sharpen their pricing,

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[57] G20, Leaders Statement: The Pittsburgh Summit 13 (Sept. 2009), *available at* www.g20.org/load/780988012:

> [S]tandardized OTC derivatives contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties by end-2012 at the latest. … Non-centrally cleared contracts should be subject to higher capital requirements.

The EU has authorized the European Securities and Markets Authority to force traders to clear certain derivatives through clearinghouses. Jim Brunsden, *EU Reached Accord on Clearing Law for Over-the-Counter Derivatives*, BLOOMBERG, Feb. 9, 2012, *available at* www.bloomberg.com/news/2012-02-09/eu-reaches-deal-on-clearing-law-for-over-the-counter-derivatives.html.

[58] E.g., Hendrik Bessembinder & William Maxwell, *Markets' Transparency and the Corporate Bond Market*, 22 J. ECON. PERS. 217 (2008); Richard C. Green, Burton Hollifield & Norman Schürhoff, *Financial Intermediation and the Costs of Trading in an Opaque Market*, 20, REV. FIN. STUD. 275 (2007).

[59] Lester Telser & Harlow Higgenbothan, *Organized Futures Markets: Costs and Benefits*, 85 J. POL. ECON. 969 (1977); Lester Telser, *Why There Are Organized Futures Markets*, 24 J. LAW & ECON. 1 (1981).

narrowing the spread between what they pay and what they charge for the same deal. Because a clearinghouse with public pricing gives outsiders the same information as the regular traders, spreads narrow. Trading becomes less expensive.

B. Centralizing Counterparty Risk Assessment

Many financial trades are open-ended, meaning that the size of a trader's obligation shifts with market prices until the trade matures and the trader pays up. The party at risk wants to be protected if its trading partner—its counterparty—cannot pay. To manage this risk of counterparty insolvency, the traders post collateral.

1. Trading advantages of centralization. For a trader to know how much collateral it needs from its counterparty, it must assess both the deal's market value and the counterparty's credit quality. The trade might be profitable on paper, but if the counterparty cannot pay up, the winner cannot collect its profits. Traders thus have reason to pay attention to one another's solvency. A centralized clearing organization, the thinking runs, is the best way to pay attention, by putting the task on the clearinghouse not the traders. A single centralized player evaluates whether more collateral is needed and what collateralization formula to use.[60] The clearinghouse can use mechanical collateral rules, requiring collateral based on the trade, not the creditworthiness of the counterparty. Either way, total assessment costs decline.[61] (Critics could wonder—Craig Pirrong makes the following point effectively and was the first to do so[62]—whether the clearinghouse would do any better than credit rating agencies' personnel, which mistakenly thought for too long that America's core financial institutions were robust, when they were not.[63])

2. Regulatory advantages of centralization. Centralization can facilitate sound regulation. When trading is dispersed, regulators cannot readily see the system's aggregate risk-taking. Centralized clearing, the thinking runs, opens a clearer window for regulators into the market and its firms. The regulator can examine the clearinghouse's books to see who owes how much to whom. The information in a clearinghouse's books could help regulators make better-informed policy judgments, it is thought.

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[60] Says the CFTC's chair: "Central clearing … democratizes the market by eliminating the need for market participants to individually determine counterparty credit risk, as now clearinghouse stand between buyers and sellers." Silla Brush, *Dodd-Frank Swap-Clearing Rule Gets CFTC Final Approval*, BLOOMBERG, Nov. 29, 2012.

[61] Robert R. Bliss & Robert S. Steigerwald, Derivatives clearing and settlement: A comparison of central counterparties and alternative structures, FED. RES. BANK CHI. ECON. PERS., 4th Q. 2006, at 26.

[62] Craig Pirrong, *The Clearinghouse Cure*, 31 REGULATION 48, 51 (2008). See also Bruno Biais, Florian Heider & Marie Hoerova, *Incentive Compatible Centralised Clearing*, BANQUE DE FRANCE FIN. STABILITY REV, Apr. 2013.

[63] A clearinghouse that works according to mechanical rules will require collateral based on its members' average creditworthiness. It would require a future AIG of 2018 to post collateral, a better result than counterparties' requiring no collateral from an overrated AIG in 2008. But the AIG of 2018 would still under-post, because the mechanical clearinghouse would assess based on average counterparty risk, when AIG would be below average. Stronger players would not want the average assessment raised, because then they would have to post more collateral, which would be costly to them. And the clearinghouse personnel could mistakenly assess the average as lower than it really is, particularly since the members' incentives are to encourage low collateral posting.

C. Centralizing Collateral Collection

Similarly, centralized collateral holding could make trading cheaper and safer. If AIG, for example, had traded through a clearinghouse, the clearinghouse would have required AIG to post collateral to cover its trades. Some trades would have been profitable to AIG, allowing collateral backing up those trades to bolster the trades on which AIG had lost money and which it had trouble paying off.[64]

Transparency and collateral interact. Some clearinghouse proponents argue that the financial crisis was exacerbated because, as the president of the New York Fed said, "market participants[, . . .] unable to assess the true health of financial firms[, . . .] demand[ed] more collateral [than necessary] or . . . move[d] their trades at the first sign of trouble."[65] A well-functioning clearinghouse would have demanded good collateral before a crisis. The well-collateralized clearinghouse would then have made good on the trades that the failed firm missed.

D. Mutualizing Risk

Clearinghouse members also post capital to the clearinghouse upfront. This pooled capital becomes a guarantee fund for the cleared trades, spreading the risks of trading failure across the members.[66] This risk-spreading, it's thought, would stop the first domino from falling. Or, if it falls anyway, the costs of its failure could be dissipated by multiple financial institutions taking a piece of the risk and small part of the loss. (A counterpoint is that the risks could exceed the clearinghouse's capital. The government poured $180 billion into AIG, for example, to cover AIG's obligations and no clearinghouse will have that level of capitalization. CME, the Chicago Mercantile Exchange, is a large financial operation that is expected to take on many of the new clearing mandates through subsidiaries, but even it has only $20 billion in capital overall.[67]) Mutualization is a major articulated benefit of the clearinghouse.

E. Netting

Regulators want clearinghouse participants to benefit from netting. The netting principle is simple. Consider first its mechanics and its transactional advantages.

Posit AIG has obligations running both to it and from it. The obligations running to it are assets of AIG. Bank of America owes AIG $1 billion, while AIG owes Bear Stearns $1 billion. If the debts were handled one by one, Bank of America

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[64] However, most industry analysts who tout the advantages of centralized collateral do *not* focus on its capacity to have *more* collateral available to cover failed trades, but on clearinghouse participants posting *less* collateral. The traders want the clearinghouse to *free up* collateral, while keeping the overall level of risk unchanged. See, e.g., Norman, supra note 40, at 16. They want centralized collateral pooling not to reduce public, systemic risk, but to capture private benefits by reducing the size of their collateral postings. See id.

[65] Dudley, *supra* note 51.

[66] Jon Gregory, Counterparty Credit Risk 377 (2010).

[67] CME Group, Inc., 2012 Annual Report on Form 10-K, Mar. 1, 2013, at 33, *available at* http://www.sec.gov/Archives/edgar/data/1156375/000115637513000007/cme-2012123110k.htm. Half of that amount, aggregating CME's contributed capital, members' guarantees, and clearinghouse assessment strength, backs up the clearinghouse operations. CME Group, CME Clearing Financial Safeguards, at 19, *available at* http://www.cmegroup.com/clearing/files/financialsafeguards.pdf.

would pay $1 billion to AIG and then Bear would try to collect $1 billion from AIG. Bear, however, would face off against other creditors of AIG also clamoring for a piece of the $1 billion AIG just obtained from Bank of America. But AIG, itself in free fall, could not readily and fully pay the $1 billion to Bear Stearns. AIG's failure to pay would weaken Bear and, if that were the $1 billion that broke Bear's back, it would in turn fail after AIG. Contagion would spread. Worse yet, the funds may be stuck inside the weakened institution as its counterparties litigate to get their share.

The clearinghouse should stabilize this chain of obligations. Before the financial crisis weakened AIG, the clearinghouse would have taken over Bear's claim on AIG and AIG's claim on Bank of America. The clearinghouse would smoothly obtain the $1 billion from Bank of America. If the clearinghouse then turned that $1 billion over to AIG, AIG would use it for all of its creditors, not just Bear. But instead, the clearinghouse would write a $1 billion check directly to Bear Stearns, which, having readily obtained the cash when it cashed the check (or obtained the wire transfer), would not be threatened. Nor would Bear have to wait to collect a diminished amount from AIG outside of the clearinghouse, via a lawsuit or bankruptcy, with the funds not available for months or years. Contagion from AIG's failure would be cleanly contained in the clearinghouse. One domino (AIG) falls, but the entire row does not. Hence, clearinghouse proponents claim, a well-run clearinghouse would be critically important for controlling counterparty risk arising from risky trading in too-big-to-fail derivatives markets.[68] Similarly, traders may hold winning and losing positions with several different counterparties. Each position could involve a huge sum of money, but they together could net out to zero. Netting could settle these transactions out quickly, without waiting for slow settlements, lawsuits, and even bankruptcies.

Posit three firms owing one another $1 billion, as in Figure 1, below Each awaits payment from another before it can pay the third. AIG needs $1 billion from Bank of America so that it can pay Bear. But Bear needs the $1 billion that AIG owes it so that Bear can pay Bank of America. Since the claims and the obligations are with differing parties, the bilateral trades cannot readily be closed out simultaneously.

Compressing those positions one by one can be clumsy. Each party wants to be paid before it pays, inducing gridlock. A clearinghouse manages multilateral obligations better than ad hoc settlements,[69] turning the triangle into a set of balanced claims and assets inside the clearinghouse. No unstable financial firm has to wait for another to pay it before it can make good on its own obligations. In principle, the clearinghouse can provide certainty and liquidity on these triangular transactions.

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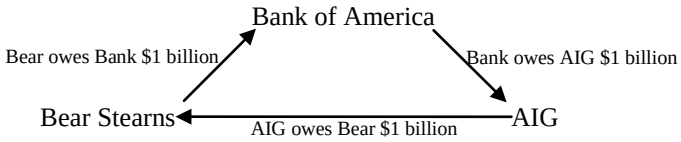
[68] A group of major economists, each influential in policy circles, identify this feature of netting as the most attractive systemic virtue of clearing credit default swaps. Squam Lake Working Groupwww.cfr.org/content/ publications/attachments, supra note 28, at 3:

> Suppose, to pick an ideal example, that Dealer A has an exposure on credit derivatives to Dealer B of $1 billion… . That is, if Dealer B fails, then A would lose $1 billion. Likewise, B has an exposure to Dealer C of $1 billion, and C has an exposure of A of $1 billion. Without a clearinghouse, default by A, B, or C leads to a loss of $1 billion [by one of the other two]. With clearing, however, the positive and negative exposures of each counterparty cancel, *and each poses no risk to anyone*, including the clearinghouse.

Keep an eye on the phrasing that cancelling "poses no risk to anyone," which I return to below. It poses no risk to "anyone" inside the clearinghouse, but poses risks to major players outside it.

[69] Bliss & Steigerwald, supra note 61, at 26.



Bank of America's balance sheet

Assets	Liabilities
$1 billion due from Bear	$1 billion owed to AIG

Figure 1. The triangular problem

This transactional efficiency, especially the narrowing of dealer mark-ups from transparency and the quicker settlement from netting, can be worth pursuing as a matter of general economic efficiency. But that inside-the-clearinghouse focus is too narrow a regulatory focus for evaluating systemic risk. As we see next in Part III, if a fourth systemically important creditor, say Citibank or a major money market fund, is owed substantial sums outside of the clearinghouse by one of the clearinghouse members, then the clearinghouse will silently weaken Citibank and the other outsiders.

III. WHAT A CLEARINGHOUSE CANNOT DO

To see why clearinghouses' capacity to contain systemic risk is more limited than is commonly thought, we first examine the setoff problem in bankruptcy scholarship. We see how setoff's principal effect is to transfer risk without eliminating it. This thinking parallels one of modern finance's core understandings, the Modigliani-Miller (M-M) capital structure irrelevance proposition.

First, I examine this analytic for its own sake and then systematize the structure of clearinghouses' systemic pro's and con's. Then, building on these risk transfer principles, I show that some objections already made to clearinghouses' purported capacity to handle systemic risk, as well as those new difficulties that I add the analysis, are analogous to the M-M capital structure problem, in that each benefit is offset, often in full, by this risk transfer principle. Thus, I demonstrate that the clearinghouses' capacity to ensure good collateral posting is largely a risk-transfer feature, not a risk elimination feature. Next, I show that the purported benefit of clearinghouse mutualization of counterparty risk us offset by the clearinghouse's potential to gather, focus, and funnel otherwise discrete counterparty risks into a systemically dangerous hyper-interconnected network. Finally, I show that these purported benefits, as well as some other real benefits, largely fail to dent the actual, serious, and more substantive systemic risks that afflicted the financial system in the last crisis, namely, asset price deterioration and financial opacity. Indeed, clearinghouses are as likely to worsen these systemic risks as to ameliorate them.

A. Transferring Losses, Without Eliminating Risks: Collateral Collection

A bankrupt company cannot choose to pay some debts and not others. The Bankruptcy Code commands it to stop paying its creditors and commands its creditors to stop seeking to be repaid, as the bankrupt is too poor to pay them all.[70] (Creditors are "stayed," in the bankruptcy vocabulary.) Then the bankrupt gathers its assets, whose value is then distributed to its highest priority creditors first and its next-highest priority creditors second, and so on, until a last layer can be paid only proportionately.[71]

But, for some pre-bankruptcy financial contracts, if the debtor has put up collateral, the creditor can immediately take that collateral in satisfaction of the debt, without waiting for the bankruptcy process to reorganize the debtor.[72] The risk transfer principle should be immediately clear when one examines the clearinghouse's improved ability to collect collateral that is one of the major advantages advanced for clearinghouses. The clearinghouse, by using standard collateral–requirement formulas, will more effectively collect collateral from derivatives traders than the market does generally, it is said by proponents. The mechanized collateral posts will, it is said, be higher, leading the clearinghouse to have stronger collateral than a decentralized market.

