DERIVATIVES CLEARINGHOUSES AND SYSTEMIC RISK: A BANKRUPTCY AND DODD-FRANK ANALYSIS

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This Note analyzes the effectiveness of derivatives clearinghouses in decreasing systemic risk upon a counterparty default. The analysis first explains how a derivatives clearinghouse can successfully reduce systemic risk by analyzing LCH.Clearnet's management of the Lehman default in 2008. Next, the analysis demonstrates that if a clearinghouse could not manage a default and became insolvent, systemic risk would greatly increase. Rather than containing the impact of a counterparty default, an insolvent clearinghouse would enhance systemic risk because the two existing resolution regimes, the Bankruptcy Code and the Dodd-Frank Orderly Liquidation Authority, could not successfully unwind the institution.

The primary contribution of this Note is identifying that an insolvent derivatives clearinghouse creates an unsolvable problem with respect to resolution: untangling the derivatives trades will inevitably take more than a day, but if sorting out the portfolios takes even a few days, clearing members will start a run on the clearinghouse. The resulting enhanced systemic risk would necessitate government intervention. A major derivatives clearinghouse would be too big to fail.

Accordingly, this Note proposes two recommendations to ensure that derivatives clearinghouses effectively reduce systemic risk. Regulators should: (1) minimize the risk of clearinghouse insolvency through strict collateral, capital, and default management requirements, and (2) create an ex ante guarantee fund to serve as a government backstop and provide liquidity to an insolvent derivatives clearinghouse, thereby avoiding enhanced systemic risk.

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An Act

To promote the financial stability of the United States by improving accountability and transparency in the financial system, to end "too big to fail", to protect the American taxpayer by ending bailouts, to protect consumers from abusive financial services practices, and for other purposes.[1]

INTRODUCTION

A derivative is a contract between two or more parties whose value is determined based on the fluctuations in the value of the underlying asset. The primary benefit of derivatives is that they supplement the financial markets by improving the pricing of risk and facilitating market participants' risk management.[2] As a result of the Dodd-Frank Wall Street Reform and Consumer Protection Act, passed in July 2010, derivatives clearinghouses will play a central role in enhancing transparency and regulation of the over-the-counter (OTC) derivatives industry. A clearinghouse, or central counterparty (CCP), is an entity that stands between the two original counterparties of a derivatives trade and assumes the rights and obligations of both parties. Dodd-Frank mandates that

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

2. *See* Stephen G. Cecchetti et al., *Central Counterparties for Over-the-Counter Derivatives*, BIS Q. REV., Sept. 2009, at 45, 50.

certain derivatives products designated by the Commodities Futures Trading Commission (CFTC) and the Securities and Exchange Commission (SEC) must be cleared through regulated clearinghouses; for these products, the clearinghouses will serve as a backstop in case one party defaults, reflecting an effort to reduce the risk of contagion among financial firms and markets. As a result, a large portion of the over-the-counter derivatives market will require clearing by a regulated clearinghouse.[3]

Because the clearinghouses assume and guarantee the risks of the cleared trades' counterparties, clearinghouses will play a central role in managing systemic risk in the financial markets. Systemic risk is "the risk of a significant reduction in the effectiveness of the financial system, caused for example by a chain reaction of failures of major financial institutions."[4] The issue then becomes how well these clearinghouses will be able to manage the significant risk concentrated in the institutions.

The experience of LCH.Clearnet, Ltd. (LCH) during the Lehman Brothers bankruptcy proceedings provides a recent example of how a clearinghouse can successfully manage a member default and decrease systemic risk. LCH is a clearinghouse specializing in interest rate swaps that has been clearing trades for over twenty years. In 2008, LCH successfully managed the $9 trillion default of Lehman Brothers Special Financing, Inc. The clearinghouse also pro-

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3. Effective September 26, 2011, the CFTC finalized regulations for the process for review of swaps for mandatory clearing. Process for Review of Swaps for Mandatory Clearing, 76 Fed. Reg. 44,464, 44,473-74 (July 26, 2011) (to be codified at 17 C.F.R. § 39.5). Regulation 39.5(b)(3)(ii) provides certain factors to be considered by the CFTC in determining which swaps require mandatory clearing (either in reviewing swaps on its own initiative or by clearinghouse submission):

> (A) The existence of significant outstanding notional exposures, trading liquidity, and adequate pricing data;
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> (B) The availability of rule framework, capacity, operational expertise and resources, and credit support infrastructure to clear the contract on terms that are consistent with the material terms and trading conventions on which the contract is then traded;
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> (C) The effect on the mitigation of systemic risk, taking into account the size of the market for such contract and the resources of the derivatives clearing organization available to clear the contract;
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> (D) The effect on competition, including appropriate fees and charges applied to clearing; and
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> (E) The existence of reasonable legal certainty in the event of the insolvency of the relevant derivatives clearing organization or one or more of its clearing members with regard to the treatment of customer and swap counterparty positions, funds, and property.

Id. (to be codified at 17 C.F.R. § 39.5(b)(3)(ii)). Dodd-Frank also identifies certain entities, dealers, and major swap participants who must clear trades and meet capital and margin requirements. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act § 723, 7 U.S.C. § 2 (2006 & Supp. IV 2010). However, specifics remain unclear and require rulemaking by regulatory authorities. *See Dodd-Frank Act Rulemaking: Derivatives*, SEC, http://www.sec.gov/spotlight/dodd-frank/derivatives.shtml (last visited Apr. 13, 2012).

4. Darrell Duffie et al., *Policy Perspectives on OTC Derivatives Market Infrastructure* 1 n.1 (Fed. Reserve Bank of N.Y., Staff Report No. 424, 2010) (discussing the over-the-counter derivatives market structure and suggesting changes for regulators to improve weakness in the market).

tected all other market participants from counterparty and systemic risk following the unprecedented default. Moreover, LCH forced the defaulter, rather than the survivors, to pay for the default. Accordingly, the clearinghouse's actions in 2008 create a foundation for understanding the complexities of the default management process necessary for a derivatives clearinghouse to effectively manage risk.

Despite LCH's success in decreasing systemic risk during the recent financial crisis, the new clearing provisions create uncertainty as to whether clearinghouses will be as effective in the future. As the volume of trades requiring clearing increases, more risk will be concentrated in the clearinghouses. Consequently, either existing clearinghouses will have to increase in capacity or new clearinghouses will form to support the increased number of trades requiring clearing. What if other clearinghouses do not maintain default management procedures that are tested as rigorously or effectively as LCH's procedures? What if a clearinghouse were to face multiple clearing member defaults simultaneously? Determining the effectiveness of Dodd-Frank in decreasing systemic risk and addressing the "too big to fail" phenomenon requires understanding the potential strengths and weaknesses of derivatives clearinghouses in managing systemic risk as well as the implications of a clearinghouse's insolvency.

This Note analyzes the effectiveness of derivatives clearinghouses in containing the impact of counterparty default and reducing systemic risk. A derivatives clearinghouse can successfully decrease systemic risk, as seen in LCH's successful management of the Lehman default in 2008. However, if a clearinghouse were unable to manage a member default and became insolvent, systemic risk would greatly increase. Both existing resolution regimes, the Bankruptcy Code and the Dodd-Frank Orderly Liquidation Authority, would be unable to successfully unwind the institution. An insolvent derivatives clearinghouse in effect creates an unsolvable problem with respect to resolution: untangling the derivatives trades would inevitably take more than one day, but if sorting out the portfolios took even a few days, clearing members would start a run on the clearinghouse. The resulting increased systemic risk would necessitate government intervention. A major derivatives clearinghouse would be too big to fail.[5]

5. Recently, some industry leaders have expressed concern that the mandatory clearing requirements make clearinghouses the new "too big to fail" entities, effectively shifting risk from banks to clearinghouses while not addressing systemic risk concerns. *See* Mark J. Roe, *The Derivatives Market's Payment Priorities as Financial Crisis Accelerator*, 63 STAN. L. REV. 539, 586-87 (2011); Aline van Duyn, *IMF Queries Derivatives Reform Effectiveness*, FIN. TIMES (Mar. 29, 2011 7:50 PM), http://www.ft.com/cms/s/0/9511df26-5a2b-11e0-86d3-00144feab49a.html ("Manmohan Singh, the author of [an] IMF working paper, said the clearing houses may themselves be 'too-big-to-fail' entities in the making. Present efforts 'may not remove the systemic risk from OTC derivatives but rather shift them from banks to [clearing houses],' he said . . . ." (second alteration in original)); *see also* Kevin Brown, *Call for Rethink on OTC Deals*, FIN. TIMES (Dec. 6, 2009 8:43 PM), http://www.ft.com/cms/s/0/60506e18-e297-11de-b028-00144feab49a.html ("Pierre Gay, Asia-Pacific chief executive of

This Note sets forth two recommendations to ensure that derivatives clearinghouses successfully reduce systemic risk upon a counterparty default: regulators should (1) minimize the risk of clearinghouse insolvency through strict collateral, capital, and default management requirements, and (2) create an ex ante guarantee fund to serve as a government backstop and to provide liquidity to an insolvent derivatives clearinghouse, thereby avoiding enhanced systemic risk.