While a clearinghouse member that posts collateral to the clearinghouse lowers the clearinghouse's exposure to the extent of the collateral, it concomitantly raises the exposure of the other financial firms with which the member deals. The collateral available to one creditor, namely, the clearinghouse, is value denied to other creditors. Once the collateral has been posted to the clearinghouse, it is unavailable to others. The difference is, on a first approach, zero-sum, as it largely remains even after qualification. The clearinghouse wins, and someone else loses. If that someone else is systemically unimportant, systemic risk is reduced. But if that someone else is systemically vital, then the clearinghouse has only moved around systemic risk, not reduced it. Below, I show real world manifestations of this problem in Part IV.B. and in Figure 9, with the clearinghouse moving systemic risk away from its members and into the systemically vital money market.

The real world amounts involved are not small. Current estimates are that the clearinghouse and related rules for noncleared derivatives will require between $2 trillion and $10 trillion in additional collateral, with the rules requiring that the collateral be high quality. This shift, it's been said, will starve the rest of the world's financial market of these high quality assets.[73] Not yet realized is that these markets will thereby be subjected to greater risk when denied access to those high quality assets. This does not imply that the clearinghouse will increase systemic risk through this channel, but it does suggest that it is not decreasing systemic risk, but moving it elsewhere.

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[70] 11. U.S.C. (the Bankruptcy Code), § 362.

[71] Bankruptcy Code, § 1129((b).

[72] Bankruptcy Code, § 362(a)(17).

[73] Ralph Atkins, *Crunch Feared If Collateral Rules Enforced: New Clearing Regulations Could Suck in $10tn of Safe Assets*, FIN. TIMES, Feb. 5, 2013, *available at* www.ft.com/intl/cms/s/0/e7737740-6f85-11e2-b906-00144feab49a.html (the $2 trillion number comes from an IMF researcher; the $10 trillion estimate comes from ISDA).

B. Transferring Losses, While Only Partially Reducing Risks: Complex Setoff.

In this Section, I examine a scenario more complex than simple collateral posting. A creditor can apply funds due to it from the bankrupt-debtor, regardless of where the creditor sits in the priority ranking.[74] It can set off a debt it owes *to* the bankrupt with a debt due *from* the bankrupt. Setoff turns two collection efforts into a single transaction. If the debtor is solvent, its other creditors are unaffected. Setoff is well known to bankruptcy analysts to be distributionally innocuous and transactionally efficient when the firm is not bankrupt, and equally well known (in bankruptcy circles, both classic[75] and current[76]) to have sharp distributional consequences if the debtor is bankrupt. Setoff compresses a set—or ring, or triangle—of related transactions, effectively giving each member a security interest—collateral—in the amounts the debtor owes to the others. It can grab the amounts owed others to satisfy claims owed to itself. By doing so, it can hasten settlement. Clearinghouses do this compression on a wholesale basis. This setoff compression is thought to also be a major advantage of the clearinghouse.

I decompose compression's effects in this Section into de facto collateralization and a collapsing of claims, showing that a major portion of the benefit is the clearinghouse taking a de facto security interest—collateral—that transfers the risk of loss to the outside money market, which may well be systemically vital too. Again, Part IV.B. and Figure 9 will illustrate this transfer of loss and risk in real world terms.

Let's first see how setoff effectively embeds the risk transfer of collateralization, a feature long understood among bankruptcy analysts. Thereafter, I will apply the concept to clearinghouses.

Collier, long the most widely used bankruptcy treatise, informs the reader that "recognizing the right [of setoff] in bankruptcy often means that the creditor holding the right will . . . recover a greater percentage of his or her claim as compared to other creditors who have no similar entitlement."[77] Another treatise says the same: "the creditor with a setoff right is paid in full to the extent of that right, instead of the percentage dividend payable to general creditors."[78] Some bankruptcy analysts see setoff as justified, some see it as inappropriate; but both sides well understand that it alters priority among creditors.

Setoff's distributional impact can be demonstrated by a brief hypothetical. Posit that the Debtor, D, owes $100 to A, and A in turn owes D $100. If setoff were not in play, D would collect the $100 from A, and A would then have a $100 claim on D. If D had no other creditors, D would write the $100 check out to A, as in Figure 2. But if A can invoke setoff, before paying D back, then the obligations between A and D

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[74] Bankruptcy Code, § 553.

[75] James MacLaughlin, *Amendment of the Bankruptcy Act*, 40 HARV. L. REV. 583, 600-04 (1927).

[76] Barry E. Adler, Douglas G. Baird & Thomas H. Jackson, Bankruptcy 387-88 (4th ed. 2007); Robert L. Jordan, William D. Warren & Daniel J. Bussel, Bankruptcy 442 (5th ed. 1999) ("in bankruptcy, [setoff] produces results that fly in the face of the equality-of-distribution rule that we saw as the backbone of preference law"); Margaret Howard & Peter A. Alces, Bankruptcy 550-56 (2d ed. 2001) (excerpting *Elcona Homes*, discussed infra in text accompanying note 82); Elizabeth Warren & Jay Lawrence Westbrook, The Law of Debtors and Creditors 444 (6th ed. 2009).

[77] COLLIER ON BANKRUPTCY ¶553.02 (Allan N. Resnick & Henry J. Sommer eds., 16th ed. 2011).

[78] Charles Jordan Tabb, The Law of Bankruptcy § 3.7, at 165 (1997). *Accord*, David J. Buchbinder, A Practical Guide to Bankruptcy 190 (1990).

would balance out, and neither would have to pay the other. Claims would be settled out with less paperwork than otherwise.

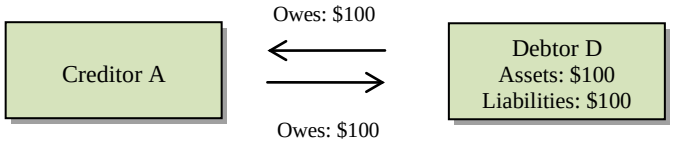

Figure 2. Basic setoff

Now conceptualize setoff more abstractly: For the debtor, money due from a creditor is an asset, potentially available to all of the debtor's creditors. But, through setoff law, creditor A can itself pay off its own obligation to D by using D's obligation to A. No third party is hurt when D is solvent and setoff requires fewer transactions.

But if D is insolvent *and* has creditors besides A, then the distributional consequence changes sharply. Without setoff, creditor A would be paid ratably with D's other creditors. But with setoff, D's other creditors will be disappointed. If some creditors can set off while other creditors cannot, the favored creditors' ability to set off affects the priority between otherwise equal creditors. Consider Figure 3. The debtor owes $100 to each of two creditors, A_1 and B. But it has only one asset, worth $100 — the $100 that a solvent Counterparty A_2 owes it:

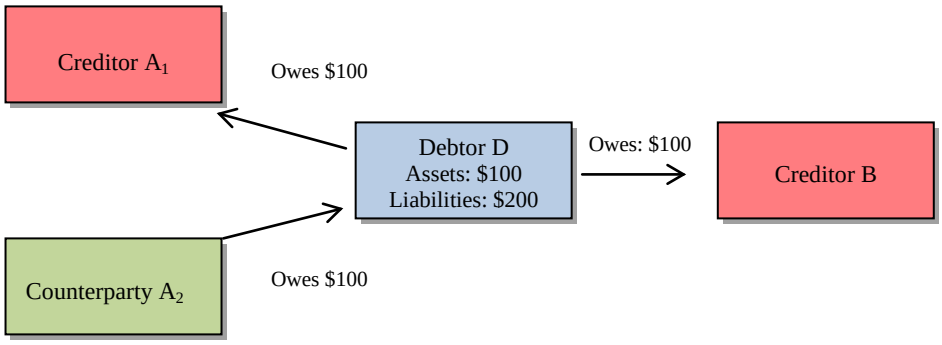

Figure 3. Multiple parties, with no setoff

The insolvent debtor, D, owes creditors more than the $100 it owns. The trustee of the bankrupt debtor, D, normally gathers the bankrupt's assets and then distributes them proportionately to the creditors. The trustee in D's bankruptcy would obtain the $100 from A_2 and then distribute it ratably to A_1 and B, each of whom would receive $50.

Next, collapse A_1 and A_2 into a single creditor, A, as in Figure 4, with mutual obligations running from and to D:

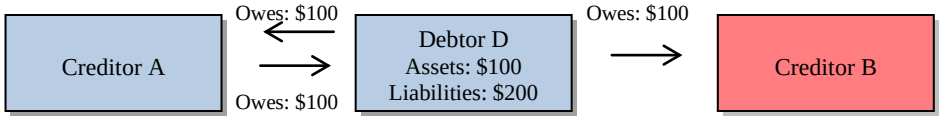

Figure 4. Multiple parties, with setoff.

79D's only asset is the obligation it owns from A to pay over $100. Without setoff A would deliver $100 to D. Then, with D having $100, A and B would each receive $50, or 50% of what D owes them. That is, A would receive back only $50, representing the proportion of D's assets ($100) to its total debts ($200). B would also get $50 in D's bankruptcy. But if A can set off, then it nets its $100 obligation *to* D *against* D's $100 obligation back to A. A would pay over nothing, obtaining $100 of value from D. B would receive nothing from D, as D would have no assets after A's setoff. Although A and B each had equal-sized unsecured claims, setoff allows A to gain priority over B.

Setoff externalizes the risks between A and D onto B. If A_1 and A_2, from Figure 3, could unite their claims, they also could externalize the risk of D failing to pay, onto B. Collapsing A_1 and A_2 into a single creditor, A, is financially equivalent to making A into a clearinghouse for A_1 and A_2.

Conceptualize A's setoff right as A having a security interest in its own obligation to the debtor. (Secured creditors are paid out of their security before anyone else.) The creditor's setoff right resembles a secured creditor's right to the debtor's account receivable. The security interest is the $100 account receivable from the creditor itself. And the usual scholarly rationale for setoff is just that—it's convenient and it resembles a security interest.[79]

Consider this excerpt from Professor John McCoid's *Setoff: Why Bankruptcy Priority?* on setoff law's impact in transferring, not eliminating, risk among creditors:

> Between solvent parties, setoff makes perfect sense. If you owe me $10 and I owe you $7, it is certainly efficient for you simply to pay me $3 . . . . Striking that balance affects no one else. If, however, one of us is insolvent and has other creditors, the sense of this solution is less obvious. It is hardly news that setoff . . . is preferential in effect. A creditor who owes money to his debtor [is fully paid to the extent it owes the debtor money], while other creditors receive less.[80]

Other bankruptcy scholars are in accord,[81] as is the Seventh Circuit, per Judge Posner:

> [A]n unsecured creditor fortunate enough to owe his debtor as much as . . . the debtor owes him can . . . receive 100 cents on the dollar, while the other unsecured creditors, who have nothing to set off against the debtor, might be lucky to collect 10 cents on the dollar. The difference in treatment seems based on a fortuitous difference among the unsecured creditors, and therefore arbitrary. . . . [Setoff] advance[s] one unsecured creditor over another merely because the first happens also to owe money to their common debtor. [82]

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[79] John C. McCoid, *Setoff: Why Bankruptcy Priority?*, 75 VA. L. REV. 15, 32-39 (1989); MacLaughlin, supra note 75, at 600-04.

[80] McCoid, *supra* note 79, at 15.

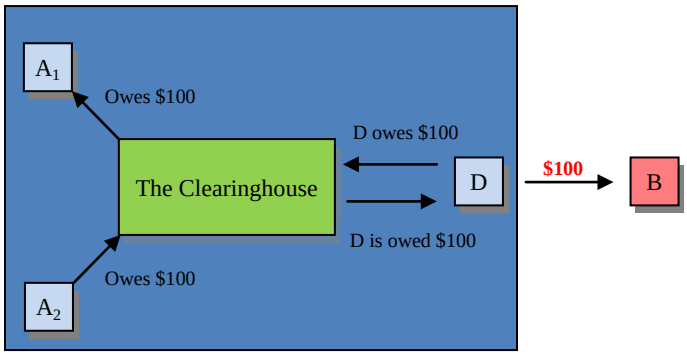
[81] See, e.g., Note, *Setoff in Bankruptcy: Is the Creditor Preferred or Secured?*, 50 U. COLORADO L. REV. 511 (1979); D.E. Murray, *Banks Versus Creditor of Their Customers: Set-Offs Against Customers' Accounts*, 82 COM L.J. 449, 464 (1977). Bankruptcy bars preferential eve-of-bankruptcy payments that favor some creditors over others. Such payments are recalled during the bankruptcy proceeding, to be shared proportionately among all unsecured creditors, not just the favored one. Bankruptcy Code, § 547.

[82] In re Elcona Homes Corp. 863 F.2d 483, 485 (7th Cir. 1988). Posner says that any rationale for setoff comes from the setoff beneficiary being like a secured creditor, with the debt to the creditor acting like the security.

Again, setoff is not necessarily poor policy. Scholars and judges understand that it favors some and disfavors others, splitting over whether this is wise or unwise.[83] Proponents do not argue that the efficiencies—settling mutual debts in a single transaction—reduce risk. Rather, it redistributes losses. Sitting by itself, setoff makes what may be innocuous distributional reconfigurations and compresses two transactions into one. In the clearinghouse it may do the same. Whether its basic risk transfer character can arrest systemic risk in any major way, however, has yet to be seen.

C. Clearinghouses as Risk Transfer Writ Large

Now consider the bilateral transactions from Figure 3. There, D owes each of A_1 and B $100. If D fails, A_1 and B are at risk. But if all of the A_1, A_2, and D trades had been moved into the clearinghouse, then A_1 would look to the clearinghouse to be paid, not to D. The clearinghouse can cover for its members the payments that a weakened D could not make. Figure 5 illustrates.



(1) Clearinghouse

Assets		Liabilities	
A2	$100	A1	$100
D	100	D	100
	$200		$200

(2) D after clearinghouse

Assets		Liabilities	
C	$100	C	$ 100
		B	100
		Deficit	(100)
			$100

(3) D after clearinghouse setoff

Assets		Liabilities	
C	0	C	0
		B	$ 100
		Deficit	(100)
	0		$200

Moving Figure 3's A-to-D bilateral transactions into a clearinghouse yields the above scenario. A_1 no longer depends on D for payment, but looks to the clearinghouse. The $100 debt from A_2 to D becomes an asset of the clearinghouse, fully available to A_1, but not available even in part to B, in red.

Figure 5. Inserting a clearinghouse into the multiple party, bilateral market

[83] *See, e.g.*, Citizens Bank of Maryland v. Strumpf 516 U.S. 16, 18 (1995) ("The right of setoff … allows entities that owe each other money to apply their mutual debts against each other, thereby avoiding 'the absurdity of making A pay B when B owes A.'" *quoting* Studley v. Boylston Nat'l Bank, 229 U.S. 523, 528 (1913)).

1. Without setoff, without a clearinghouse. Move the clearinghouse scenario from abstract A's and D's to real-world institutions. A weak financial institution—make it Bank of America, "BoA"—loses money and becomes insolvent. BoA has a contract with an insurer, say, AIG, on which it owes AIG $1 billion. BoA also has a contract with, say, Bear Stearns, on which Bear owes BoA $1 billion.

If the money moves outside of a clearinghouse, as in Figures 1, 2, and 3, above, BoA must pay AIG $1 billion directly. If it cannot pay, AIG may fail. True, BoA has a readily-available asset of $1 billion, namely the monies that Bear owes it. But even if Bear is solvent enough to pay up, that $1 billion flows first to BoA, which must use that $1 billion to pay all of its creditors, not just AIG. Depending on the extent of BoA's other obligations, its failure could well lead to AIG's failing as well.

2. With setoff, but without a clearinghouse. If the monies due to BoA were instead due from AIG (and not from Bear), then AIG could in effect collect the $1 billion from BoA. AIG would set off the $1 billion it owed BoA against the $1 billion BoA owed it. AIG would not have to pay out the $1 billion and would thus be insulated from BoA's failure.

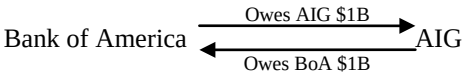
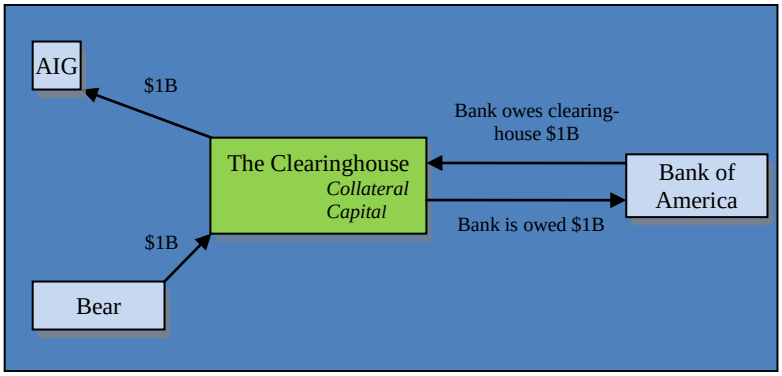


Figure 6. AIG's hypothetical setoff with Bank of America.

3. With a clearinghouse, which institutionalizes wide, de facto setoff. Next, move the AIG, BoA, and Bear triangle into a clearinghouse. Bear owes the clearinghouse, *not* BoA, $1 billion. The strong clearinghouse, not the weakened BoA, owes $1 billion to AIG. The clearinghouse owes BoA $1 billion (from the original Bear-to-BoA debt) but BoA also owes the clearinghouse $1 billion (from the original BoA-to-AIG debt). The clearinghouse sets off its symmetrical obligations to and from BoA, netting them down to zero. It collects $1 billion from Bear and uses that $1 billion to pay AIG. If the impact stopped there, the clearinghouse would, as advertised, have reduced systemic risk, justifying the regulatory energy put into its construction.



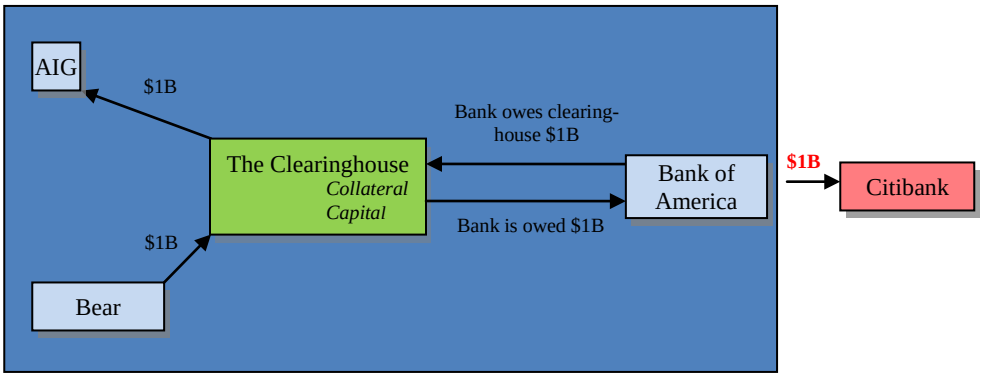
In this scenario, moving the triangular trades into a clearinghouse stabilizes AIG. AIG might not have been able to fully collect $1 billion from BoA outside of the clearinghouse. But the clearinghouse nets its obligation to BoA against the obligation from BoA, collects $1 billion from Bear Stearns, and then has an unencumbered $1 billion to pay to AIG.

Figure 7. The clearinghouse stabilizes AIG

Moreover, a speedy setoff transpires. Despite BoA's failure, AIG is paid quickly and, although teetering, is not pushed over into insolvency. It obtains its needed $1 billion from the clearinghouse. All is, thus far, good. Figure 7 illustrates.

5. How the clearinghouse transmits inside loss to the outside. The realism I add here is simple. Bank of America has not just one creditor: AIG. It also owes $1 billion to Citibank outside the clearinghouse. The original contract with AIG was a derivatives contract, which clears. The contract with Citibank is another kind that does not. (The source of BoA's obligation to Citibank is not vital to the analytics. It could come from custom-made trades such as uncleared derivatives obligations, discussed below in Part V, but it could also be a simple obligation from a loan syndicate, a guarantee, or a sale from one bank to the other of a subsidiary.) Figure 8 illustrates.

Posit that Bank of America originally had a clearable derivatives deal with Bear Stearns, one that turned against Bear, with Bear owing the clearinghouse, and the clearinghouse owing BoA, $1 billion. Without a clearinghouse, BoA would have had a $1 billion asset (the $1 billion that Bear owes it) and would owe $2 billion, half to AIG and half to Citibank. Having only $1 billion, BoA would pay AIG and Citibank each $500 million and each would suffer a $500 million loss. The clearinghouse stabilizes AIG in Figure 8, as it did in Figure 7. The $1 billion the clearinghouse owes to BoA never leaves the clearinghouse to become an asset of BoA, Citibank cannot touch that value. Due to the clearinghouse's enhanced capacity for setoff, an insolvent BoA fails to fully pay Citibank. The clearinghouse stabilizes AIG, just as regulators hope it will, but it does so at the expense of destabilizing Citibank. Systemic risk is not lowered; it is transferred.



The clearinghouse stabilizes AIG, as in Figure 7. But because the $1 billion the clearinghouse owes to Bank of America never leaves the clearinghouse and instead is paid out of posted capital or setoff, Citibank cannot touch that value. An insolvent BoA fails to fully pay Citibank. The clearinghouse stabilizes AIG, at the expense of destabilizing Citibank. Systemic risk is not lowered; it is transferred.

Figure 8. The clearinghouse stabilizes AIG, but destabilizes Citibank

This clearinghouse scenario in Figure 8 resembles the setoff in Figure 4. The straightforward illustrations here resemble those common in explanations championing clearinghouses. Typical explanations show a web of interconnected trading, which the clearinghouse greatly simplifies.[84] The explanations soundly illustrate clearinghouses

[84] See, e.g., Norman, supra note 40, at 9, who illustrates the untangling of multiple bilateral

simplifying a transactional tangle and speeding up settlement. But *simplifying* a tangle does not by itself *eliminate* systemic risk if the tangled traders have systemically vital outside obligations that the simplification deters them from performing. The clearinghouse protects AIG, eliminating counterparty risk *by transferring it to Citibank*, which instead of losing $500 million, ends up losing the full $1 billion.[85] Regulators would need to know that the institutions and markets that are made to bear the risk are systemically less important than the clearinghouse members. But not only has this not been shown, it has not even been part of the regulatory inquiry and it may well not be true. The outsiders' systemic unimportance is not self-evident, as we see below. Regulators have been overconfident about clearinghouses' capacity to reduce systemic risk, because they have not examined the risk transfer mechanics. The loss is not avoided; it is transferred.

The clearinghouse here has not reduced systemic risk from the loss, just as classic bankruptcy setoff analysis shows that setoff does not primarily reduce, but only transfers, the loss. The clearinghouse transferred BoA's default risk from AIG to Citibank, but did not eliminate that risk from the system. If Citibank and AIG are equally systemically important, the clearinghouse has done AIG good, but has not improved the systemic outcome. If Citibank is more systemically important than AIG, then the clearinghouse would have *increased* systemic risk by weakening a tottering Citibank. One domino still stands, but another domino now falls.

Overall here, on the contagion conduit for systemic risk, the clearinghouse cannot be said to have ex ante reduced or increased systemic risk. This is a serious debility because Dodd-Frank's regulatory raison d'être is to reduce systemic risk by reducing contagion from counterparty failure. And, when we return below to information contagion and asset price panics, we see clearinghouses will be helpless forts on a plain, with the systemic action damaging the system elsewhere.

D. The Modigliani-Miller Irrelevance Propositions

One of finance theory's central insights helps us see how clearinghouses transfer systemic risks from risky financial contracts, without necessarily reducing risk to the financial system overall.

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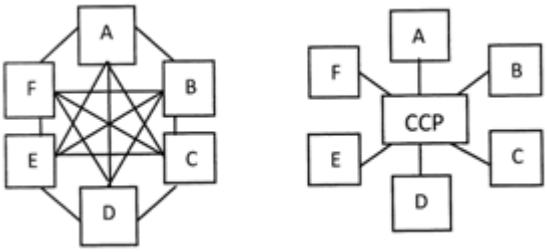
derivatives deals on the left, by interposing the clearinghouse ("CCP") sitting between every party, on the right:



[85] This overall point has not gone unnoticed, although it remains unheeded. Pirrong, supra note 62. The clearinghouse might settle the transactions faster than if they transpired off of the clearinghouse. Such a reduction in counterparty risk—reducing waiting time—could reduce systemic risk. I consider this possibility in Part IV.C., where I also consider its opposite—that the clearinghouse could slow down transaction settlement.

The fundamental risk that a clearinghouse lifts from its members' shoulders persists. Much of it is transferred to others outside the clearinghouse. Hence, the view that clearinghouses reduce systemic risk must be qualified and, possibly, reversed. One can think of this as analogous to a law of energy conservation—risk is not directly reduced by this kind of financial manipulation, but only shifted from one shoulder to another. For such insights and development, Franco Modigliani and Merton Miller won their Nobel Prizes.

Modigliani-Miller ("M-M") irrelevance and clearinghouse overconfidence are conceptually parallel: Prior to the M-M irrelevance propositions, widespread thinking in academic and practice-based finance circles had it that an optimal debt level in a corporation's financial structure reduced the cost of capital because debt reduced risk for investors. Corporate debt was safe and cheap, and in the pre-M-M thinking, its safety and lower cost were gains for the firm. Because creditors took on less risk of the firm's failure, creditors charged the firm less and stockholders profited.

Modigliani and Miller showed that the conventional risk-reduction wisdom could not be true. The riskiness of corporate debt and equity emanates from the riskiness of the firm's operations. Modulating the level of debt reallocates risk between debt and equity, but it does not eliminate a business's underlying risk. As long as markets are sufficiently efficient and outsiders understand a firm's operations and expected cash flows, the firm's debt policy is irrelevant to its operational riskiness and its overall value.[86]

Later work showed how capital market inefficiencies could allow capital structure choices to create (or destroy) firm value: Information inside and outside the firm is not identical, and debt can mitigate informational inefficiencies better than equity.[87] The firm's managers may work harder and smarter, if more debt makes insolvency and managerial turnover more likely. Tax-deductible debt has been taxed less than equity. But too much debt leads to costly bankruptcies, restructurings, and lost investment opportunities. Each of these exceptions to M-M's theoretical structure can make the firm with the right level of debt more valuable. But those market frictions have not reversed M-M's core insight, that in the first instance the capital structure choice determines who bears the firm's operational risk; but it does not change the overall level of risk or the firm's overall value. One needs further analysis to show how a capital structure choice can increase a firm's total value.

The clearinghouse-setoff analysis is parallel. The clearinghouse does not in itself reduce systemic risk emanating from a failing Bank of America, even if it stops that contagion risk from spreading to a systemically vital AIG. Rather, the clearinghouse transfers the loss to BoA's *other* creditors, without changing the financial system's overall value. If the other creditors are systemically unimportant, or financially stronger, or better able to adjust to the risks, then, yes, systemic risk is reduced. But the relative strength has not been shown in the pro-clearinghouse writing or even been analyzed, and is far from foreordained.

While the abstract M-M framework does not reflect the fullness of financial reality, it will not do in academic or practical finance analysis anymore to assert that

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[86] Franco Modigliani & Merton H. Miller, *The Cost of Capital, Corporation Finance and the Theory of Investment*, 48 AM. ECON. REV. 261 (1958).

[87] For syntheses of the post M-M thinking, see Richard Brealey, Stewart Myers & Franklin Allen, Principles of Corporate Finance 440–67 (10th ed. 2013); Ivo Welch, Corporate Finance: An Introduction 590 (2d ed 2013).

debt increases value and, hence, one should increase debt towards the optimal. One must ascertain whether the debt and its terms could induce increased managerial effort, reduce information costs in the market, reduce the corporate tax bill, or otherwise increase firm value. If not, the debt is of limited value, or even detrimental. Such analytic efforts need to be made for clearinghouses.[88] The analytics thus far, which we extend in sections below, demonstrate why the clearinghouses' major purported benefits do not clear that hurdle and others seem contestable or offset themselves by other costs. Clearinghouses principally redistribute but do not eliminate systemic risk, making them of limited value in reducing the systemic risk emanating from unstable financial institutions.

IV. EXTENDING THE RISK TRANSFER PRINCIPLE: CREATING AND DESTROYING SYSTEMIC RISK

The core advantage that clearinghouse proponents put forth is that clearinghouses can contain the contagion risk emanating from the failure of a major financial institution, preventing the failure from escaping the clearinghouse to attack others. Interconnected institutions, it's thought, would be protected from risks such as those from the failure of the huge Long-Term Capital Management ("LTCM") in 1998, when LTCM's bets on the direction of Russian interest rates and exchanges rates moved unexpectedly against it.[89] The systemic fear was that LTCM's defaults would spread, dragging down the many Wall Street firms that LTCM could not pay back.[90] We have shown that for the most part a clearinghouse moves that type of counterparty contagion risk elsewhere, but does not eliminate it. Hence, the wide confidence in clearinghouses as bulwarks to contain systemic risk is inappropriate.