Part I introduces background information about the fundamentals of derivatives and derivatives clearinghouses. Part I also presents the case of LCH to demonstrate how a derivatives clearinghouse can effectively reduce systemic risk as well as how a clearinghouse could become insolvent by failing to manage a member default. Part II discusses the scenario in which a clearinghouse fails, analyzing treatment under the Bankruptcy Code and under Dodd-Frank's Orderly Liquidation Authority. Part III then provides regulatory solutions to ensure that derivatives clearinghouses effectively reduce systemic risk.

I. DERIVATIVES CLEARINGHOUSES' ROLE IN REDUCING AND MANAGING SYSTEMIC RISK

A. *Derivatives and Clearinghouse Basics*

1. *What is a derivative?*

A derivative is a contract between two or more parties whose value is determined based on the fluctuations in the value of the underlying asset (the "underlier"). A multitude of derivative types exist. The most common types are forwards, futures, swaps, and options. Each type of derivative includes an underlier, which could be anything for any type of agreement. Common examples of derivatives underliers include interest rates, currencies, stocks, or commodities; however, the underlier could also be as specific as the weather in Houston, Texas.

The payoff for a derivative contract is contingent on the realization of some future event at some future date. For example, a forward is an agreement to buy something (the underlier) at a specific price on a specific future date. In a plain forward contract, such as on oil, the buyer and the seller agree to a price that the buyer will pay the seller on the contract's expiration date. If the price of oil at the expiration date is higher than the forward price, the buyer profits and the seller loses. By contrast, if the price of oil at the expiration date is lower than the forward price, the buyer loses and the seller profits.

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futures broker Newedge, said the creation of a central clearing house to act as counterparty to OTC transactions on exchanges could be dangerous because it would transfer risk from banks to the clearer.").

The primary benefit of derivatives is that they "serve to complete financial markets by improving the pricing of risk and helping market participants manage the risks they face."[6] For example, a credit default swap permits companies to hedge the risk of credit default and the uncertainty related to that risk. In a credit default swap, the underlier of the financial product is the credit risk of a particular company or sovereign entity (the "reference entity"). The buyer pays a premium to the seller each quarter based on the creditworthiness of the reference entity. In exchange for this payment, the seller must pay the buyer if the reference entity defaults: the credit default swap ensures that the buyer will be protected.

The important role that derivatives play in completing the financial markets can be seen in the size of the over-the-counter derivatives market. As of December 31, 2010, the notional amount outstanding in the over-the-counter derivatives market reached $601 trillion.[7] Moreover, the interest rate derivatives market accounts for the vast majority of the over-the-counter market—$465 trillion at the end of 2010.[8]

2. *Counterparty credit risk and systemic risk*

Even when a derivative performs as intended, an over-the-counter derivatives contract exposes its holders ("counterparties") to the risk of loss in two ways: through the performance of the underlying asset and through the potential default of the counterparty.[9] The performance of the underlying asset determines which counterparty will experience loss and which party will experience gain. For example, as discussed above, a forward contract for oil causes a gain to the seller and a loss to the buyer when the price of oil declines, and vice versa when oil prices rise. Any loss to one counterparty is a gain to the other. The second source of risk is exposure to counterparty default: the risk that the counterparty to the trade will not fulfill its contractual obligations. With the oil forward example, if the buyer has a position worth $50 million with the seller, the buyer may still lose up to $50 million if the seller declares bankruptcy.[10]

The degree of risk related to counterparty default depends on the structure of the trade. Derivatives may be traded either over-the-counter or through an exchange. An over-the-counter derivative is bilaterally negotiated between the buyer and the seller. Alternatively, an exchange may serve as a centralized facility for matching the bids and offers of many buyers and sellers, creating the

6. Cecchetti et al., *supra* note 2, at 50.

7. INT'L SWAPS & DERIVATIVES ASS'N, OTC DERIVATIVES MARKET ANALYSIS, YEAR-END 2010, at 1 (2011), *available at* http://www2.isda.org/functional-areas/research/studies. The notional amount on a financial instrument is the nominal or face value used to calculate payments made on that instrument.

8. *Id.*

9. Duffie et al., *supra* note 4, at 4.

10. *See id.*

market for exchange-traded derivatives. The main distinction between the two markets is that over-the-counter derivatives are bilateral between two parties, whereas the counterparties to exchange-traded derivatives face the exchange as their counterparty. The over-the-counter trades tend to expose parties to a higher risk of counterparty default than trades on an exchange do. Nevertheless, the benefit of over-the-counter derivatives is that they may be customized to the counterparties' specific needs: as a result, corporations and other investors may use over-the-counter derivatives to offset unique business risks they wish to control, ultimately decreasing costs for the corporation.[11] Another mechanism used to decrease the risk of counterparty default is clearing the trade through a central counterparty, such as a derivatives clearinghouse. Any derivatives trade, whether executed over-the-counter or on an exchange, may be cleared through a clearinghouse, which assumes the responsibility for counterparty performance of both sides of the trade.[12]

The risk of counterparty default or counterparty credit risk rises to the level of systemic risk in three scenarios. First, systemic risk arises when the failure of a market participant with a robust derivatives portfolio could trigger large unexpected losses on its derivatives trades; the losses could seriously impair the financial condition of one or more of its counterparties.[13] Second, the fear of a market participant's failure could create systemic risk if counterparties try to reduce exposure to the large, weak market participant to avoid potential losses.[14] This behavior can contribute to a "run" that accelerates failure of that market participant. Third, the fear of a market participant's failure could also foster systemic risk if counterparties suddenly try to replace their positions with the distressed firm, thereby creating a "fire sale."[15] The "flight to quality" can lead to significant price volatility or price distortions in both the underlying asset markets and the derivatives markets.[16] Given this basic understanding of the operation of the derivatives markets and the risks associated with derivatives trades, the next Subpart will explain the basic operations, benefits, and risks related to a derivatives clearinghouse.

3. *What is a derivatives clearinghouse?*

A clearinghouse, or central counterparty, is an entity that stands between the two original counterparties of a trade and assumes the rights and obligations of both parties. The clearinghouse acts as the seller to the original buyer and as the buyer to the original seller. As a result, two new contracts, each between the

11. *Id.* at 9-10.
12. *See id.* at 5.
13. *See id.* at 5.
14. *See id.*
15. *See id.*
16. *Id.*

clearinghouse and one counterparty, replace the original contract between counterparties to the derivative trade.[17] This structure facilitates three central benefits: (1) multilateral netting of exposures and payments by the clearinghouse, (2) improved counterparty risk management, and (3) increased transparency for regulators and the public through increased availability of information on market activity and exposures.[18]

The clearinghouse's multilateral netting of trades reduces the systemic risk associated with derivatives trades.[19] A clearinghouse facilitates multilateral netting because the clearinghouse assumes the responsibilities of all parties and thus may net gains and losses among trades. If parties have multiple offsetting trades, the clearinghouse can net the different positions against each other and thus bill or pay only these net amounts. As a result, the multilateral netting reduces the overall gross exposure of the clearinghouse relative to the total of the bilateral gross exposures of the parties to each other in the absence of a clearinghouse. The clearing process accordingly reduces risk to the financial system from the failure of any party to the derivatives trades.[20]

Clearing likewise "improves and simplifies the management of counterparty risk, as well as increasing the efficiency of collateral management."[21] The clearinghouse can ensure consistent practices with respect to collateral for all clearing members, which improves risk-management procedures. Moreover, a clearinghouse may implement a variety of controls to maintain financial resilience in the case of a clearing member default: stringent membership access, a robust margining regime, clear default management procedures, and significant financial resources back its performance.[22]

Clearing likewise reduces the risk that the failure of one counterparty could trigger domino-effect losses for other counterparties.[23] Because the clearing-

17. As a point of reference, the amount of interest rate swaps cleared at the end of 2010 totaled nearly $248 trillion measured in terms of notional amounts (and the total notional amount outstanding of the interest rate swap market reached $364 trillion), illustrating the role clearinghouses currently play in the over-the-counter derivatives markets. *See* INT'L SWAPS & DERIVATIVES ASS'N, *supra* note 7, at 1.

18. Cecchetti et al., *supra* note 2, at 46.

19. Multilateral netting is the process by which mutual payment obligations between parties are set off, partially or entirely canceling each other out. *See id.* at 49-50.

20. ROBERT E. LITAN, THE BROOKINGS INST., THE DERIVATIVES DEALERS' CLUB AND DERIVATIVES MARKETS REFORM: A GUIDE FOR POLICY MAKERS, CITIZENS AND OTHER INTERESTED PARTIES 12 (2010) (providing a "Cliff's Notes" guide to derivatives).

21. Cecchetti et al., *supra* note 2, at 49. Collateral is the assets provided to decrease a party's exposure if its counterparty defaults: with collateral, the party will already have assets in its possession that it may liquidate to cover the counterparty's losses.