Potential rebuttals to the risk transfer uncertainty analytics should be considered. Could the clearinghouse reduce total systemic risk in other ways? Next on clearinghouse proponents' lists is that the clearinghouse mutualizes risk, dissipating it among members, turning something explosive into several healable wounds. Another possibility is that the clearinghouse's transactional efficiencies become the marginal benefit that saves the systemically vital firm. A third rebuttal would argue that the

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[88] Such M-M type thinking has improved our understanding of other bankruptcy issues. Thus, secured debt has been understood to transfer risk, not necessarily reduce it, with the transfers moving to tort creditors, as Alan Schwartz has shown, Alan Schwartz, *Security Interests and Bankruptcy Priorities: A Review of Current Theories*, 10 J. LEGAL STUD. 1, 3, 7-8, 11 n.28 (1981), or to nonadjusting contract creditors, as Lucian Bebchuk and Jesse Fried have shown. Lucian Bebchuk & Jesse M. Fried, *The Uneasy Case for the Priority of Secured Claims in Bankruptcy*, 105 YALE L.J. 857 (1996).

Similarly, strong priorities for derivatives contracts in bankruptcy have been shown to transfer the risk of derivatives' failures to the bankrupt's other creditors, not necessarily eliminating the risk of these new instruments. Franklin R. Edwards & Edward R. Morrison, *Derivatives and the Bankruptcy Code: Why the Special Treatment?*, 22 YALE J. ON REG. 91, 101 (2005); Mark J. Roe, *The Derivatives Players' Payments Priorities as Financial Crisis Accelerator*, 63 STAN. L. REV. 539 (2011); cf. Stephen J. Lubben, *Repeal the Safe Harbors*, 18 AM. BANKR. INST. L. REV. 319 (2010); Frank Partnoy & David A. Skeel, Jr., *The Promise and Perils of Credit Derivatives*, 75 U. CIN. L. REV. 1019, 1036 (2007); Michael Simkovic, *Secret Liens and the Financial Crisis of 2008*, 83 AM. BANKR. L.J. 253 (2009).

[89] Franklin R. Edwards, *Hedge Funds and the Collapse of Long-Term Capital Management*, 13 J. ECON. PERSP. 189, 199 (1999).

[90] Id. at 189 ("the misadventures of a single wayward hedge fund[, Long Term Capital Management,] with only about $4.8 billion in equity at the start of 1998 … [took] the United States … close to the precipice of financial disaster… . [W]hat might happen if a number of hedge funds got into [similar] trouble?").

clearinghouse transfers the risk from systemically vital insiders to systemically unimportant outsiders. A fourth is that the clearinghouse will provide speed and certainty to its insiders, without degrading the speed and certainty of settlement for the outsiders. A fifth is that clearinghouses could restructure derivatives-trading so that it is less concentrated, with trading occurring outside of the core too-big-to-fail financial firms.

While some of these rebuttals are conceptually strong, as far as they go (that is, they can provide a real benefit), and none should be fully rejected, each needs to be qualified by the risk transfer concept. With the risk transfer concept in mind, one sees that each asserted impact will often be reduced by offsetting movement of risk and loss, and sometimes rendered minimal or even directionally uncertain.

Worse, these additions fail to reverse the second fundamental clearinghouse limitation, namely that the core systemic problems of the last financial crisis grew out of information contagion and an asset selloff, not from the containable failure of a key financial institution. Information contagion and an economy-wide asset sell-off are systemic degradations that clearinghouses are not designed to reverse, which they may readily exacerbate, and which the rebuttals do not handle. I address these rebuttals and their limits in this Part IV.

A. Clearinghouse Mutualization Mechanics: Dissipating or Gathering Systemic Risk?

A clearinghouse mutualizes risk among the clearinghouse's member, spreading it so that they all insure one another's obligations. Several financial institutions put up capital on which the clearinghouse can call. A systemically important institution that fails is thereby insured by the other members, stopping the systemic problem before it gets out of hand. But the risk transfer uncertainty principle I have pushed forward demonstrates that the mutualization benefit is offset by an equal and opposite cost, because mutualization also gathers disparate risks, focusing them in a way that can make a financial entity that was hardly vulnerable before into one that is seriously vulnerable after.

That is, the clearinghouse can dissipate risk, yes, but its structure can just as well funnel multiple separate risks onto a systemically dangerous focal point. A clearinghouse can thereby create systemic danger that otherwise would have dissipated naturally. Ex ante, there's little reason for regulators to think that clearinghouse mutualization improves our overall systemic risk profile. In this section, we see why.

1. MF Global risk. The failure of a systemically unimportant but big clearinghouse member could put the systemically important clearinghouse at risk. If the outsider fell when standing alone, its failure would be local, not systemic. But if it trades via a clearinghouse, then, during a period of financial and economic uncertainty, all clearinghouse trading might freeze up for fear that the clearinghouse could fail.

The 2011 failure of the not-small MF Global, with $40 billion in assets, was a local failure.[91] It lost on massive (and potentially clearable) bets on European sovereign debt, and it misplaced more than $1 billion in customer money.[92] Consider

[91] MF Global Holdings Ltd., Annual Report (Form 10-K), at 84 (Mar. 31, 2011), *available at* http://www.sec.gov/Archives/edgar/data/1401106/000119312511145663/d10k.htm#tx172225_27

[92] Nick Brown, *MF Global trustee sees $1.6 billion claims gap*, REUTERS (Feb. 10, 2012), http://www.reuters.com/article/2012/02/10/us-mf-global-trustee-gap-idUSTRE8191QF20120210

the impact of MF Global's failure if it had cleared its transactions on one of the new clearinghouses. Its failure alone was not systemically dangerous, but if it could not have made good on major obligations to a clearinghouse, the clearinghouse would then be at risk. If the clearinghouse was itself too-big-to-fail, then the clearinghouse would have manufactured systemic risk that was not otherwise present.

A clearinghouse may move serious but containable risk from big but isolated, not-too-big-to-fail financial institutions into the clearinghouse itself, worsening systemic risk. If the clearinghouse must then be rescued,[93] or if uncertainty about the clearinghouse's solvency led trading in the clearinghouse's products to cease, then the clearinghouse would have gathered in risks from an outside innocuous environment into a systemically dangerous one.[94] Funneling otherwise distinct, separated risks into a vital institution is the systemically dangerous reverse of mutualizing a single large risk via the clearinghouse. It's unclear ex ante which effect is potentially bigger or more likely. Regulators are focused on the benefit, not the equally plausible cost.

2. Aggregations of smaller traders. Regulators will insist on opening the clearinghouse to a wide range of financial participants, including smaller ones. If a few midsized traders fail simultaneously and cannot make good on their obligations to the clearinghouse, the systemically important clearinghouse could be put at risk. The clearinghouse would again have created and funneled, but not dissipated, systemic risk.

Ben Bernanke, now the Federal Reserve chair, showed how financial aggregation via clearinghouses would concentrate the destructive power of small trades into a single institution:

> While normally the default risks insured by the clearinghouse are idiosyncratic [risks of individual] traders, systemic risks are also present... . [A] large price move in the futures market, which, particularly if it were coupled with severe declines in asset valuations in the rest of the economy, might lead to a large number of defaults. … *Then there seems to be a potential structural problem with the clearinghouse arrangement*. … [T]he poor functioning or shutdown of the futures market *might exacerbate the adverse conditions that precipitated the problem in the first place*.[95]

Bernanke concluded that clearinghouses must *exclude* systemic shocks from their insurance function, because clearinghouses could not withstand such shocks, just as some insurance markets exclude economy-wide damage from war, hurricanes, or similar shocks that cannot be well diversified.[96] Yet, it's exactly the function that Bernanke *excluded* back then in his post-1987 crash analysis—systemic risk absorption—which the regulatory world now seeks to make clearinghouses' primary role.

3. Correlated failure. Correlated financial failure is closely connected. Mutualization presupposes that while one financial firm might go down, the others

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[93] See Jeremy C. Kress, Credit Default Swaps, Clearinghouses, and Systemic Risk: Why Centralized Counterparties Must Have Access to Central Bank Liquidity, 48 HARV. J. LEG. 49 (2011) (criticizing Dodd-Frank limitation on Fed loans to clearinghouses).

[94] Jeremy Stein, *Securitization, shadow banking & financial fragility*, DAEDALUS, Fall 2010, at 41, 49-50.

[95] Bernanke, supra note 5, at 143-44 (emphasis supplied).

[96] Id.

would be stable enough to absorb and spread that one firm's loss without further damaging the economy. But in a systemic crisis, the causes of one firm's failure can simultaneously bring down other firms, whose aggregate failure can in turn collapse the interconnected system.

Regulators have extolled mutualization's potential for dissipating risk as a core benefit of the clearinghouse, but they have been focusing on clearinghouse's potential to handle an isolated failure (or handful of failures), while not paying enough attention to the conceptual problem of correlated failures. The crisis was nasty not because an isolated firm failed, for which mutualization might have been useful, but because so many of the country's major financial firms held poor quality mortgage-related assets and these firms were interconnected, such that the risks each faced paralyzed the financial system.

The clearinghouse is not well-constructed to handle this problem of simultaneous setbacks in multiple interconnected financial firms. Indeed, the clearinghouse itself could be the situs for the kinds of systemic interconnections that were central to the 2008–2009 financial crisis that paralyzed the financial system. With the clearinghouses, a few firms could fail, and their connection to the clearinghouse could threaten one another, threaten the clearinghouse itself (more on that below), and threaten otherwise unaffected firms that the clearinghouse is connected to. Clearinghouses can make this interconnectedness and simultaneous failure problem harder, not easier, because they institutionalize interconnectedness of the country's major financial institutions.

An analogy to the limits of clearinghouse mutualization: During the lead-up to the 2007-2009 crisis, the marketplace aggregated the risks of multiple securitizations of mortgages and sold upper layers (purportedly low-risk) and lower layers (more risk, but diversified). These securities were marketed and purchased as risk-reducing mechanisms, without much thought that if one of the securitizations failed, the failure could readily be due to widespread deterioration of the American mortgage market. Aggregating the securities (which was fundamentally *mutualization*) was designed to diversify, but because the core risks were correlated, the aggregations concentrated risk without dissipating it. The clearinghouse would do much the same. It will mutualize risk, but mutualizing a widespread problem afflicting many core financial firms—simultaneous realization that too many firms were over-invested in low-quality mortgage securities—will not reduce systemic risk. Clearinghouses would have failed to handle this aspect—a central one—of the 2008–2009 financial crisis.

4. Mutualization as increasing transparency or worsening opacity? Mutualization provides certainty of settlement, according to clearinghouse proponents, and that such certainty will reduce panic in a crisis. Traders will know that counterparty risks are under control because the clearinghouse, backed by its capacity to make substantial capital calls on its members, is strong. Trading will not freeze up, even in a tough economic climate.

This is true, as far as it goes. But posit that one of our five major derivatives trading institutions is tottering because of investment losses. The pro-clearinghouse thinking is that the clearinghouse cabins the risk of panic, because counterparties to the tottering institution know that the clearinghouse will make good on the transactions even if the weakened institution does not. They accordingly continue trading with the tottering member and transfer their trades to the strong clearinghouse.

But uncertainty about a prime member can induce panic elsewhere: If traders fear that that member will not be able to meet a capital call (because it is tottering),

then that will call into question both the clearinghouse and the solvency of the *other* clearinghouse members upon which the clearinghouse will make capital calls. Worse, if the tottering member must sell assets to raise cash, then those sales will press downward the value of similar assets held by other clearinghouse members. If that pressure results in a sharp decline in asset values, the deterioration will call into question members' capacity to meet a clearinghouse capital call and, hence, their own solvency. Trading may freeze up because trading flow depends on members' capital availability for support.

Worse yet, because clearinghouses are constructed around single products (one for foreign exchange, another for interest rates, another for commodities), asset price deterioration induced by one tottering member can induce clearinghouse-wide asset price deterioration, triggering further collateral calls from the clearinghouse itself, and thereby exacerbating the same ugly financial spiral that the economy suffered from in the financial crisis. The clearinghouse's strength in standing behind the cleared trades may then be subject to marketplace doubts because its strength depends on its members' solvency. But its members, to whom the clearinghouse would turn to for support, are the weakened primary derivatives dealers themselves. If one or two appear to be insolvent and unable to meet capital or collateral calls, then mutualizing risk via the clearinghouse will degrade the entire clearinghouse, cast an ominous shadow over the financial market its meant to steady, and risks calling into question the solvency of the other clearinghouse members.[97]

5. Increased internal trading, more externalized risk. An efficient clearinghouse, especially one with implicit too-big-to-fail government backing, will increase trading volume. Although the trades may be sound when done one-by-one, they may become systemically risky when voluminous[98] by expanding critical financial institutions' risky trading. To the extent that systemic risk is in the *size* of the overall market for financial derivatives, then the clearinghouse impact in expanding the market is not wholly systemically good.[99]

* * *

In sum, mutualization aggregates, but does so both protectively and destructively. If the clearinghouse dissipates the costs of a member's failure by aggregating more support for the failing trader, it protects and reduces systemic risk; but when it aggregates discrete risks, as it must through its central operation, it can destructively create systemic risk where there had been none.[100]

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[97] Cf. REINIER KRAAKMAN ET AL., THE ANATOMY OF CORPORATE LAW 10 (2d ed. 2009); Henry Hansmann & Reinier Kraakman, *The Essential Role of Organizational Law*, 110 YALE L.J. 387, 402 (2000) (those trading with a partnership must know the net worth of each partner to assess the partnership well).

[98] Craig Pirrong, The Economics of Clearing in Derivatives Markets: Netting, Asymmetric Information, and the Sharing of Default Risks Through a Central Counterparty 25-30 (Mar. 2009) (University of Houston working paper), *available at* www.ssrn.com/abstract=1340660.

[99] If these local efficiencies in trading, transparency, and speedy netting provide enough efficiency gains that a marginal but systemically dangerous institution survives instead of fails, then the clearinghouse efficiencies are marginally systemically beneficial. The systemic risk argument is bigger — that the institution seriously targets and reduces a core systemic risk.

[100] Clearinghouses will be regulated efficaciously and superior regulation will contain systemic risk, proponents argue: Regulation of the banking system has been persistently inadequate (because it is complex, captured by the regulated, or suffers from regulatory error). Regulation of clearinghouses will also be complex, subject to industry capture, and susceptible to regulatory error. It is not a cure for the persistent difficulties of financial regulation, just another site for their manifestation. Over time, regulators

B. Clearinghouse Internal Mechanics: Can They Alone Contain Systemic Risk?

Here we consider a key clearinghouse efficiency to see how it can, and cannot, be more than marginal, and how it can affect systemic risk. Clearinghouses simplify the circular problem, which is illustrated in Figure 1. If both (1) the members have no exterior obligations and (2) settling the internal obligations quickly is the primary systemic goal, then the clearinghouse could reduce systemic vulnerability.

The common view in derivatives clearing circles is that clearinghouse setoff does not pose risk to anyone else.[101] But derivatives-trading financial institutions have lives outside of the clearinghouse, and those outside financial lives and interconnections are what's systemically important. The outside lives involve the country's business and consumer loan base, its bank deposits, and its financial flows. The vulnerability of these derivatives-trading institutions' *other* interconnections with the real economy and with other financial players are what make unstable derivatives trading potentially systemically dangerous. The clearinghouse does not isolate the systemically important firm from the rest of the real economy, but moves its risks of failure from one spot to another.

So, first off, the circular problem that a clearinghouse solves is not *in isolation* a systemic problem. Failure of a group of derivatives traders that do not strongly connect either to major parts of the real economy or to other critical financial markets is regrettable, but not systemically dangerous. MF Global's post-crisis failure partly illustrates. It traded derivatives, but its failure was not systemically costly. If a clearinghouse made its failure less costly, that would be good, but it would not be systemically beneficial. Netting inside the clearinghouse compresses the traders' cross-obligations and settles them quickly, but these obligations are systemically important only if the clearinghouse's members have important obligations outside of the clearinghouse. And if they have vital outside obligations, then clearinghouse compression transfers risk from inside to outside, which does not in itself lower overall systemic risk. It's not easy to have it both ways—that the financial institution's failure is systemically dangerous but the institution itself is sufficiently isolated that its failure can be contained inside the clearinghouse.

The core American derivatives-trading financial institutions are Bank of America, Citibank, Goldman Sachs, JP Morgan Chase, and Morgan Stanley.[102] They have large, deep, recurrent, and systemically critical interconnections with one another *and* with the rest of the economy *that are outside the clearinghouse*, such as uncleared (and unclearable) derivatives transactions, widespread old-school lending syndicates, interbank debt,[103] deep and wide bank commercial paper markets, and the massive new-finance repo market. (Below, I illustrate via Figure 9 and analyze in detail one

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will not be able to perform as well as ardent clearinghouse backers hope; for example, major financial players will have incentives to saddle the clearinghouse with low-probability balloon risks, which the government will feel compelled to absorb in a future major financial storm.

[101] Squam Lake Working Group, supra note 28, at 3.

[102] Office of the Comptroller of the Currency, OCC's Quarterly Report on Bank Trading and Derivatives Activities First Quarter 2012 26 tbl. 2, *available at* http://www.occ.gov/topics/capital-markets/financial-markets/trading/derivatives/dq112.pdf.

[103] Brunnermeier et al., supra note 25, at 54, 85 (comments of Robert Reoch) ("after 1998, [regulation made it] very fashionable for banks to buy each others' debt").

vital connection—that with money market funds.) If these other interconnections are fail-safe, fine. If they are not, we have overinvested in clearinghouses, to the detriment of handling these other interconnections.

This problem with pro-clearinghouse logic becomes evident by examining its syllogism: (1) the core five financial firms dealing in derivatives are systematically important because they are deeply interconnected with the rest of the financial system, (2) when one fails, they tear the fabric of the rest of the financial system, (3) we can save one from failing via a clearinghouse by shifting losses from the country's largest financial institutions to outsiders, (4) but this loss shift will not be systematically harmful because the tottering member is sufficiently isolated from systemically vital connections with the rest of the system—it can be saved with the losses harmlessly dissipated throughout the financial system.

Propositions (1) and (4) are difficult to reconcile. If the firm's interconnections are innocuous in (4), then they ought to be innocuous in (1). Why save the institution because of its systemically vital interconnections in proposition (1) but then believe that it's easy to dissipate the losses out from that firm to systemically innocuous interconnections in proposition (4)?

C. Clearinghouse External Risk Transfers: Dissipating Systemic Risk?

A related rebuttal could be advanced: if we dissipated the concentrated risk of a vital financial institution into small pieces throughout the economy, then the clearinghouse could, net, reduce systemic risk. For example, if derivatives-trading institutions were primarily financed by bondholders, and not bank deposits and the systemically sensitive money market, the bondholders could absorb the transferred risk.

But the institutions are not so financed. The country's five major derivatives players are deeply embedded in the economy. Their trading risk lands not in the hands of just their diversified bondholders but in the hands of the United States, as insurer of bank deposits, and in the systemically sensitive money market.

To see just one of those vital interconnections, consider the mutual dependence of banks and the money market funds. Much short-term funding flowing from savers to users moves first through money market funds, in which consumers and businesses place funds to which they want immediate access. The money market fund then moves much of that cash into large financial institutions, including institutions central to the transactions that regulators want cleared. The cash moves from money market funds into major financial institutions via short-term commercial paper and repurchase agreements. For the first, the core institutions issue short-term I.O.U.'s to the money market. For the second, they sell their portfolio securities to the money market, promising to buy them back at a higher price, usually the next day. Banks' "marginal source of funding has [become] the capital markets, for example through repurchase agreement or commercial paper."[104] "[S]ecured repo credit constitute[s] … 60% of federally insured deposits … [It is not] a perfectly secure and certain way to borrow…. When things become volatile, repos have counter-party risk attached to them and they

[104] Brunnermeier et al., supra note 25, at 18.

can disappear [from banks' balance sheets] as rapidly as demand deposits."[105] Figure 9 illustrates.

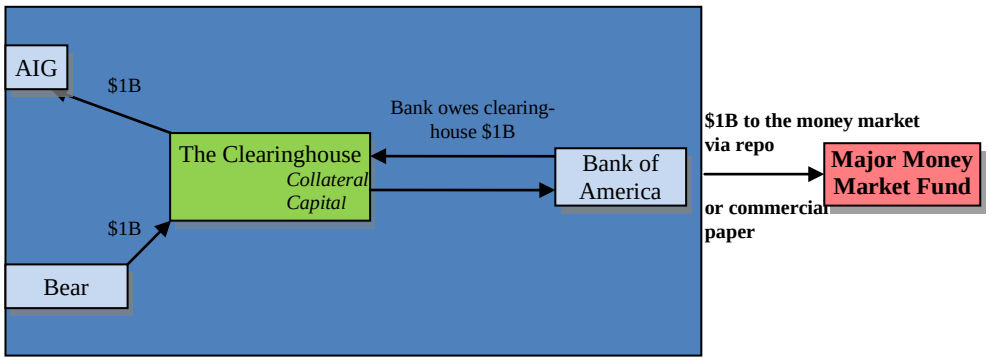

Figure 9. The clearinghouse stabilizes the cleared entities, but destabilizes the money market

Thus, the huge repo market, the bank-based commercial paper system, and the tremendous money market connect to the core financial institutions' clearable trading. Counterparty risk that clearinghouses lifts from their core institutions' shoulders is set down elsewhere, and that elsewhere can be another systemically crucial part of the economy. It can move into the money market, including into fragile money market funds, as the insolvent AIG, Bear, or Lehman of the next crisis pays up on its cleared instruments and consequently finds itself with less cash and less capital to repay others. Readers who closely followed the unfolding of the last financial crisis will recognize this pattern. When Lehman failed due to investment losses, it could not pay off its commercial paper debts to a very large, venerable money market fund, the Reserve Primary Fund. The fund then also failed, heightening the panic and the financial crisis:

> After . . . Lehman [went] bankrupt[] . . . , its outstanding debt collapsed in price almost immediately. Since one of the largest money market mutual funds (MMMFs), the Reserve Primary Fund, was highly exposed to Lehman Brothers' collapsing short-term debt, the next day its net asset value (NAV) fell below par. Since MMMFs offer stable NAV and investors can redeem anytime at par, an immediate run on the Reserve Primary Fund occurred, causing it to shut down. This failure opened up the possibility that other MMMFs were similarly exposed and a run on the MMMFs started. Since MMMFs are a primary source for the commercial paper market, the run opened up the possibility of capital shortfalls at many financial institutions that needed to roll over commercial paper. Only after the government guaranteed the MMMF deposits 100% [did] the run [come] to a halt and the slide was stopped.[106]

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[105] *Id.* at 80 (comments of Richard Herring, University of Pennsylvania). The quoted term, "repo," is short for repurchase agreement, a common form of short-term, often overnight funding in the finance industry.

[106] Viral V. Acharya & T. Sabri Őncű, A Proposal for the Resolution of Systemically Important Assets and Liabilities: The Case of the Repo Market (Fed. Res. Conf. Paper, Central Banking: Before, During and After the Crisis, Mar. 23, 2012). Cf. Tobias Adrian & Adam B. Ashcraft, Shadow Banking Regulation, Fed. Res. Bank of N.Y. Staff Rep. No. 559, at 22, 27 (Apr. 2012), *available at* http://www.newyorkfed.org/research/staff_reports/sr580.pdf.

The Reserve Primary Fund's failure induced a "broader liquidity crisis . . . as [money market fund] managers, facing enormous redemptions, curtailed their lending."[107] One-third of a trillion dollars left money market funds within a week, forcing the government to guarantee repayment of all money market funds.[108]

I emphasize here that the Reserve-Lehman analysis does *not* tell us that clearinghouses would have *raised* systemic risk, but tells us that the clearinghouse could readily move systemic risk from one systemically dangerous place to another. Because interconnectedness problems are one of the major targets for clearinghouses, one should expect that this kind of movement of systemic risk without reducing it would be likely. Hence, the economy would in such a systemic event not be better off. Other remedies must be found.

At year-end 2010, the United States had $1.6 trillion in such bank-interconnected money market funds.[109] Half of the assets of the largest money market funds are exposed to the banking system via uninsured bank deposits, uninsured repurchase agreements with banks, and uninsured bank-issued commercial paper.[110] This is just one systemically vital financing channel from the country's major derivatives-trading institutions. Other systemically vital institutions are also exposed to these derivatives-trading firms, such as hedge funds (which are owed substantial sums from the derivatives-trading banks via overnight repurchase agreements) and the banks themselves (which have obligations to one another outside of any clearable trades).[111]

D. Can the Clearinghouse Reduce Panic?

Clearinghouse proponents could reply: even if the clearinghouses primarily change only the locus of loss, as long as the new locus is less likely to induce financial panic, systemic risk has been reduced. Posit that Bank of America is at risk, because of Bear's incipient failure. If the market is uncertain as to (1) how exposed Bank of America is to Bear, and (2) how insolvent Bank of America really is, then panic could and would set in, crashing the financial system first and the real economy next.

But this panic argument faces the same risk transfer difficulty as the risk reduction argument. Moving the loss may indeed reduce the chance of panic. Or moving it to a new locus may set off the same panic. Or moving the risk may turn a containable situation into one that induces panic. Regulators expect that the clearinghouse will only produce the first scenario, but there's no reason ex ante to be confident that the second and third scenarios are not as, or even more, likely. To use

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[107] Patrick McCabe, The Cross Section of Money Market Fund Risks and the Financial Crises, Fed. Res. Bd., Fin. & Econ. Disc. Series, No. 2010-51, at 1.

[108] President's Working Group on Financial Markets: Money Market Fund Reform Options (Oct. 2010), *available at* http://www.treasury.gov/press-center/press-releases/Documents/10.21%20PWG%20Report%20Final.pdf, at 12.

[109] Investment Company Institute, 2011 Investment Company Fact Book 164, 171 (2011).

[110] This article's unpublished appendix shows the calculations, derived from the money market funds' SEC filings on Form N-MFP. We sampled funds beyond the largest, finding that their exposure to the banking system was even larger, with multiple funds having a banking exposure exceeding 80% of their total value.

[111] Tobias Adrian and Hyun Song Shin, two Federal Reserve economists, describe the large and growing interbank dependencies arising from nonderivative-based, nonclearable securitization. Tobias Adrian & Hyun Song Shin, The Shadow Banking System: Implications for Financial Regulations, Fed. Res. Bank N.Y. Staff Rep. No. 382, July 2009, at 11.

the setup from the prior section, the clearinghouse may save firms exposed to a failing Lehman's derivatives book in 2015, but then Lehman is even more likely to default on paying the Reserve Fund, since the clearinghouse would sop up more of Lehman's assets. The Reserve Fund's failure then sets off panic.

E. Further Clearinghouse Benefits: Speed and Liquidity?

The clearinghouse has consequences that can reduce systemic risk, if the financial breaks occur in the right places. In this Section and in Section G, we examine two of these—enhancing liquidity and restructuring market concentration. It can in principle increase internal liquidity without the offsetting external illiquidity being as large as the internal benefit. This is potentially real and valuable. Potentially even more important is that clearinghouses could shake up the current highly concentrated structure of derivatives trading and could decentralize it, spreading so that the systemically important financial institutions lost much of the cleared derivatives trading business. Such trading shifts and decentralization could well reduce systemic risk.

Liquidity first. The clearinghouse settlement circle provides liquidity to its members by settling complex trades more quickly than they can be settled outside of the clearinghouse. Not every dime of liquidity risk that the clearinghouse saves its members is transferred to outsiders. The clearinghouse could provide liquidity in a crisis, by quickly compressing that round-robin of obligations quickly. It thus would provide a benefit without a fully offsetting outside cost. The clearinghouse member that survives another day, because of the quicker settlement of internal transactions, could even make good on more outside obligations.[112]

This liquidity benefit, however, partly suffers from the risk transfer uncertainty analytic. Regulators are focused on members posting adequate liquid collateral. But as we have already seen, collateral adequacy, even if achieved, is strongly subject to the risk transfer principle, because the collateral that the clearinghouse obtains is value no longer available to the clearinghouse members' outside creditors. Second, the clearinghouse can undermine this liquidity as well as enhance it, as in the other risk transfer scenarios. Third, the liquidity benefit does not address the core systemic risks of the 2008–2009 financial crisis, namely, information contagion and asset price collateral selloffs. More detail on each of the three follows.

First, consider risk transfer uncertainty. Some fraction of the liquidity gain inside the clearinghouse comes at the cost of losing liquidity outside: the member posts cash or liquid securities (such as U.S. Treasury obligations) as collateral to the clearinghouse. If the member becomes insolvent, the clearinghouse liquidates the pledged security to pay another member who profited on the underlying trade. But the internal liquidity is offset by the risk transfer principle, because the failed clearinghouse member posted those liquid securities from its overall portfolio. As a result, the securities are unavailable to provide liquidity for its outside obligations.