22. Duffie et al., *supra* note 4, at 6.

23. *See* Darrell Duffie & Haoxiang Zhu, *Does a Central Clearing Counterparty Reduce Counterparty Risk?*, 1 REV. ASSET PRICING STUD. 74, 75 (2011) ("The introduction of a CCP for a particular class [of derivatives] . . . is effective only if the opportunity for multilateral netting in that class dominates the resulting loss in bilateral netting opportunities across all uncleared derivatives . . . .").

house assumes the obligations of both the seller and the buyer, imposing itself in between the two counterparties, the default management procedures of the clearinghouse should prevent the failure and default of one counterparty from directly falling on the other counterparty to the trade as it would in an over-the-counter bilateral trade. The clearinghouse mutualizes credit and market risk by spreading it among the clearing members through its membership requirements.[24] The benefits described above in this Subpart illustrate the motivating factors behind mandatory clearing requirements in the recent Dodd-Frank legislation.[25]

B. *A Derivatives Clearinghouse's Successful Management of Systemic Risk in 2008*

The clearinghouse's ability to manage a clearing member default directly determines its effectiveness in reducing systemic risk: the clearinghouse spreads the risk of default among clearing members and ensures that only that clearing member's collateral is used to cover its default. To illustrate how a derivatives clearinghouse can effectively decrease systemic risk, this Subpart examines LCH's management of Lehman Brothers Special Financing, Inc.'s $9 trillion default on interest rate swaps in 2008. The analysis shows how the mandatory clearing requirements could improve financial stability in the United States: increasing the number of trades subject to mandatory clearing minimizes the impact a counterparty default may have on other major financial institutions. This Subpart then explains how a clearinghouse's default management process could fail, ultimately resulting in an insolvent derivatives clearinghouse and enhanced systemic risk.

1. *LCH.Clearnet's default management process*

The fundamentals of clearinghouse risk-management procedures consist of the following: (1) strict membership criteria, (2) robust margining, and (3) a predetermined default management process.[26] To ensure the financial stability

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24. Cecchetti et al., *supra* note 2, at 50.

25. Scholars have also expressed concern about incentive problems resulting from mandatory clearing of financial products, distinct from those explained in this Note, relating to moral hazard and excessive risk taking. *See, e.g.*, Craig Pirrong, *The Inefficiency of Clearing Mandates* 3 (CATO Inst., Policy Analysis No. 665, 2010), *available at* http://ssrn.com/abstract=1710802 ("Risk sharing through a clearinghouse makes the balance sheets of the clearinghouse members public goods, and encourages excessive risk taking. That is, the clearing mechanism is vulnerable to moral hazard.").

26. Included in the Dodd-Frank mandatory clearing requirements are provisions that ensure at the most general level that these three risk-management functions exist; however, the lack of specificity creates uncertainty as to how well new clearinghouses or existing clearinghouses will manage risk. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act § 725, 7 U.S.C. § 7a-1 (2006 & Supp. IV 2010). For example, Dodd-Frank clear-

of the clearing members, their ability to maintain a derivatives portfolio, and their ability to contribute in case of another clearing member's default, LCH maintains strict criteria for membership selection, including both net capital and operational capability requirements.[27] The clearinghouse carefully monitors members and their financial positions in order to detect as early as possible any threat to the member's ability to meet its obligations to LCH. Monitoring includes full credit evaluations and scoring, stress testing, and review of financial resources against initial-margin and historical-variation-margin losses, position concentration, and price moves in equity and debt issued by members.[28] If after a closer inspection LCH is concerned about a particular clearing member, it retains a range of measures at its disposal: such measures include higher initial-margin requirements, additional financial resource requirements, position transfers to other members, trading for liquidation only, prior authorization of trades above a certain size, reduction in positions, termination of the clearing member agreement, and declaration of member default.[29]

In addition to stringent membership requirements, LCH also maintains a robust margining regime and default fund. First, LCH covers the latent market risk on members' positions in the case of default through initial margin and variation margin.[30] The initial margin covers the estimate of potential future losses in managing a default in normal market conditions.[31] The variation mar-

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inghouse provisions regarding minimum financial resources provide that they must at minimum exceed the amount that would:

> (I) enable the organization to meet its financial obligations to its members and participants notwithstanding a default by the member or participant creating the largest financial exposure for that organization in extreme but plausible market conditions; and
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> (II) enable the derivatives clearing organization to cover the operating costs of the derivatives clearing organization for a period of 1 year.

Id. § 725(c), 7 U.S.C. § 7a-1(c)(2)(B)(ii). This creates a minimum floor but does not specify mechanisms to ensure the legitimacy of risk-management procedures; moreover, this requirement is less stringent than LCH's current default fund calculation procedures. *See infra* note 49.

27. *See*, *e.g.*, *LCH.Clearnet: A General Introduction to Risk Mitigation*, LCH.CLEARNET 8, http://www.lchclearnet.com/Images/LCH%20Clearnet%20-%20how%20it%20mitigates%20risk_tcm6-44531.pdf (last visited Apr. 13, 2012) (noting that LCH.Clearnet's requirements include net capital and operational capability as well as rating and regulatory status in some markets).

28. *LCH.Clearnet Ltd's Clearing Members, Membership Criteria and Clearing Member Monitoring (2011)*, LCH.CLEARNET 5-7, http://www.lchclearnet.com/images/lch%20clearnet%20ltd%20-%20members%20updated%20may%202011_tcm6-44532.pdf (last visited Apr. 13, 2012) (describing in detail the membership requirements).

29. *Id.* at 9.

30. *LCH.Clearnet*, *supra* note 27, at 10. Margin is the collateral posted by a clearing member to protect the clearinghouse in the case of default and generally consists of cash or securities. *See, e.g.*, *Acceptable Collateral*, LCH.CLEARNET, http://www.lchclearnet.com/risk_management/ltd/acceptable_collateral.asp (last visited Apr. 13, 2012).

31. *See LCH.Clearnet Ltd—Initial Margin*, LCH.CLEARNET 4-5, http://www.lchclearnet.com/Images/LCH%20Clearnet%20Ltd%20-%20Initial%20Margin_tcm6-44535.pdf (last visited Apr. 13, 2012).

gin is the daily debit and credit of profit and loss on the existing trades. It keeps LCH's risk current: as a result, losses cannot build up over time but may only occur in the case of a default.[32] However, in stressed market conditions, the initial margin may be insufficient.[33] Further protection exists in the default fund. LCH designed the default fund to cover potential market risk over and above initial margin in stressed conditions following a clearing member default.[34] The default fund consists of members' cash contributions held by LCH.[35] LCH thus carefully ensures that in the case of a member default, numerous layers of protection are already in place.[36]

Lastly, LCH maintains existing procedures for the default management process in the case of member default. The general approach LCH takes to default management is to transfer client positions and close down proprietary risks through a combination of hedging, trading out of the positions, and auctioning parts of the remaining portfolio.[37] The overarching purpose throughout the process is to protect the integrity of the markets for which LCH clears and the default fund contributions of nondefaulting members.[38]

2. *LCH.Clearnet's effective management of Lehman Brothers Special Financing Inc.'s 2008 default*

On Monday, September 15, 2008, Lehman Brothers Special Financing, Inc. failed to make margin calls on its interest rate swaps, and LCH accordingly declared the member in default. The $9 trillion portfolio consisted of 66,390

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32. *LCH.Clearnet Limited's Default Protections*, LCH.CLEARNET 5, http://www.lchclearnet.com/Images/LCH%20Clearnet%20Ltd%20-%20%20default%20protections%202010_tcm6-44534.pdf (last visited Apr. 13, 2012).

33. *Id.* at 7.

34. *LCH.Clearnet Ltd's Default Fund*, LCH.CLEARNET 2, http://www.lchclearnet.com/Images/LCH%20Clearnet%20Ltd%27s%20Default%20Fund%202011_tcm6-44536.pdf (last visited Apr. 13, 2012). LCH uses a stress-testing model that uses around sixty scenarios representing stressed conditions in the key contracts cleared by LCH. The scenarios are mostly based on historical events, such as Hurricane Katrina and the largest moves historically both up and down in specific contracts; however, the model also includes some theoretical scenarios. *Id.* at 3-4.

35. *Id.* at 2.

36. In the case of member default, the order of funds used to cover the default is the following: the initial margin, the member's default fund contribution, LCH's own capital (up to £20 million), the remaining default fund, SwapClear contributions (in the case of a member of one specific product, SwapClear, which clears interest rates swaps, LCH has the right to request £50 million from each remaining SwapClear member on a nonvoluntary basis), and finally the remainder of LCH's capital. *LCH.Clearnet Limited's Default Protections*, *supra* note 32, at 7-19.

37. LCH.CLEARNET, DEFAULT MANAGEMENT OVERVIEW: EXCHANGE & COMMODITY DERIVATIVES MARKETS 3 (2010) (providing detailed information about the default management process but explicitly noting LCH's right to deviate from plans as needed during an actual default).