Ex ante reaction from outside parties would further reduce the liquidity benefit. Savvy financial players outside the clearinghouse will know that they will be hurt if a counterparty totters and has posted its liquid collateral to the clearinghouse. Returning to the earlier example, the clearinghouse conceivably saves AIG by ensuring that a

[112] See Richard Squire, *Clearinghouses and the Rapid Resolution of Bankrupt Financial Firms*, CORNELL L. REV. (forthcoming, 2013).

tottering Bank of America will pay AIG quickly and in full, but it transfers the liquidity problem outside, to Citibank. A savvy Citi would anticipate that the clearinghouse will get the good, liquid collateral and that the clearinghouse will intercept payments that would otherwise have gone to Citi. Citi, hence, has incentives to adjust ex ante and demand more liquidity protection from AIG, insisting on shorter maturities in its trades, more liquid collateral, or other protections.

But if Citi is naïve and fails to adjust, the risk of financial failure due to a liquidity crisis moves from the clearinghouse members' internal dealings out to Citibank. The AIG and Bank of America dominoes stand and the Citi domino falls, as we showed above. Winners and losers would vary, but systemic risk would not be reduced.

Second, the setoff speed and liquidity benefit depend on clearinghouses being able to set off more of their obligations with the failed firm than could be set off without the clearinghouse. The setoff of mutual debts—from and to the clearinghouse—can create temporary liquidity, because the clearinghouse need not wait for the member's bankruptcy to finish collecting on the member's debt; the clearinghouse can set off its own debt. Because the setoff can usually occur more quickly than regular debt collection, more setoff means, yes, that more risk is transferred one-for-one to the outsiders, but the insiders can settle out more quickly than the outsiders ever could. The relatively speedy setoff is then better than ordinary debt collection. Richard Squire has elegantly shown this to be possible and potentially important.[113] This is a value of the clearinghouse, although not one trumpeted by its regulatory proponents.

Darrell Duffie and Haoxiang Zhu examine this setoff problem differently. In the bilateral derivatives market, dealers trade interest-rate derivatives on one day, foreign exchange contracts on another, and credit default swaps on a third. All three obligations are aggregated and netted. But when derivatives trades are given over to clearinghouses, the obligations are segregated into different institutions, based on their type. The foreign exchange derivative typically moves to a foreign exchange clearinghouse, the commodities to commodities clearinghouses, and the interest rate derivatives to their own clearinghouse. Duffie, a leading thinker on derivatives clearinghouses, then shows that the clearinghouse-reconfigured risks may lead either to more, to less, or to the same level of setoff. This uncertainty is the risk transfer ambiguity playing out once again. Clearinghouses can thereby reduce setoff liquidity in a crisis.[114]

Moreover, certainty and speed depend on the setoff obligations being largely uncontested. But this is not always so. It is not unknown in financial litigation for one party or another to contest the size of, the factual basis for, or even the existence of an obligation. Indeed, in the Lehman bankruptcy, much of the derivatives book was

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[113] Squire, supra note 112, at 3.

[114] Darrell Duffie & Haoxiang Zhu, *Does a Central Clearing Counterparty Reduce Counterparty Risk?*, 1 REV. ASSET PRICING STUD. 76 (2011):

> Suppose that Dealer A is exposed to Dealer B by $100 million on [credit default swaps], while at the same time Dealer B is exposed to Dealer A by $150 million on interest rate swaps. The bilateral exposure is the net, $50 million. The introduction of central clearing dedicated to [credit default swaps] eliminates the bilateral netting benefits and increases the exposure between these two dealers, before collateral, from $50 million to $150 million.

Efforts to link clearinghouses can increase setoff, but linkage also increases too-big-to-fail interconnectedness. And many derivatives are too complex to clear. If a noticeable volume is unclearable, the separation of the clearable from the unclearable would reduce the anticipated liquidity, not increase it.

challenged and litigated; the conflicts took several years to resolve.[115] It has taken several years to track down assets in the MF Global bankruptcy. Once a litigation contest starts, much of the liquidity advantage disappears.

The clearinghouse's potential to enhance liquidity is a type of Modigliani-Miller issue. In perfect markets, the triangle of claims can be settled or sold. If such disputes could be rapidly settled or sold at fair value in the real world, the clearinghouse would enhance liquidity.[116] The pro-clearinghouse claim ought here to be that clearinghouses (1) reduce settlement costs (2) in an important way that is (3) unavailable otherwise. These features are plausibly but not surely available and are not the primary goals motivating Dodd-Frank clearinghouse construction. Moreover, there is the risk that if key clearinghouse members fail, the clearinghouse might stop significant financial movement until the clearinghouse itself could be stabilized. In such a scenario, an important sector of the system's liquidity would dry up due to the clearinghouse.

This leads to the liquidity rebuttal's third flaw is that it is unable to address a central problem. Clearinghouses in general and the liquidity and certainty advantage in particular are attuned to addressing counterparty failure. Enhancing counterparty liquidity could help alleviate systemic risk by dissipating contagion from a single counterparty's failure. But the last crisis involved more than just one or two counterparty failures. Multiple failures afflicted derivatives traders throughout the market. Asset prices declined precipitously, as failed trades led to collateral sales, which put pressure on asset prices and led to more defaults. And then uncertainty as to who was solvent and who was not induced information contagion. These two contagion channels were critical in the crisis but clearinghouse liquidity is not designed to address them, and can readily exacerbate in a crisis. We turn in the next section to this drawback, which is severe.

F. Clearinghouse Systemic Risk Targets

The clearinghouse as a systemic risk reducer has another major weakness to which I have alluded and which I now expand upon. The systemic risks the clearinghouse needs to address are those core to the last financial crisis: not just counterparty contagion, which we have seen it can only weakly handle in systemic terms, but also systemic information opacity and an asset-price downward spiral. Even if the clearinghouse could overcome the reservations as to counterparty default risk, it is poorly structured to handle asset price contagion and information contagion.[117]

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[115] *See* Andrew J. Olejnick, *Lehman Brothers' ADR Procedures for Resolving its Derivative Contracts*, 29 BANKR. STRATEGIST (June 2012), *available at* http://jenner.com/system/assets/publications/9813/original/081061201_Jenner.pdf?1339099814; Nick Brown, *Court OKs Lehman Settlements to Free Up $15 Billion for Customers*, REUTERS (Apr. 16, 2013), *available at* http://www.reuters.com/article/2013/04/16/us-lehman-settlements-idUSBRE93F11720130416. Lehman's cleared obligations settled out quickly. That could signal a general clearinghouse capacity to settle out fast. But the obligations cleared were the easy ones, which may well also have settled out bilaterally quickly. Clearinghouses are now being asked to clear more complex obligations. To be sure here, if the obligation to the member is identical to that from the member, then setoff would presumably be quick. In the running examples in this paper's figures, we have debts with firm numbers attached to them. But in the real world, there will be obligations that can, and often will, be contested. The extensive litigation over Lehman's open obligations should not make one optimistic about quick settlement of mutual obligations for setoff.

[116] Cf. R.H. Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1 (1960).

[117] Analysts of the crisis state: "A large part of the financial sector [was] funded with fragile, short-term debt and [was] hit by a common shock to its long-term assets . . . . This occurred in the fall and winter

Consider each in more detail. For the clearinghouse to provide payment certainty for its members, it must make collateral calls when the value of its side of a derivatives contract declines. When it calls for more collateral, the weak institution that is on the losing end must raise cash, which it often does by selling assets. When the failing institution nevertheless defaults, the clearinghouse, to provide its members speed and certainty, sells the failed member's posted collateral. When it sells, it exacerbates the asset-price pressure that was core to the last financial crisis. This result is similar to both the M-M parallel for collateral collection and to the setoff risk transfer uncertainty, in that the problem is moved but not eliminated. Instead of the failing firm's own counterparties selling collateral, as would happen for uncleared derivatives, the clearinghouse sells the collateral backing up cleared derivatives. The clearinghouse changes the locus of the sale, not whether the collateral is sold. Nothing systemically important is gained by putting the trades and sales inside a clearinghouse so that the clearinghouse, instead of counterparties, liquidates the collateral in a crisis. The collateral is liquidated either way, and the pressure on asset prices arises either way.

Clearinghouse proponents might rejoinder that the collateral posted will be safe, secure, and liquid, and it may well be. But clearinghouse members have reasons to degrade collateral quality over time, because posting lower quality collateral is cheaper for them. And, even if they do not, when the weakened member has to post high-quality collateral, it will often have to sell its inventory of riskier, but more profitable, lower quality collateral. That sale will put pricing pressure on the value of that collateral, market-wide.

As for information contagion, consider the possibility that asset prices of the clearinghouse's collateral decline. Posit that only three of the eight institutions that are central to the clearinghouse are at immediate risk. But because the asset price decline brings into question the clearinghouse's solvency, the clearinghouse will make calls on all members. The solvent members could post collateral for their own trades, perhaps, but posit that they are unable to cover the failed trades of the three insolvent members, as all firms are weakened by simultaneous setbacks, although only three are failing. Until the situation clears up, financiers could be unwilling to deal with the truly solvent members because of information opacity, as the outsiders do not know the extent to which the three insolvencies could, through mutualization, bring the solvent members down. Three firms have performance problems, and the clearinghouse casts market-wide shadows of performance doubt over all eight members. Here, the clearinghouse could, when seeking to provide certainty and speed for one part of the market, increase uncertainty and slow down settlement speed in other parts.

It's also thought that the clearinghouse will yield big informational efficiencies. During the financial crisis, interconnected financial institutions became opaque and potential counterparties stayed away. The opacity arose from, for example, Citibank's strength being unclear because a potential counterparty could not assess Citibank's exposure to, say, losses in its dealings with a weakened AIG or Lehman, or whether another Citi counterparty could weaken Citi because that counterparty was exposed to AIG or Lehman. The clearinghouse makes this all transparent, optimists think.[118] But,

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of 2008-2009." Viral V. Acharya & Matthew Richardson, *Implications of the Dodd-Frank Act*, 4 ANN. REV. FIN. ECON. 1, 2 (2012). The financial crisis erupted because the entire system had overinvested in the wrong kind of liabilities, not because a single institutional failure could not be contained.

[118] Ben S. Bernanke, Chairman, Federal Reserve System, Remarks at the 2011 Financial Markets Conference: Clearinghouse, Financial Stability, and Financial Reform, Apr. 4, 2011, at 10, *available at*

a financial player dealing with a clearinghouse member during a financial crisis "needs information about the portfolio composition of *all other clearing members as well as [the member's] posted collateral levels. This information is typically confidential.*"[119] Hence, "the member's . . . risk can increase even if [its] portfolio does not change. This is because each member has provided insurance on the . . . losses of all other clearing members."[120] One clearing member's insolvency affects the solvency and liquidity of every other member, obscuring the very transparency that its proponents seek. Outside liquidity for its members would readily be threatened. Mutualization can, as the risk transfer principle implies, readily degrade transparency.

G. Further Benefits: Financial Market Restructuring?

Recall that America's largest, most systemically important financial institutions are the largest players in the derivatives markets. Dodd-Frank's clearinghouse mandate will standardize the trading of derivatives as much as possible because only standardized products can clear well. As we have seen repeatedly, this effect largely moves risk around in the financial system, without necessarily moving it away from systemically important places.

But consider this plausible consequential impact. Standardizing derivatives reduce the profitability to America's core financial firms of derivatives trading, because the previously customized trades were more profitable. Conversely, standardization makes it easier for noncore firms to trade derivatives, as it erodes the core firms' informational advantages. (When the products are opaque and the pricing not public, firms that do most of the trading know market information that others lack and, hence, they can price their trades more astutely.) Standardization and transparency, however, induce dealer margins to narrow and should shift the competitive arena further toward efficiency and execution, away from access to systemically-opaque proprietary information.

Market restructuring could ensue. More of the derivatives business would, in this optimistic scenario, shift to firms currently peripheral to the derivatives market. With the core financial firms less dependent on derivatives trading, it's plausible that systemic risk outside of the clearinghouse would decrease.

The difficulty for this scenario is not that it's impossible or event that it's unlikely. It's true that standardization could support further concentration in financial supermarkets (cheap execution may demand scale economies), or it could facilitate market restructuring, dispersion, and a more competitive structure. With the market already concentrated, the direction of change from a shake-up due to clearinghouses seems more likely to be deconcentration—as it cannot concentrate much further. But if deconcentration is the goal, regulators have not only not articulated a policy of using clearinghouses to pursue the latter, but ought to, in order to avoid having the incumbent dealers solidify their influence over the clearinghouse.[121] And building largely centralized clearinghouses in the hope that (but not the certainty that) the

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http://www.federalreserve.gov/newsevents/speech/bernanke20110404a.pdf

[119] Matthias Arnsdorf, *Quantification of Central Counterparty Risk*, 5 J. RISK MGMT. FIN. INST. 273, 274 (2012) (emphasis supplied).

[120] Id.

[121] Sean J. Griffith, Governing Systemic Risk: Towards a Governance Structure for Derivatives Clearinghouses, 61 EMORY L.J.1153 (2012).

industry will deconcentrate seems a peculiar policy in its indirectness, although perhaps regulators have concluded that they cannot otherwise induce market restructuring and deconcentration.

H. A Reservation About Creditor Self-Interest

Lastly, I note the disjunction here of private incentives and public welfare.

Financial institutions guard against their own failure, but that alertness does not arrest the systemic problems. So, in the above scenarios, the weakened financial institution has strong incentives to avoid failure. Critics could argue that the systemic risk problem is minimized here by creditor self-interest. But when guarding against their own failure, creditors do not account for the costs that their failure will inflict on the rest of the economy.