38. *Id.*

trades that required transferring and winding down.[39] At the time of default, LCH cleared approximately fifty percent of the interdealer market in interest rate swaps—a $35.5 trillion market in notional terms as of December 2006.[40] Contingency plans for the default management process had been in place as described above, and LCH staff had begun preparing for the possibility throughout the weekend prior to the default.[41] Upon default, LCH had three options: (1) going to the market directly to liquidate the portfolio, (2) having a dealer unwind the book on an agency basis for the clearinghouse, or (3) auctioning off the positions as a package.[42] LCH chose the auction process because at the time it seemed like "the lowest-impact solution" for the market given the significant interest from other firms.[43] The auction process that was relied on had been regularly tested, including as late as a week before the Lehman default; however, the process had never been put to use in a real default scenario.[44] Before beginning the auction, and immediately upon Lehman's default, LCH's risk-management team began to apply hedges and neutralize the macro-level market risk on the defaulter portfolio, adhering to strict confidentiality rules throughout the process. The default was managed well within the margin LCH held for Lehman, and LCH did not use any of the default fund[45]: approximately thirty-five percent of Lehman's initial margin was required to hedge the risk and manage and auction the total house portfolio, permitting LCH to return a significant amount to Lehman administrators.[46] In the end, LCH successfully protected all other market participants from counterparty and systemic risk following the unprecedented default. Moreover, LCH forced the defaulter, rather than the survivors, to pay for the default.[47] In describing the default management process, LCH's chief executive, Robert Liddell, attributed the success to members' active participation, which had enabled LCH to leverage their expertise.[48]

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39. Paul Cusenza & Randi Abernethy, *Dodd-Frank and the Move to Clearing*, INSIGHT, Sept. 2010, at 22, 23; Press Release, LCH.Clearnet, $9 Trillion Lehman OTC Interest Rate Swap Default Successfully Resolved (Oct. 8, 2008), *available at* http://www.lchclearnet.com/Images/2008-10-08%20SwapClear%20default_tcm6-46506.pdf.

40. Natasha de Terán, *LCH.Clearnet Faces Biggest Clean-Up After Lehman Default*, FIN. NEWS (Sept. 16, 2008, 2:04 PM GMT), http://www.efinancialnews.com/story/2008-09-16/lchclearnet-faces-biggest-clean-up-after-lehman-default-1.

41. Natasha de Terán, *How the World's Largest Default Was Unravelled*, FIN. NEWS (Oct. 13, 2008), http://www.efinancialnews.com/story/2008-10-13/how-the-largest-default-was-unravelled.

42. Cusenza & Abernethy, *supra* note 39, at 23.

43. Terán, *supra* note 41.

44. Terán, *supra* note 40.

45. Press Release, LCH.Clearnet, *supra* note 39.

46. Cusenza & Abernethy, *supra* note 39, at 24.

47. *Id.*

48. Press Release, LCH.Clearnet, *supra* note 39.

C. *Potential weaknesses in derivatives clearinghouse management of systemic risk: how a clearinghouse could fail to manage a member default*

While LCH effectively managed the Lehman default in 2008, how likely are other clearinghouses to function as effectively in the future? The Dodd-Frank legislation intends to minimize the impact of counterparty default by increasing the number of derivatives trades cleared; however, understanding what would happen if a clearinghouse could not successfully manage a default is critical to evaluating the impact that mandatory clearing has on systemic risk. LCH's stress testing for the default fund creates a concrete example of the complexity involved in managing risk,[49] and LCH has existed for over twenty years, providing time for development and refinement of its procedures.[50] However, it remains to be seen whether new clearinghouses will have the expertise and discipline to create equally effective procedures and requirements.[51] Even though LCH's default fund was not reached during the Lehman default, consider the implications of an unexpected default of multiple members during a period of financial distress. As the mandatory clearing requirements included in Dodd-Frank increase the volume of cleared trades, the role of derivatives

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49. *See LCH.Clearnet Ltd's Default Fund*, *supra* note 34, at 3-5 (describing the default fund, the stress-testing of the fund, and the necessary proportionate contributions of clearing members to the fund). The adequacy of the default fund maintained by LCH is carefully monitored and stress tested: the testing analyzes the worst-case loss of the member with the largest exposure, or alternatively, the combined losses of the two members with the second and third largest exposures. The worst-case loss includes the losses of any affiliates of the member as well as an assumed knock-on impact where the five lowest-credit-scored members of LCH.Clearnet also default as a consequence. If the worst-case loss is above or equal to ninety percent of the default fund, the risk committee determines whether member-specific action or an increase in the size of the default fund is required. *Id.* at 5.

50. During its lifetime, LCH has handled five defaults, with Lehman constituting the largest default. *LCH.Clearnet's Default History*, LCH.CLEARNET 2-9, http://www.lchclearnet.com/Images/LCH%20Clearnet%20Ltd%20-%20%20default%20history%202010_tcm6-44530.pdf (last visited Apr. 13, 2012) (describing in detail the five defaults managed by LCH).

51. Analysts at Barclays Capital recently expressed concern as to whether clearinghouses will maintain the strict collateral requirements necessary to prevent systemic risk given that they are for-profit enterprises. RAJIV SETIA ET AL., BARCLAYS CAPITAL, DERIVATIVES REFORM: EVOLUTION, NOT REVOLUTION 1, 5 (2010), *available at* http://www.scribd.com/doc/33749996/Barclays-Interest-Rate-Strategy-20100630 ("While CCPs are run for profit, under the new bill, they now serve a vital public purpose. In fact, in some respects, this function is reminiscent of the [government sponsored entities'] role in the mortgage markets. If CCPs compete for clearing business by lowering margin requirements, it could weaken the financial infrastructure."). Moreover, a recent CFTC draft proposal lowered the capital threshold for a clearinghouse to $50 million, which will encourage new entrants to the business. Manmohan Singh, *Making OTC Derivatives Safe—A Fresh Look* 5 (Int'l Monetary Fund, Working Paper No. 11/66, 2011), *available at* http://www.imf.org/external/pubs/cat/longres.aspx?sk=24726. The degree of risk associated with the changing landscape for derivatives clearinghouses depends on whether new entrants and existing clearinghouses maintain the strict standards necessary to effectively manage potential defaults.

clearinghouses in managing systemic risk in the financial markets will be magnified. Evaluating the effectiveness of the new Dodd-Frank legislation requires understanding the inherent risks of concentrating derivatives trades in clearinghouses responsible for guaranteeing their performance.[52]

The two main mechanisms through which a derivatives clearinghouse could become insolvent would be (1) insufficient collateral and capital requirements or ineffective default management procedures, and (2) multiple-member defaults. The first problem arises from the potential for regulators to create clearinghouse rules that include insufficient minimum collateral or capital requirements for derivatives clearinghouses, or that do not effectively regulate the default management procedures. In managing the Lehman default, LCH did not need to use any of the default fund; however, LCH's success can be attributed to effective margining requirements and the clearinghouse's ability to determine the amount of collateral necessary to cover future potential losses upon a member default. By contrast, if margining were not managed effectively or if the market were distressed at the time of the clearing member default, the default fund would be reached. Whether or not existing clearinghouses or newly established clearinghouses will maintain sufficient collateral requirements is unclear.

If the initial and variation margin does not cover the losses, then the defaulting member's default fund contribution would be reached. Again, determining the appropriate quantities for each member's contribution to the default fund is a complex process. If the member's default fund contribution could not cover the default, then the derivatives clearinghouse's capital would be used. Accordingly, if the clearinghouse is not sufficiently capitalized, the chances of insolvency increase. If the other options are exhausted, the nondefaulting clearing members' default fund contributions would be reached. As this scenario illustrates, setting appropriate collateral and capital requirements is a complex and nuanced process that ultimately determines the clearinghouse's ability to contain a member default.

Whether existing derivatives clearinghouses will continue to maintain sufficient collateral, capital, and default fund requirements as the volume of trades increases is impossible to determine; likewise, if new clearinghouses form in

52. LCH.Clearnet is headquartered in the United Kingdom; however, two other leading clearinghouses are based in the United States. First, ICE runs a clearinghouse for futures and a clearing house for North American credit default swaps. *Clearing*, ICE, https://www.theice.com/clear_overview.jhtml (last visited Apr. 13, 2012). Second, CME Group clears credit derivatives and interest rate swaps. *See Clearing*, CME GROUP, http://www.cmegroup.com/clearing/index.html (last visited Apr. 13, 2012). Each of these clearinghouses includes the largest United States commercial banks in its membership, illustrating the central role each institution plays in the financial markets. *See Clearing Firms*, CME GROUP, http://www.cmegroup.com/tools-information/clearing-firms.html (last visited Apr. 13, 2012) (listing participating clearing firms); *Participant List*, ICE, https://www.theice.com/publicdocs/ice_trust/ICE_Trust_Participant_List.pdf (last visited Apr. 13, 2012) (listing participating institutions).

response to the mandatory clearing requirements, their degree of expertise and ability to match existing clearinghouses' default management procedures is unclear. Determining the best course of action in managing a member default requires significant expertise in complex derivatives and financial markets. The clearinghouse must decide whether to transfer trades, appoint an agent to unwind the portfolios, or hold an auction. Each process is complicated and requires insight into clearing members' and the financial markets' interests. Accordingly, insufficient capital requirements and ineffective default management procedures are two paths through which mismanagement of a clearing member default could result in an insolvent derivatives clearinghouse.

The second mechanism through which a clearinghouse could become insolvent is through multiple-member defaults. With a larger volume of trades cleared, it is likely that most major financial institutions will be counterparties to a derivatives clearinghouse. As a result, in an unanticipated time of distress in the financial markets such as occurred in 2008, several major financial institutions could simultaneously face liquidity problems that force them to default on their derivatives positions. If multiple clearing members defaulted concurrently, it is unclear whether even the most effective default management procedures would enable a derivatives clearinghouse to effectively manage the defaults and avoid insolvency. Accordingly, ensuring that the resolution system for an insolvent derivatives clearinghouse can effectively unwind the institution is critical to derivatives clearinghouses' role in successfully decreasing rather than increasing systemic risk.

II. DERIVATIVES CLEARINGHOUSES' POTENTIAL TO INCREASE SYSTEMIC RISK: FAILURE OF EXISTING RESOLUTION SYSTEMS

This Part demonstrates that the two existing resolution systems for an insolvent derivatives clearinghouse, the Bankruptcy Code and the Dodd-Frank Orderly Liquidation Authority, would not provide for effective unwinding of the institution. As a result, a derivatives clearinghouse will enhance systemic risk if it cannot manage a counterparty default and becomes insolvent.

The two resolution systems would be ineffective because the insolvency of a major derivatives clearinghouse creates a unique incentive problem that ultimately would accelerate the failure of the clearinghouse and cause significant losses for major financial market participants (particularly the clearing members). If a derivatives clearinghouse became insolvent, rather than serving to decrease the impact of counterparty default, the insolvent derivatives clearinghouse would magnify the impact: clearing members would likely start a run on the clearinghouse and accelerate its failure, leading to the destruction of a central entity in the financial markets.

While the Dodd-Frank Orderly Liquidation Authority provisions permit a transfer of the clearinghouse's trades to a bridge financial institution, hoping thereby to avoid the run, the logistical hurdles to successful implementation

would prevent the new resolution system from effectively unwinding the insolvent clearinghouse. Accordingly, the government would be forced to intervene: the derivatives clearinghouse would be too big to fail.

A. *Bankruptcy Analysis*

In the case of a clearinghouse's insolvency, the clearing members' incentives create a collective action problem whereby not only would the clearinghouse fail, but many clearing members would likely experience significant losses. The clearinghouse rules permit clearing members to elect to terminate and liquidate their portfolios upon the insolvency of the clearinghouse.[53] As a result, most clearing members, if not all, would want to exit, creating a run on the clearinghouse: this incentive structure would drive the members to destroy the institution. The in-the-money clearing members would want to terminate in order to collect profits before the clearinghouse runs out of capital and to ensure that the underlying value of the asset does not change such that their portfolios become out of the money.[54] Moreover, even out-of-the-money clearing members would likely terminate to cut their losses and avoid losing the chance to exit before prolonged bankruptcy proceedings. The resulting run on the clearinghouse's assets will ultimately accelerate its failure. Moreover, many clearing members will receive less than if they had remained in the trades. Dodd-Frank mandates clearing to decrease financial participants' exposure to the risk of counterparty default and consequently decrease systemic risk. However, in the case of a clearinghouse's insolvency, clearing members' incentives will cause enhanced systemic risk as a result of the run on the clearinghouse.

1. *Safe harbor provisions*

The unique incentive problem relates directly to special provisions in the Bankruptcy Code that apply to derivatives and the other financial contracts that will be subject to clearing requirements under Dodd-Frank. Upon the filling of a bankruptcy petition, the Code normally subjects creditors to a series of restrictions that limit their behavior; these limitations help solve the collective action problem fostered by an entity's insolvency. Upon insolvency, creditors want to collect their money as quickly as possible before other creditors collect; the limited pool of assets drives this behavior even though leaving assets in the hands of the insolvent entity might increase the going concern of the business and thus the amount creditors could collect.

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53. LCH.CLEARNET LIMITED, GENERAL REGULATIONS OF THE CLEARING HOUSE 85-86 (2012), *available at* http://www.lchclearnet.com/Images/General%20regulations_tcm6-43737.pdf.

54. "In the money" refers to those clearing members who will have the right to collect money after netting all of their trades. By contrast, those members who owe money to the clearinghouse after netting are "out of the money."

To avoid the collective action problem, the Bankruptcy Code significantly restricts creditors' behavior. First, upon filing of the bankruptcy petition, the Bankruptcy Code prevents creditors from suing the debtor for repayment and from trying to otherwise collect debts due from the bankrupt; likewise, it prevents secured creditors from immediately seizing or liquidating their collateral.[55] Additionally, creditors repaid on a loan in the ninety-day period before filing, thus receiving a "preference," often must return payments to the bankrupt to allow all creditors to share in that value.[56] Fraudulent conveyances, through which the debtor sells its own assets for less than their fair value, also may be recovered for the benefit of all creditors.[57] Lastly, the Bankruptcy Code limits most creditors' and suppliers' rights to terminate contracts with the bankrupt, and creditors cannot terminate their contracts with the bankrupt on account of the firm's decision to file a bankruptcy petition.[58] Together these sections of the Bankruptcy Code prevent creditors from removing assets from the estate and thus provide a solution to the collective action problem. However, special provisions permit derivatives counterparties to avoid these limitations.

The special provisions for derivatives and other financial contracts are commonly known as the "safe harbor provisions." Because of the safe harbor provisions, counterparties to derivatives trades may liquidate collateral in their possession,[59] are exempt from preference rules,[60] are exempt from constructive fraudulent conveyance liability,[61] and can terminate and liquidate contracts.[62] Accordingly, many of the restrictions forced upon creditors after the filing of the petition that prevent a race to the assets and help provide a solution to the collective action problem do not operate with respect to derivatives.[63]

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55. *See* 11 U.S.C. § 362(a) (2006) (describing application of the automatic stay upon filing of the bankruptcy petition).

56. *See id.* § 547(b)(4) (describing preferences that must be returned to the estate after filing of the bankruptcy petition).

57. *See id.* § 548(a)(1) (describing fraudulent conveyance liability for mismatched consideration).

58. *See id.* § 365(e) (prohibiting creditors from terminating contract because of bankrupt's insolvency or filing of a bankruptcy petition).

59. *See id.* § 362(b)(17), (27); *id.* § 560.

60. *See id.* § 546(g), (j).

61. *See id.*

62. *See id.* § 555 (permitting termination and liquidation of securities contracts); *id.* § 556 (permitting termination and liquidation of commodities or forward contracts); *id.* §§ 559-561 (permitting termination and liquidation of repos, swaps, and master netting agreements).

63. Existing scholarship provides an in-depth discussion of the rationales for and critiques of these provisions. *See* Kimberly Anne Summe, *Lessons Learned from the Lehman Bankruptcy*, *in* ENDING GOVERNMENT BAILOUTS AS WE KNOW THEM 59, 69-72 (Kenneth E. Scott et al. eds., 2010) (summarizing the rationales behind protecting qualified financial contracts from the automatic stay); *see also* Roe, *supra* note 5 (contending that the safe harbor provisions for derivatives counterparties reduce prebankruptcy incentives to monitor and adjust investments to better account for counterparty risk since derivatives counterparties will do well in any resulting bankruptcy); David Skeel & Thomas Jackson, *Transaction Con-*

2. *Inevitable run on the derivatives clearinghouse*

The safe harbor provisions create a particularly interesting incentive problem with respect to an insolvent derivatives clearinghouse: because all of the trades cleared by the clearinghouse are likely subject to these special provisions for derivatives, all clearing members will want to take advantage of the provisions to terminate and liquidate, either to obtain their profits or to cut their losses. The clearinghouse rules provide for netting of the trades, creating two categories of clearing members with distinct incentives. The netting process to determine the amount owed from one counterparty to another is settlement of the "termination amount";[64] after terminating the trades, some members will be in the money, with a right to receive payment from the clearinghouse while others will be out of the money, owing the clearinghouse a sum of money. Upon the insolvency of the clearinghouse, both the in-the-money and the out-of-the-money clearing members will have the right to terminate under the clearinghouse rules, and the safe harbor provisions will permit them to avoid the typical creditor limitations.

The in-the-money clearing members will want to terminate their trades and request payment of the termination amount because they will have the opportunity to obtain profit; moreover, because of the clearinghouse's insolvency, they will want to collect money owed by the clearinghouse before it runs out of capital, given the limited pool of assets. While collateral segregation may decrease the rush, the clearinghouse's distressed status will drive the clearing members to want their slices of the remaining clearinghouse capital before funds are dispersed to other members.[65] Likewise, due to the changing value of the underlying asset of a derivatives trade, the in-the-money clearing members will want to exit the trades while they are ahead to prevent future losses.

The real danger, however, results from out-of-the-money clearing members' incentives: because they may want to cut their losses and avoid prolonged bankruptcy proceedings, they will likely want to exit even though they will experience a loss on their portfolio. The problem arises in part due to the implica-

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sistency and the New Finance in Bankruptcy (Inst. for Law & Econ., Research Paper No. 11-06, 2011), *available at* http://ssrn.com/abstract=1773631 (proposing reforms to current derivatives and repo treatment under the Bankruptcy Code).

64. *See, e.g.*, LCH.CLEARNET LIMITED, *supra* note 53, at 86.