Simple example: Citibank trades $100 million in derivatives with AIG. Citibank guards against a failure of AIG to pay Citibank, by charging a premium to AIG for Citi's perception that AIG could fail, by monitoring AIG's financial status, and by insisting on more collateral. But if a $100 million loss to Citi has a 1% chance of bringing it down and thereby cause a consequential, massive, $1 trillion systemic loss to the American and world economies, then Citi's self-interest could lead it to ignore those third-party knock-on effects, because they are not directly Citi's problem, but are the system's problem. Citi makes AIG pay for the potential of a $100 million loss to Citi, not for the $1 trillion loss to the economy. These third-party effects are a major justification for financial regulation.[122]

V. CLEARINGHOUSES' OTHER DEBILITIES, DEEPENED BY RISK TRANSFER

I focused in Part III on systematizing the limits to clearinghouses' capacity to reduce systemic risk, by developing a risk transfer principle derivable from the M-M propositions to clearinghouses. Clearinghouses reduce risk it one sector or one firm, but then usually silently and relentlessly transfer systemic risk into other sectors; they can only dissipate that systemic risk in well-defined, nuanced, and unlikely circumstances; and they can too often create the same risks that they are intended to diminish. I extended this analytic in Part IV to show how potential rebuttals suffer at least in part from variants of the risk transfer problem. I also demonstrated that, although clearinghouse proponents are addressing an important problem, that of counterparty failure, the 2008-2009 financial crisis did not arise from the uncontained failure of a firm like LTCM (the 1998 problem), but from system-wide asset price deterioration and information opacity. These are not problems that even proponents have seen clearinghouses capable of solving.

In this Part, I outline, extend, and deepen other major considerations in analyzing clearinghouses' efficacy. These include the likelihood that an effective clearinghouse will be too-big-to-fail, that it will be unable to handle many systemically risky transactions, and that it will suffer from a potential for misaligned monitoring incentives.

[122] Cf. Gordon & Muller, supra note 32, at 152.

A. Too Big to Fail

Clearinghouses will themselves be too-big-to-fail institutions, as is recognized.[123] Ben Bernanke, the Federal Reserve's chair, recognized in a prior career that clearinghouse failure, or even rumor of clearinghouse weakness, is itself a source of systemic danger.[124] Proponents of clearinghouses cannot conclude that clearinghouses will not be too-big-to-fail, but must surmise that they will be less likely to fail than their constituent financial institutions.

Too-big-to-fail clearinghouses thereby again illustrate the risk transfer principle. Regulators reduce the riskiness emanating from a systemically vital institution—the systemically-vital counterparty whose performance risk the clearinghouse mutualizes—only to find that its riskiness has largely reappeared elsewhere. In this case, the risk is absorbed into the newly constructed clearinghouse, which itself becomes too-big-to-fail.

Proponents justify their confidence in the clearinghouses' resilience with the fact that no modern American financial clearinghouse has failed.[125] The primary regulator of derivatives, "CFTC Chairman Gary Gensler[,] invariably reminds US audiences that no US clearing house serving the futures markets has ever failed[.]"[126] But this confidence is unjustified: financial clearinghouses *have* failed around the world, and nonfinancial clearinghouses have been mismanaged and failed in the United States.[127] Fortunately, these clearinghouses were not systemically important and their failures disrupted only a single commodity market, not an entire economy.[128] The derivatives clearinghouses that are being built will not be so small; they will be systemically vital; and they will clear more instruments of a more complex type in more volume than has ever before been attempted.

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[123] Bernanke, supra note 118, at 2 ("The flip side of the centralization of clearing … in clearinghouses is the concentration of … risk in a small number of organizations … with potentially important systemic implications"); Mark J. Roe, *The Derivatives Market's Payment Priorities as Financial Crisis Accelerator*, 63 STAN. L. REV. 538, 587 (2011); Iman Anabtawi & Steven L. Schwarcz, *Regulating Systemic Risk: Towards an Analytical Framework*, 86 NOTRE DAME L. REV. 1349, 1395 (2011); Angela Monaghan, *Bank of England's Paul Tucker calls for reform of clearing houses*, TELEGRAPH, Oct. 24, 2011 (Deputy Governor of Bank of England points to "mayhem if a major clearinghouse collapsed); Manmohan Singh, Making OTC Derivatives Safe—A Fresh Look, Int'l Monetary Fund working paper 11/66 (Mar. 2011), at 10-13, *available at* www.ssrn.com/paper=1795845; DAVID SKEEL, THE NEW FINANCIAL DEAL: UNDERSTANDING THE DODD-FRANK ACT AND ITS (UNINTENDED) CONSEQUENCES 70-71 (2011). For an excellent student note on the subject, see Julia Lees Allen, *Derivatives Clearinghouses and Systemic Risk: A Bankruptcy and Dodd-Frank Analysis*, 64 STAN. L. REV. 1079 (2012).

[124] Bernanke, supra note 5, at 133-34 (Bernanke was analyzing the October 1987 crash):

> The clearing and settlement process, long ignored by most financial economists . . . as an institutional detail, has come in for a good share of . . . criticism . . . . Rumors about possible clearinghouse failures added to the sense of panic in the markets. . . . Recommendations for reforming the clearance and settlement system . . . were prominent features of [post-mortem analyses of] the crash.

[125] E.g., Gary Gensler, *Clearinghouses Are the Answer*, WALL ST. J., Apr 12, 2010; Norman, supra note 40, at 12.

[126] *Id*. at 358. Cf. Michael Mackenzie, *Call for "Bulletproof" Clearing Houses*, FIN. TIMES, Mar. 22, 2012 (Federal Reserve Bank of New York president says post-crisis derivatives clearinghouses must be, and can be, bulletproof).

[127] Clearinghouse failures include Caisse de Liquidation, Paris (1974), the Kuala Lumpur Commodity Clearing House (1983), and the Hong Kong Futures Guarantee Corporation (1987). See Hills et al., supra note 54, at 129; Norman, supra note 40, at 348.

[128] *See* Hills et al., supra note 54, at 129.

Worse, it's plausible that tottering, deeply at-risk clearinghouses averted failure in the United States only because their constituent organizations were bailed out. Consider the dangerous near-failure of the too-big-to-fail Chicago Mercantile Exchange, the CME, during the 1987 market crash. As Ben Bernanke said, the massive CME may have survived the 1987 crash only because the Federal Reserve flooded the CME's constituent financial institutions with liquidity.[129] Had the Fed not done so, some of these would have failed and brought down the clearinghouse, deepening the 1987 financial crisis, perhaps catastrophically:

> [During] the 1987 stock market crash, a big counterparty of the Chicago Mercantile Exchange (CME) failed to make a large payment . . ., leaving the exchange $400 million short. [CME's] president, . . . plead[ed with its own bank to extend it $400 million in credit]. Only three minutes before the exchange was due to open, the bank [extended CME the credit it needed to open. CME's president] has said repeatedly that if the Merc had not opened that morning, it would not have opened again . . . [If the CME] had not opened that morning, the NYSE would not have either [said the head of the NYSE], and the NYSE might have never reopened again.[130]

B. Structural Defects

1. Incompleteness due to unclearable transactions. Clearinghouses cannot clear unique derivative products or products whose market values change rapidly. Clearinghouse managers need to observe market prices for the cleared transactions so that they know when to insist that traders post more collateral. When clearing foreign exchange, for example, trader A agrees with B to deliver Euros against B's promise to deliver a fixed sum of dollars, six months hence. If the euro rises in the interim, the clearinghouse insists that trader A post more collateral, as the trade is then a losing one for A. But if the trade is exotic, with difficult-to-value underlying parameters, then the clearinghouse can mistakenly insist on too little collateral. Such opaque trades are inappropriate for clearing. If too many risky trades are custom-made, then the clearinghouse cannot do its job even under the conventional rationale. Worse, if the risk transfer mechanism we are examining is in play, the clearinghouse could end up only transferring the risk from the cleared instruments to the uncleared ones.

Policymakers are now distinguishing cleared from uncleared derivatives transactions and are in the process of requiring that noncleared derivatives be backed by more capital, more collateral, and higher margins than cleared derivatives.[131] "Taxing" systemically risky investment to make investors price in the systemic risk is sound policy. But the analysis here tells regulators that lowering their guard for cleared products is unwise; if the uncleared product demands a systemic "tax," the cleared product does as well, because the systemic risk is not generally extinguished but, as the risk transfer principle indicates, is moved elsewhere in the system.

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[129] Bernanke, supra note 5, at 148.

[130] Viral V. Acharya, Or Shacher & Marti Subrahmanyam, *Regulating OTC Derivatives*, *in* REGULATING WALL STREET: THE DODD-FRANK ACT AND THE NEW ARCHITECTURE OF GLOBAL FINANCE 401 (Viral Acharya et al., eds. 2011). See Norman, supra note 40, at 138.

[131] Basel Comm. Banking Super., Margin Requirements for Non-centrally Cleared Derivatives (July 2012), *available at* http://media.futuresmag.com/futuresmag/article/2012/07/06/Basel.pdf.

The architectural difficulty is that many transactions cannot move into the clearinghouse, because they have opaque pricing, tailor-made terms that are hard for clearinghouse officials to monitor, jump-to-default qualities, or because they are not even derivative transactions but reflect other kinds of risks. The transactions that can clear are the plain vanilla ones, like interest rate and foreign currency swaps, which have verifiable prices for the underlying trades. The clearinghouse will clear the easier to untangle, while the difficult to untangle ones stay outside. The risk transfer mechanism will then move risk from the easier-to-handle interior transactions to the more difficult ones, which, if that market remains large enough and interconnected enough, will be systemically dangerous. Such a result may worsen systemic risk.

2. Misaligned incentives. Counterparties' incentives to police the deals that they strike change after their trades move to a clearinghouse. Consider the A-D trades in Figures 2–4. D is incentivized to be alert to A's obligation to D rising and to insist on collateral postings. But when A and D clear their trades, D's incentive to keep the trade with A well-collateralized declines, because it's the clearinghouse that becomes obligated to D, not A. Whether the clearinghouse reduces systemic risk in this setting depends largely on whether the clearinghouse employees are better than D's management at understanding the market moves in the relevant trades. The clearinghouse transfers a function; it does not eliminate the function.

An experienced and astute academic and real-world analyst of these markets, Professor Craig Pirrong, judges that clearinghouses will not be as fleet-footed and financially motivated as profit-incentivized banks to evaluate counterparty risk.[132] As Professor Franklin Edwards, also an expert on clearinghouses, shows: Since the clearinghouse "guarantees all . . . contracts [flowing through the clearinghouse] . . . , there would no longer be a market incentive for *customers* to evaluate the financial integrity of [financial institutions] they chose to deal with."[133] And Sean Griffith shows that clearinghouse governance structures, with bank-dealers being influential, do not generate incentives tightly compatible with public goals, as the dealers would tolerate more systemic risk than public authorities should want.[134]

Once again, the clearinghouse suffers from the risk transfer principle—here, it's as to monitoring incentives. To improve monitoring capacity, regulators move transactions from one part of the economy to another, but there is reason to doubt that doing so increases net monitoring incentives as opposed to moving around tasks, responsibilities, and incentives.

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[132] Pirrong, supra note 52; Gerard Hertig, *Trading and Clearing Reforms in the EU: A Story of Interest Groups with Magnified Voice*, 5 J. BANKING L. 329, 337 (2011). Accord, René Stulz, *Credit Default Swaps and the Credit Crisis*, 24 J. ECON. PERSP. 73, 89 (2010); Chris Kenyon & Andrew Green, Will Central Counterparties Become the New Rating Agencies?, at 1 (2012), *available at* http://ssrn.com/abstract=2181291. But the consensus regulatory wisdom is that the centralized clearinghouse will monitor better. Randall S. Kroszner & Philip E. Strahan, *Financial Regulatory Reform: Challenges Ahead*, 101 AM. ECON. REV: PAPERS & PROC. 242, 244 (2011).

[133] Franklin R. Edwards, *The Clearing Association in Futures Markets: Guarantor and Regulator*, *in* THE INDUSTRIAL ORGANIZATION OF FUTURES MARKETS 225, 232 (Ronald W. Anderson, ed., 1984) (emphasis supplied). Cf. Yadav, supra note 24, at 400 (clearinghouse underinvestment in due diligence); Bruno Biais et al., *Clearing, Counterparty Risk, and Aggregate Risk*, 60 IMF ECON. REV. 193 (2012).

[134] Griffith, supra note 121, at 1210.

C. Setoff Institutions, Without Clearinghouses

A final consideration: private players repeatedly sought to expand setoff mechanisms, with clearinghouses being only one such means to setoff. The recent post-crisis impetus to build clearinghouses is a culmination, not a departure. If clearinghouses did not appear, the major trading financial institutions would turn, one suspects, to other mechanisms to set off—and thereby to transfer risk to other players. Alternative institutions for setoff and consequential risk transfer include new financial contracts, an amended Bankruptcy Code, and financial supermarkets. A rebuttal to this Article's thesis then is that the players will get expanded setoff mechanisms, one way or the other.

1. The ISDA contract and trade compression. The derivatives trade association, the International Swaps and Derivatives Association ("ISDA"), for example, assembles a model contract for derivatives traders, with setoff central to the contract's structure. The two contracting parties agree to net their trading transactions to come up with a single sum due from one party to the other. Like most setoff structures, these have transactional efficiencies and distributional consequences. The trade association could further seek to expand the setoff structure of the ISDA contract if clearinghouses never arise to accomplish mass setoff.

Trade compression can be made to happen outside of a clearinghouse. Private firms increasingly can find and match identical positions to compress them out. TriOptima is the most successful such firm.[135] Clearinghouses just compress more.

2. Financial supermarkets. If clearinghouses were unavailable for netting, then there could be a further push for larger, more encompassing firms that could net their transactions. The contracts could be written to embed the netting into the contract, in ways that would make regulatory intervention peculiar. Consider our A and D traders. They trade unrelated risks with one another on the same day. One risk is in the foreign exchange market, another is in the oil market. Instead of writing two contracts, they write an integrated contract for the two items: A will be liable to D for the net of the exchange rate impact on December 31 and the oil price impact on the same date. Larger financial institutions, with wider trading activities in multiple markets, could more readily write these integrated contracts than smaller specialized ones. Netting provides an incentive to concentrate the financial market, to facilitate more mutual setoffs.[136] The concentrated derivatives market, with five institutions encompassing much of the trading, already reflects this pressure toward concentration. A rebuttal to the Article's thesis could be that the derivatives market would concentrate further, leading to other types of regulation, if clearinghouses are not used.

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Bankruptcy academics will recognize the general issue emerging: financial players probe the contractual and regulatory system to silently expand their de facto priority. Financial law has been described as a "4000-year struggle by debtors and their . . . secured creditors to create security interests of various sorts in the debtors' property without affording notice to . . . other creditors."[137]

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[135] Nicholas Vause, Counterparty Risk and Contract Volumes in the Credit Default Swap Market, BIS Q. REV., Dec. 2010, at 64.

[136] See Robert Bliss & George Kaufman, *Derivatives and Systemic Risk: Netting Collateral and Closeout*, 2 J. FIN. STABILITY (forthcoming, 2012) (MS at 11).