65. Dodd-Frank does include provisions regarding segregation requirements; however, it remains unclear how these requirements will actually operate. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 724, 124 Stat. 1376, 1682-85 (2010) (codified as amended in scattered sections of 7 and 11 U.S.C.). Additionally, in an International Monetary Fund working paper Manmohan Singh argues that a clearinghouse may face a pure liquidity crisis if it suffers from a massive outflow of otherwise solvent clearing members because it would have to realize its investment portfolio at low prices. Singh, *supra* note 51, at 9. If all clearing members were trying to liquidate collateral simultaneously, a problem arises if the clearinghouse has tied up the collateral in repo transactions and either cannot get it back or does not want to pay cash to the members. *Id.*

tions of a decision made during the Lehman bankruptcy proceedings. During the proceedings, a bankruptcy court in the Southern District of New York held that a counterparty named Metavante, by failing to terminate its derivatives contracts within approximately one year of the bankruptcy filing, waived its rights to terminate under the safe harbor provisions.[66] The court stated that the legislative history of the safe harbor provisions illustrated Congress' intent to allow for *prompt* closing out and liquidation of open accounts upon the commencement of the bankruptcy case: immediate termination for default and netting provisions is critical for the effectiveness of swap transactions in preventing systemic risk in the financial markets.[67] Nonetheless, the court explained that the nonbankrupt counterparty must exercise its rights fairly contemporaneously with the filing—otherwise the contract would be rendered an ordinary executory contract.[68] The language used by the court leaves the permissible window for termination under the safe harbor provisions unclear; however, it is apparent that delay can result in waiver, which will drive counterparties to an insolvent institution to terminate immediately or risk sacrificing the opportunity to exit the trades before prolonged bankruptcy proceedings.

Accordingly, the out-of-the-money clearing members will likely terminate (1) to cut their losses in case the market continues to worsen against their interest, and (2) to avoid forfeiting the right to terminate upon insolvency and thus circumvent prolonged bankruptcy proceedings. Moreover, the incentive to terminate and liquidate upon the insolvency of a derivatives counterparty may be enhanced in the scenario of clearinghouse insolvency, depending on the collateral segregation requirements of the clearing organization: if a clearing member does not opt for a segregated account for its collateral or if segregation requirements are not strictly enforced,[69] out-of-the-money clearing members may

66. *See* Peter Marchette, *The Bankruptcy Court's Ruling in the Lehman-Metavante Matter: Has the Ticking Time Bomb of* Enron v. TXU *Exploded or Been Defused?* 7 (N.Y. Law Sch. Legal Studies, Research Paper No. 29, 2010), *available at* http://ssrn.com/abstract=1568425.

67. *Id.* at 8.

68. *Id.*

69. Some clearinghouses do not require strict segregation of member collateral because of the increased costs associated with segregation. Section 724 of Dodd-Frank requires that property of a swaps customer received to margin a swap "shall not be commingled with the funds of the futures commission merchant or be used to margin, secure, or guarantee any trades or contracts of any swaps customer or person other than the person for whom the same are held." Dodd-Frank Wall Street Reform and Consumer Protection Act § 724, 7 U.S.C. § 6d (2006 & Supp. IV 2010). Nevertheless, futures commission merchants (FCMs) may hold the collateral pledged to a clearinghouse, and the framework for collateral segregation upon the default of an FCM is still to be determined by the CFTC. The critical issue is whether or not the collateral of a nondefaulting member held by the FCM could be used to pay the clearinghouse upon the FCM's default. (If the futures customer suffers sufficient losses such that the customer's debit balance exceeds the FCM's available capital, the FCM may be unable to make required payments to the clearinghouse with respect to the FCM's customer account without using nondefaulting customers' collateral.) The proposed rules include four models with differing levels of protection for customer collateral, ranging from

be even more likely to terminate to avoid losing their collateral as in-the-money clearing members exit trades to collect their profits. As a result, if strict collateral segregation requirements do not exist, the in-the-money clearing members' behavior will drive the out-of-the-money clearing members to terminate and liquidate their positions even though, absent the anticipated run, it might have been against their interest.

Systemic risk would still increase even with strict segregation requirements and with out-of-the-money clearing members that waive their right to terminate and thus subject themselves to the bankruptcy process. If the right to terminate were waived, the derivatives trades would be treated as executory contracts, as mentioned in the Lehman proceedings.[70] Under the Bankruptcy Code, the debtor may assume executory contracts that it determines are net assets and reject the contracts that are net liabilities.[71] Because the trades would be treated as executory contracts and in the money for the clearinghouse, the estate would likely want to assume and assign the trades to another clearinghouse due to their value. For example, during the Lehman bankruptcy proceedings, following the termination of eighty percent of the debtor's derivative contracts pursuant to provisions underlying the contracts, the estate succeeded in its motion to assign and settle outstanding derivatives transactions.[72]

However, upon the insolvency of a derivatives clearinghouse, the likelihood that another clearinghouse would have the capacity to absorb the insolvent clearinghouse's portfolios is low, particularly given the tendency for derivatives clearinghouses to specialize in particular financial products.[73] Accordingly, if the clearing members didn't exit trades and the estate could assume the valuable contracts, the clearinghouse might have a better chance at survival through partially avoiding the run; nevertheless, significant systemic risk would still result because the estate would lack viable options for assign-

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complete segregation to the use of an omnibus account through which the clearinghouse has recourse to all collateral in the event of a FCM failure, including collateral from nondefaulting customers. *See* Protection of Cleared Swaps Customers Before and After Commodity Broker Bankruptcies, 75 Fed. Reg. 75,162, 75,163-64 (proposed Dec. 2, 2010) (to be codified at 17 C.F.R. pt. 190).

70. *See* Marchette, *supra* note 66, at 8. While the Bankruptcy Code does not define "executory contract," the most common definition used is that of Vern Countryman: "a contract under which the obligation of both the bankrupt and the other party to the contract are so far unperformed that the failure of either to complete performance would constitute a material breach excusing the performance of the other." *See* Vern Countryman, *Executory Contracts in Bankruptcy* (pt. 1), 57 MINN. L. REV. 439, 460 (1973). For a general explanation of executory contracts and options available to the debtor with respect to these contracts, see Skeel & Jackson, *supra* note 63, at 20-21.

71. Section 365(a) permits the bankruptcy estate to assume any executory contract as long as it cures any previous default. 11 U.S.C. § 365(a) (2006). Likewise, the estate may assign a contract and thus relieve itself of all obligations. *Id.* § 365(k).

72. *In re* Lehman Brothers Holdings, Inc., No. 08-13555 (Bankr. S.D.N.Y. Dec. 16, 2008).

73. *See infra* Part II.B.3.

ment of valuable trades. Because of the significant degree of systemic risk resulting from Chapter 11 proceedings for a derivatives clearinghouse, the Secretary of the Treasury could take action to subject the clearinghouse to the newly established liquidation authority procedures created by Dodd-Frank to resolve systemically important financial institutions.[74]

B. *Dodd-Frank Orderly Liquidation Authority Analysis*

Because of the potential systemic risk created upon the insolvency of a derivatives clearinghouse, the Secretary of the Treasury could initiate Dodd-Frank liquidation authority proceedings; however, as will be discussed hereinafter, the liquidation authority could not successfully unwind the clearinghouse because of logistical complexities in transferring the trades to a bridge financial institution and auctioning off the insolvent clearinghouse's trades. Therefore, if a derivatives clearinghouse were to become insolvent, the clearinghouse would not prevent increased systemic risk upon the default of a clearing member as per the stated purpose of Dodd-Frank, but rather would greatly increase systemic risk. Because successful management through either Chapter 11 proceedings or the Dodd-Frank Orderly Liquidation Authority is unlikely, the government would be forced to intervene to provide liquidity and cabin systemic risk. To demonstrate why a major derivatives clearinghouse would be too big to fail, this Subpart will explain why the Dodd-Frank liquidation authority procedures would apply to an insolvent derivatives clearinghouse yet fail to decrease systemic risk through successful unwinding of the institution.

Title II of the Dodd-Frank legislation creates an alternative to normal bankruptcy proceedings for "systemically important financial institutions." The Act states that the purpose of the liquidation authority is "to provide the necessary authority to liquidate failing financial companies that pose a significant risk to the financial stability of the United States in a manner that mitigates such risk

74. A working group at the Hoover Institution proposed an amendment to the Bankruptcy Code creating a Chapter 14, which would contain a number of substantive and procedural changes designed especially for the complexity and potential systemic consequences of the failure of the nation's largest financial institutions. *See* WORKING GRP. ON ECON. POLICY, HOOVER INST., BANKRUPTCY CODE CHAPTER 14: A PROPOSAL (2011), *available at* http://www.hoover.org/taskforces/economic-policy/resolution-project/publications. In particular, the paper proposed a three-day window after the filing of a bankruptcy petition during which termination of derivatives contracts would be prohibited. *Id.* at 23. The three-day window could help avoid the problematic incentive structure described in this Part, providing the estate with time to evaluate the best available next steps before derivatives counterparties could exit trades; moreover, the proposal provides more time than the Dodd-Frank liquidation authority provisions that create a one-day window before allowing termination and liquidation. *See infra* Part II.B.2. Nevertheless, the larger window before termination would not address the concerns discussed in Part II.B.3 regarding the ability of other clearinghouses to suddenly absorb an insolvent clearinghouse's trades or the need for normal market conditions. *See infra* Part II.B.3.

and minimizes moral hazard."[75] The Act aims to create new proceedings to address the insolvency of major financial institutions associated with the too-big-to-fail problem during the recent financial crisis. In March 2010, Federal Reserve Chairman Ben Bernanke explained the primary risk caused by too-big-to-fail firms:

> [I]f a firm is publicly perceived as too big, or interconnected, or systemically critical for the authorities to permit its failure, its creditors and counterparties have less incentive to evaluate the quality of the firm's business model, its management, and its risk-taking behavior. As a result, such firms face limited market discipline, allowing them to obtain funding on better terms than the quality or riskiness of their business would merit and giving them incentives to take on excessive risks.[76]

By creating the Orderly Liquidation Authority, Dodd-Frank attempts to directly address the moral hazard associated with too-big-to-fail institutions by forcing those responsible for a company's failure to pay rather than making U.S. taxpayers foot the bill.[77] However, the mandatory clearing provisions included in the same legislation in reality force the creation of a new wave of too-big-to-fail financial institutions: derivatives clearinghouses. Because of their central position in clearing derivatives trades for many major financial institutions, these entities will themselves become too big to fail.