[137] Peter F. Coogan, *Public Notice Under the Uniform Commercial Code and Other Recent Chattel*

Other institutions may arise that will transfer risk from one sector to another and from one institution to another. But public authorities have little reason to encourage clearinghouses for systemic-risk-reducing public reasons, when their potential here is so small.

CONCLUSION: CONGRESS'S FINANCIAL MAGINOT LINE

Clearinghouses are overrated as means to sop up systemic risk. They mostly transfer the risk. Because the transfer is hidden, it is easy to conclude that systemic risk has been alleviated, when in fact it has not.

I here make two contributions to the analytics of clearinghouses. First, the risk transfer principle neutralizes most of the extolled systemic benefits of clearinghouses, and this principle allows us to organize, deepen, and extend the understanding of clearinghouse' systemic limits. Eliminating risk between the two parties to a transaction can mistakenly be thought to eliminate the risk from the system, when that risk is only transferred to a third party. Other costs from clearinghouses are poorly perceived but very real. They largely offset further purported benefits, such as the extolled benefits from reducing counterparty risk through collateral posting and setoff, from mutualizing of the cost of failure, and from increasing market transparency to reduce panics. The first reduces the collateral available to others in the financial system, mutualization of risk funnels risk as well as dissipating them, and clearinghouses can increase opacity as readily as otherwise. Each benefit suffers from drawbacks elucidated by basic thinking from finance, such as concepts from the well-known Modigliani-Miller irrelevance hypotheses, which regulators have failed to use in analyzing the impact of clearinghouses on systemic risk. When they do so, they will see the net benefits are much smaller than has been thought.

Like Europe's Maginot Line of powerful forts to deter, defeat, and roll back an invasion, strong clearinghouses seem to be formidable direct barriers to systemic risk. But like the Maginot Line, the clearinghouse could simply divert the advancing risk. Financial panic will side-step the clearinghouse, sliding around the fortress to invade the financial system through other portals. The heavy regulatory investment in energy and resources to build the Maginot Line diverted defense thinking and spending from more efficacious channels. Today's financial regulators, likewise satisfied that the clearinghouses will be bulwarks against financial failure, will attend less to other more efficacious means to arrest systemic risk and, having expended resources on clearinghouse construction, will have fewer resources left.

The second contribution is in my showing that the clearinghouse is not designed to handle the major financial debilities of the 2008–2009 financial crisis. The clearinghouse, if it could work as planned, would contain the risk of a major stand-alone failure from dragging down its financial counterparties. It targets the kind of problem that arose in the failure of Long-Term Capital Management in 1998—a major financial institution that had deep and tangled interconnections with the rest of Wall Street. But the 2008–2009 financial crisis stemmed from system-wide over-investment in mortgage securities, which suddenly were worth much less than had been thought, afflicting many major financial firms simultaneously. Too many institutions sought to

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Security Laws, Including "Notice Filing," 47 IOWA L. REV. 289, 289 (1962). Michael Simkovic quotes Coogan and notes how nonpublic, de facto liens weakened financial structures prior to the recent crisis. Michael Simkovic, *Secret Liens and the Financial Crisis of 2008*, 83 AM. BANKR. L.J. 253, 255 (2009).

sell these and other securities, pressuring prices downward in ways that threatened other institutions and induced them to sell assets. The clearinghouse would not stymie this kind of crisis from an asset-price spiral and could deepen it, as clearinghouses are designed to obtain and, if necessary, sell collateral to keep the clearinghouses afloat. In doing so, the clearinghouse would deepen the downward asset-price spiral that worsened the 2008–2009 crisis.

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The failures of AIG, Bear Stearns, Lehman Brothers, and the Reserve Fund brought forth a regulatory program of building clearinghouses to encompass more of the risky instruments that played a major role in each firm's failure and the ensuing financial crisis. Regulatory second thoughts on constructing these clearinghouses focus primarily on the possibility that the clearinghouses will be too-big-to-fail, with proponents concluding that, even though this concern has merit, clearinghouses are less likely to fail than their constituent institutions.

But the regulatory balance here (too-big-to-fail vs. lower probability of failure) is the wrong trade-off for regulators to weigh. They first need to analyze whether the purported mechanism of reducing systemic risk will deter a financial crisis such as that of 2008–2009. The primary purported benefit for the clearinghouse is strong collateral collection, assisted by a complex, multilateral setoff structure. But such structures are well known in bankruptcy analysis not to reduce most risk, but to transfer losses from the two parties to outsiders. Clearinghouses do much the same. Even if clearinghouses were indestructible, they could not reduce systemic risk in the way and to the extent that the policymaker consensus has concluded they could, because the losses would move to institutions and channels that are often themselves systemically important. Indeed, they can readily through other channels end up right back in the institutions in which they started out. At a minimum, the risk-reducing potential for clearinghouses needed more scrutiny before clearinghouse construction became a central reaction to the financial crisis.

Each clearinghouse benefit is offset by a cost that is either underrated or not considered in current regulatory analytics. Collateral given to the clearinghouse is collateral unavailable to the member's other trading partners. Counterparty risk reduction is offset by risk being transferred to often-vital outside institutions and channels. Mutualization benefits are offset by clearinghouses' equally plausible potential to funnel disparate moderate risks to a systemically dangerous focal point. Transparency benefits in ensuring that trades are completed can turn into panic-driving opacity when the clearinghouse's solvency depends on a successful capital call from a tottering member. Speed in settling some transactions is partly but not fully offset by slowed settling of other outside-the-clearinghouse transactions. The idea that panic can be averted by shifting losses away from a financial firm that has deep, systemically vital interconnections to a clearinghouse ignores the fact that the loss shifts to a clearinghouse that will have deep, systemically vital interconnections with the rest of the financial system. Those interconnections could in a crisis render opaque the viability of the clearinghouse members, which would typically be the country's largest financial institutions. The transfer could just change the site where the panic starts. If the underlying problem is, as it was in 2008–2009, that most major financial institutions had suffered major investment losses in American real estate mortgage securities, then the idea that panic can be averted by shifting the locus of loss from one major financial institution to another risks being wishful thinking, not astute analysis.

The thesis here is not that the clearinghouse cannot contain any conceivable configuration of financial failure. Indeed it can contain several. But the containable configurations require a precise terrain, specific financial movement, and appropriate timing. As a matter of judgment, I have asserted here, these configurations are no more likely than configurations in which the clearinghouses fails to help or, worse, collects, funnels, and focuses into systemic problems risks that might otherwise have remained disparate, posing no problem for the economy.

So, yes, scenarios can be constructed in which a realistic transactional efficiency saves a core clearinghouse member, which stops contagion, which saves the financial system, which steadies the economy. It is not possible to show that there is no scenario in which the clearinghouse alleviates enough systemic risk to save the country from a financial crisis, because there are, but only that the core justifications advanced by Congress and the regulators have major offsets. Centralizing information in the clearinghouse could give the regulators better understanding on how to act in a crisis. Quickly alleviating cash pressure on a single clearinghouse member, without raising liquidity pressure elsewhere, is another possibility. Clearinghouse standardization as inducing a market restructuring of the derivatives industry that leads to smaller, systemically stable firms capturing more of the business is third.

But such scenarios, and other often just-so scenarios do not defeat the thesis here. The thesis is that the purported core value of the clearinghouse in containing counterparty risk and contagion is exaggerated, and sometimes incorrect. Superior collateral collection, enhanced mutualization, and basic payments setoff compression on average move, but do not reduce, risk. On average, the clearinghouse's impact on systemic risk is to transfer much, and sometimes all, of the internal systemic risk to others outside the clearinghouse. It may not make the systemic situation any worse, but on average, it's not going to be a major systemic asset, and the extensive worldwide regulatory and legal investment in building clearinghouses cannot be justified in systemic risk reduction terms, because their systemic benefits are usually offset by symmetrical costs, and in some scenarios can worsen the systemic problem. The regulatory balance is over-weighting the benefit of reducing loss between parties, despite the fact that some, and sometimes all, of that loss is shifted to other systemically important shoulders.

Some political economy features can explain the persistence of this policy thinking. There is an urge to prop up the visible counterparty—AIG in the recurring example we used. But buttressing AIG then under-protects less vividly present but no less important firms that are outside the clearinghouse—Citibank and the rest of the financial system in our examples. And, unlike the other major prescriptions to reduce the chance of another financial crisis—increasing capital, breaking up the biggest institutions, taxing the risky instruments, or barring systemically vital institutions from risky proprietary trading—clearinghouses can yield large private advantages to their participants. Because the clearinghouse's primary benefit to its members is its capacity to transfer risk from its inside, clearing members to outside nonmembers, the benefited financial players oppose regulators' efforts to build large clearinghouses less vigorously than they oppose other regulatory initiatives that they find to be more costly.

We have lurched toward centralized clearinghouses to reduce systemic risk, without knowing whether they will decrease it, increase it, or leave it unchanged. The most straightforward logic here, unless more evidence is produced, is that it will be hard for the clearinghouse to greatly affect systemic risk. Because we unfortunately

cannot yet rely on clearinghouses to buttress the financial system and the economy well, regulators need to focus more on the harder-to-build but potentially more efficacious fixes to the financial system.

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The second major flaw in the Dodd-Frank Act's clearinghouse mandate here is that clearinghouses are poorly suited to handle the type of systemic risk that characterized the last financial crisis. Recall that the recent financial crisis was not primarily induced by the failure of a single financial institution whose problems then cascaded through the financial system. Rather, a market—that for mortgage-backed financial securities—grew to be over-extended and major financial institutions simultaneously sought to sell these securities when there were few or no buyers. Illiquid financial institutions were selling and asset prices declined, making the book value of the financial institutions even shakier, inducing more of them to sell. The downward asset price spiral—a panic—exacerbated the underlying financial problems.

And what would the clearinghouse's primary activity be in such a financial crisis? To protect itself, it would make large collateral calls on its members when the collateral backing the cleared trades deteriorated. As it made the collateral calls, prices would decline further, exacerbating the downward price spiral. The very feature that proponents extol for clearinghouses, namely their capacity to strengthen collateral collection, could and would exacerbate a financial crisis.

Consider this scenario: Sharp value declines later in this decade afflict a major financial market, similar to the sharp drop in value of mortgage-backed securities in 2007–2009. The crisis might begin on a foreign exchange derivatives clearinghouse after a collapse of a euro-nation's ability to pay its debts. Or it might occur on an interest-rate-based clearinghouse if inflation induces a jump in interest rates. Or it might occur, once again, in the real estate market's mortgage-backed securities.

A clearinghouse with members suffering from this decline would require its weakened members to make large collateral posts, to protect the clearinghouse and the other members. Weak members, required to post collateral, will be forced to sell off risky assets to come up with the good collateral to post to the clearinghouse. The sell-off reinforces the downward asset price spiral similar to the asset price collapse of 2007–2009. The sales reduce the mark-to-market value of other firms with the same assets being sold, as well as the selling firms themselves, because the selling pressure lowers the value of the firms' assets. The clearinghouse would not avoid the asset price spiral that was central to the 2007–2009 financial crisis, but would exacerbate it.

The scenario gets worse. The regulatory authorities next become aware that the clearinghouse is a major accomplice in the downward asset price spiral. So regulators then induce the clearinghouse to back off from requiring its weakened members from posting collateral. For a few days, the panic subsides.

But then, the market becomes wary of two consequences of the regulators' suspension of collateral calls: First, because the market is uncertain which firms in the clearinghouse are at risk, it fears dealing with any of those firms—and recall that the clearinghouse's members will be America's major financial institutions. Second, the market fears for the solvency of the clearinghouse itself once the market understands that the regulators have induced it to stop demanding collateral posts from out-of-the-money, weakened members who are losing on their contracts. The clearinghouse's obligations persist, but it would lack collateral to back them up after the Fed and the Treasury suspend the clearinghouse's collateral calls, because the authorities want to

avert the incipient downward asset-price spiral. Then, third, fearing that otherwise solvent members will be called on to bail out the clearinghouse, more businesses outside the clearinghouse stop dealing with clearinghouse members—which include the country's major financial institutions. The solvency of more firms becomes opaque, because the extent of their exposure to the weakened clearinghouse is murky. The clearinghouse thus would fail to provide the very transparency it's intended to provide, and would obscure the financial solvency of major financial institutions.

The clearinghouse transmits, enlarges, and facilitates this financial crisis in this scenario. Or, it simply is unable to arrest a system-wide problem. The financial collapse is only arrested when the Federal Reserve, the U.S. Treasury, and, if necessary, the United States Congress guarantee the creditworthiness of the failing institutions, including that of the clearinghouse itself.[138]

In this short, realistic scenario, the clearinghouse becomes the site of, or a facilitator of, each of the major systemic problems of the 2007–2009 financial crisis: a downward asset-price spiral, a market freeze-up in dealing with major financial institutions that could be insolvent, and a panic due to a lack of transparency—inducing firms to stop dealing with financial institutions that may or may not be insolvent but have become opaque. Major institutions remain in this scenario severely interconnected—this time through the clearinghouse itself—in ways that deter the smooth functioning of finance.

The point here is not that this scenario is assuredly the most likely one to emerge in a crisis with the new clearinghouses in place, but that it is no less likely to occur than the optimistic scenarios hoped for by those in the pro-clearinghouse consensus. The system in the end escapes the financial crisis in this scenario, but it does so not because of clearinghouse efficacy, but because the regulators prop up and bail out the failing but essential institutions, including the clearinghouse itself.

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Were clearinghouses already up and running for derivatives, there would be no strong systemic-based reason to tear them down. But we would have little reason to feel any safer from the scourge of systemic risk. They might diminish that risk, they might increase it, or on average they would most likely move most of the affected risks and losses around, substituting new weak links in the system for older weak links, leaving systemic risk about the same as it had been. Just as the early twentieth century Maginot Line did not directly damage its builders' defensive capacity, the clearinghouse does not damage the system directly, but it creates unwarranted confidence. What there is little need for, however, is for the regulatory authorities to divert their attention from major bulwarks against systemic risk (such as capital requirements, activity restrictions, risk-taking capital and reserve charges, ongoing regulatory oversight, and institutional size) and invest so much of their own scarce resources in a major program to build clearinghouses to buttress the system against systemic risk, when the justification for their doing so is so flawed.

[138] In principle, Dodd-Frank bars federal authorities from directly bailing out the clearinghouse. Dodd-Frank § 716, 124 Stat. 1376; 15 U.S.C. § 8305. One could presume that the bar would be ignored, evaded, or repealed in a crisis.