1. *Why a clearinghouse would likely be subject to the Orderly Liquidation Authority*

Given the potential for greatly increased systemic risk upon the insolvency of a derivatives clearinghouse, the Secretary of the Treasury could take action to bring the clearinghouse into receivership under the newly established liquidation authority provided for in Title II of Dodd-Frank. While only "financial companies" are eligible to be placed into receivership under the Act and the definition of a "nonbank financial company" specifically excludes a derivatives

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75. Dodd-Frank Wall Street Reform and Consumer Protection Act § 204(a), 12 U.S.C. § 5384(a) (Supp. IV 2010).

76. Ben S. Bernanke, Chairman, Bd. of Governors of the Fed. Reserve Sys., Speech at the Independent Community Bankers of America National Convention (Mar. 20, 2010) (transcript available at http://www.federalreserve.gov/newsevents/speech/bernanke20100320a.htm).

77. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act § 204(a), 12 U.S.C. § 5384(a) ("The authority provided in this subchapter shall be exercised in the manner that best fulfills such purpose, so that—(1) creditors and shareholders will bear the losses of the financial company; (2) management responsible for the condition of the financial company will not be retained; and (3) [the FDIC] and other appropriate agencies will take all steps necessary and appropriate to assure that all parties, including management, directors, and third parties, having responsibility for the condition of the financial company bear losses consistent with their responsibility, including actions for damages, restitution, and recoupment of compensation and other gains not compatible with such responsibility.").

clearing organization,[78] section 804 provides the Financial Stability Oversight Council with the authority to designate a financial market utility, such as a clearinghouse, as systemically important.[79] The Notice of Proposed Rulemaking from March 2011 emphasizes that the clearinghouses' interconnectedness concentrates a significant amount of risk in the market and that their payment and settlement processes are highly interdependent: "Problems at one system could spill over to other systems or financial institutions in the form of liquidity and credit disruptions."[80]

The proposed rule includes four statutory considerations for the designation of a financial market utility such as a clearinghouse as systemically important: (1) the number and value of transactions processed, cleared, or settled; (2) the aggregate credit and liquidity exposures to counterparties; (3) the interdependencies and other interactions with other utilities or payment, clearing, or settlement activities; and (4) the effect of a failure of, or disruption to, the utility on critical markets, financial institutions, or the broader system.[81] Given these criteria, a major derivatives clearinghouse, such as LCH.Clearnet, CME Group, or ICE Trust, would likely be designated as systemically important.[82] Accordingly, a major derivatives clearinghouse would be eligible for the receivership process.

In order for the Secretary to initiate the receivership process, the clearinghouse must meet certain additional requirements: (1) it must qualify as a "covered financial company," (2) the Secretary of the Treasury, or the Federal Deposit Insurance Corporation (FDIC) and the Board of Governors of the Federal Reserve System, must make a recommendation regarding systemic risk, and (3) the Secretary of the Treasury must determine that the financial company is in risk of a default that would have serious adverse effects for financial stability in the United States.[83] A derivatives clearinghouse would meet the definition of a covered financial company. A covered financial company is a financial company for which a systemic risk determination has been made under section 203(b).[84] Under section 203, the FDIC and the Board of Governors must make a recommendation regarding whether a financial company presents systemic risk—either on their own initiative or at the request of the Secretary of the

78. *See id.* §102(a)(4)(B), 12 U.S.C. § 5311(a)(4)(b).

79. *See id.* § 804(a)(1), 12 U.S.C. § 5463(a)(1).

80. Authority to Designate Financial Market Utilities as Systemically Important, 76 Fed. Reg. 17,047, 17,048 (proposed Mar. 28, 2011) (to be codified at 12 C.F.R. pt. 1320).

81. *Id.* at 17,053-54.

82. It remains to be seen how other clearinghouses would be classified based on these criteria. *See* KIMBERLY SUMME, AN EXAMINATION OF LEHMAN BROTHERS' DERIVATIVES PORTFOLIO POST-BANKRUPTCY AND WHETHER DODD-FRANK WOULD HAVE MADE ANY DIFFERENCE 18-19 (2011), *available at* http://www.hoover.org/taskforces/economic-policy/resolution-project/publications.

83. *See* Dodd-Frank Wall Street Consumer Protection Act § 202(a), 12 U.S.C. § 5382(a).

84. *See id.* § 201(a)(8), 12 U.S.C. § 5381(a)(8).

Treasury.[85] A major derivatives clearinghouse would most likely be subject to such a recommendation because of its central position in guaranteeing derivatives trades that are critical to the operation of the financial markets. Moreover, the default of a clearinghouse would also directly impact all clearing members, which consist in large part of major financial institutions. Lastly, the bankruptcy analysis discussed in Part II.A illustrates the systemic risk associated with a clearinghouse default if the clearinghouse is not placed into receivership. For these reasons, a section 203 systemic risk recommendation would likely be made for a major derivatives clearinghouse.

Upon receipt of the recommendation from the FDIC and the Board of Governors, the Secretary must seek appointment of the FDIC as receiver if the Secretary determines: (1) the company is in default or in danger of default;[86] (2) the default of the financial company would have serious adverse effects on the financial stability of the United States; (3) no viable private sector alternative is available to prevent the default; (4) the effect of Dodd-Frank liquidation proceedings on the claims or interest of creditors, counterparties, shareholders of the financial company and other market participants is appropriate, given the impact that such action would have on the financial stability of the United States; and (5) an orderly liquidation would avoid or mitigate the adverse effects of default.[87]

Given the enhanced systemic risk caused by the derivatives counterparties' incentives during bankruptcy proceedings, the Secretary would likely appoint the FDIC as receiver. Accordingly, an insolvent derivatives clearinghouse would meet the prerequisites for the Dodd-Frank receivership process. The Secretary would then notify the financial company and the FDIC, and if the directors and officers of the company consent to FDIC's appointment as receiver, the FDIC would be appointed.[88]

2. *Basic elements of the Orderly Liquidation Authority and special provisions for qualified financial contracts*

Once appointed receiver, the FDIC assumes virtually complete control over the liquidation process and only limited avenues exist for challenging the decisions that the FDIC makes in pursuing liquidation. The FDIC succeeds to all

85. *See id.* § 203(a), 12 U.S.C. § 5383(a).

86. The definition of "default" or "danger of default" includes the initiation of bankruptcy proceedings or a likelihood that they will promptly be commenced. *Id.* § 203(c)(4), 12 U.S.C. § 5383(c)(4).

87. *Id.* § 203(b), 12 U.S.C. § 5383(b).

88. *See id.* § 202(a)(1)(A), 12 U.S.C. § 5382(a)(1)(A). If the directors and officers do not consent, the Secretary must file a sealed petition with the United States District Court for the District of Columbia for an order authorizing the Secretary to appoint the FDIC as receiver; a highly deferential standard is applied and effectively presumes the validity of the Secretary's determinations. *See id.*

rights, titles, powers, and privileges of the company and its assets, and of any stockholder, member, officer, or director of the company; the FDIC may conduct all aspects of the company's business and may liquidate and wind up the affairs of the company in such a manner as the FDIC deems appropriate.[89] Dodd-Frank includes special provisions regarding derivatives for the receivership process that mirror the Bankruptcy Code's safe harbor provisions.[90] Dodd-Frank provides that selected nondebtor counterparties to qualified financial contracts are free to exercise their contractual rights to terminate, close out, and liquidate their positions upon the insolvency of their counterparties.[91] Likewise, the FDIC may not avoid preferential or fraudulent transfers of money or property in connection with qualified financial contracts.[92]

However, unlike the Bankruptcy Code, Dodd-Frank imposes limitations on the special provisions for derivatives: it includes a one-day window during which termination is prohibited and precludes termination if a trade has been transferred to another financial institution.[93] These limitations create an opportunity to avoid the incentive problems described in Part II.A that result during Chapter 11 proceedings. Nevertheless, as will be hereinafter discussed, the logistical complexities of applying the Orderly Liquidation Authority procedures to an insolvent clearinghouse make government intervention before initiation of the receivership process the most likely outcome.

3. *Logistical impossibility of resolving a derivatives clearinghouse*

The Orderly Liquidation Authority would not provide for successful unwinding of an insolvent clearinghouse because logistical complexities would prevent even the best-case scenario from occurring. Upon placement into receivership, the FDIC would have several options to wind down the clearinghouse. The best option would be to transfer all trades to a bridge financial company during the one-day window and then set up an auction for each clearing member's portfolio. However, even this best-case scenario would not work for two primary reasons: (1) the logistics of transferring the trades would be complicated and unlikely to be implemented in such a short time frame, and (2)

89. *See id.* § 210(a)(1), 12 U.S.C. § 5390(a)(1).

90. *See id.* § 210 (c)(8), 12 U.S.C. § 5390(c)(8). The "qualified financial contracts" receiving special treatment include repurchase agreements, securities contracts, forward contracts, commodity contracts, and swap agreements. *Id.*

91. *See id.* § 210(c)(8)(A), 12 U.S.C. § 5390(c)(8)(A).

92. *See id.* § 210(c)(8)(C), 12 U.S.C. § 5390(c)(8)(C).

93. *See id.* § 210(c)(10)(B), 12 U.S.C. § 5390(c)(10)(B). Dodd-Frank prohibits the protected party from terminating, liquidating, or netting out its position solely by reason of the appointment of the FDIC as receiver, or by reason of the financial condition of the company in receivership, until 5:00 PM eastern time on the business day following the date of appointment. Likewise, Dodd-Frank precludes the protected party from exercising any contractual rights after it receives notice that its qualified financial contract has been transferred to another financial institution, including a bridge financial company. *Id.*

other clearinghouses would not have the capacity to absorb an insolvent clearinghouse's trades during a time of crisis.

Outside of the one-day window, the same problematic incentive structure described in Part II.A would result; thus, transferring the trades to a bridge financial institution to prevent that scenario is the best option. Transferring the trades to a bridge financial company during the one-day window would prevent clearing members from terminating and liquidating their positions in response to the clearinghouse's insolvency. As a result, the bridge financial company's appointed board of directors could more carefully evaluate the best options to wind down the insolvent entity.[94]

If the clearinghouse's portfolios were effectively transferred to a bridge financial institution, the new board of directors would have two options: transfer the portfolios to other clearinghouses through privately arranged acquisitions or create an auction to sell each portfolio.[95] For either alternative, the board of directors must transfer each clearing member's entire portfolio rather than transferring trades individually: section 210(c)(9) requires that all qualified financial contracts, claims, property, and other credit enhancements between a person and the covered financial company be transferred together.[96] As between the two alternatives available to the bridge financial company, the auction process would more efficiently allocate the trades. First, the auction permits other clearinghouses to assess their own strengths and capacity to assume the insolvent clearinghouse's trades and bid accordingly. Second, the pricing mechanism

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94. The bridge financial company created is meant to be temporary and to serve as a bridge to a permanent transaction with a private acquirer; it need not be funded with capital or surplus (though the aggregate amount of liabilities assumed by a bridge company may not exceed the aggregate amount of assets that are transferred to it). *See id.* § 210(h), 12 U.S.C. § 5390(h). Dodd-Frank provides that the bridge financial company shall terminate at the end of the two-year period following the date on which it was granted a charter; however, the FDIC may extend the status of the bridge financial company for no more than three additional one-year periods. *See id.* § 210(h)(12), 12 U.S.C. § 5390(h)(12).

95. The other option available to the FDIC would be to terminate and liquidate all of the clearinghouse's trades after transferring them; however, in reality this is not an option because it would foster high levels of systemic risk. Dodd-Frank provides that the FDIC must disaffirm or repudiate *all* financial contracts with a counterparty or none of them. *See id.* § 210(c)(11)(A), 12 U.S.C. § 5390(c)(11)(A). Repudiating the trades would create the largest amount of risk and consequently create significant instability in the financial markets: all of the clearing members would no longer have desired hedges, and many would immediately, suddenly, and unexpectedly experience significant losses. Terminating the trades would create precisely the type of systemic risk that a clearinghouse was created to avoid: it would permit the default of one or more clearing members to spread throughout the financial system. As a result, terminating and liquidating all of the insolvent clearinghouse's trades simply would not be feasible.

96. *See id.* § 210(c)(9), 12 U.S.C. § 5390(c)(9). This rule reflects concerns about the FDIC "cherry-picking" the trades: terminating the out-of-the-money trades and affirming the in-the-money trades. Avoiding cherry-picking by the bankruptcy estate is one rationale often offered in support of the Bankruptcy Code's safe harbor provisions. *See* David Mengle, *The Importance of Close-Out Netting*, ISDA RESEARCH NOTES, Nov. 2010, at 4-5, *available at* http://www2.isda.org/attachment/MTY4MQ==/Netting-ISDAResearchNotes-1-2010.pdf.

permits the bridge financial company to most efficiently identify the clearinghouses best positioned to absorb the trades.

While this is the best option, the logistics of transferring the trades and finding clearinghouses to assume the insolvent clearinghouse's portfolios make successful implementation unlikely. First, the logistical complexity of transferring the clearinghouse's positions is significant: it is unlikely that the FDIC could create a bridge financial company and transfer all of the insolvent clearinghouse's positions within the one-day window even with an existing plan outlining transfer procedures. Moreover, even if the trades were successfully transferred to a bridge financial institution, the auction for the insolvent clearinghouse's portfolios would not work.[97] Existing clearinghouses often specialize in particular types of financial contracts; as a result, it is unlikely that other clearinghouses could absorb a large portion of an insolvent clearinghouse's portfolios. For example, LCH.Clearnet currently clears over fifty percent of the interest rate swap market.[98] The likelihood that multiple clearinghouses would have the same specialization is low; likewise, even if another clearinghouse had a similar specialization, it is unlikely it would be able to significantly increase its capacity suddenly and unexpectedly. The effectiveness of a clearinghouse in guaranteeing trades and reducing risk turns on its ability to accurately and effectively maintain a robust margining regime, clear default management procedures, and significant financial resources to back its performance.[99] It is highly unlikely that other clearinghouses suddenly would be able to assume another clearinghouse's portfolios and support the large number of additional trades while still maintaining the necessary standards.[100]

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97. One concern with the auction process would be finding acquirers for the out-of-the-money portfolios. However, this problem could perhaps be addressed through strategic packaging of the portfolios: in-the-money positions could be bundled with out-of-the-money positions to ensure all trades would be transferred to another clearinghouse.

98. *See Interest Rate Swaps*, LCH.CLEARNET, http://www.lchclearnet.com/swaps/swapclear_for_clearing_members (last visited Apr. 13, 2012). Similarly, ICE Trust specializes in clearing credit default swaps. *See ICE Clear Credit: Credit Default Swap Clearing*, ICE, https://www.theice.com/clear_credit.jhtml (last visited Apr. 13, 2012); s*ee also* STANDARD & POOR'S, ARE EXCHANGES AND CLEARINGHOUSES "TOO BIG TO FAIL"? 5-6 (2010), *available at* http://www.standardandpoors.com/ratings/articles/en/us/?articleType=PDF&assetID=1245236164429 (noting the monolithic and monopolistic nature of clearinghouses in the United States that specialize in a particular product, and the unlikelihood that the positions would be transferable to another clearinghouse).

99. *See* Duffie et al., *supra* note 4, at 6.

100. One potential solution to this problem would be successful implementation of international interoperability agreements among clearinghouses. Interoperability, or linking of clearinghouses, allows a financial participant to concentrate its portfolio at a chosen clearinghouse regardless of the clearinghouse that its counterparty chooses. Consequently, interoperability permits one clearinghouse to hold or access collateral from another clearinghouse such that in the case of a clearinghouse's insolvency, the losses of the clearinghouse linked to the insolvent clearinghouse may be covered. *See* Singh, *supra* note 51, at 7. However, the main difficulty with these agreements is that cross-border margin access is subordinate to national bankruptcy laws such that it is unlikely a clearinghouse in one country

Lastly, even if other clearinghouses were not overly specialized and had the capacity to assume the trades, normal market conditions would be a prerequisite to a successful auction: the other clearinghouses would need to have the liquidity and ability to purchase large numbers of derivatives trades. However, if a derivatives clearinghouse has become insolvent, it would likely be due to the default of several clearing members simultaneously, indicating a time of high systemic risk.

Given the significant improbability that the Orderly Liquidation Authority would function effectively, in reality the government would be forced to intervene early in the process to cabin rising levels of systemic risk and stabilize the financial markets. The derivatives clearinghouses responsible for supporting and implementing the mandatory clearing provisions in Dodd-Frank will likely themselves become entities that are too big to fail.

III. REGULATORY SOLUTIONS TO ENSURE EFFECTIVE MANAGEMENT OF SYSTEMIC RISK

To ensure that derivatives clearinghouses successfully decrease systemic risk upon a counterparty default, regulators must minimize the risk of clearinghouse insolvency and prevent a run on the clearinghouse. An insolvent derivatives clearinghouse in effect creates an unsolvable problem with respect to resolution: it will inevitably take more than a day to untangle the trades, but if sorting out the portfolios takes even a few days, clearing members will start a run on the clearinghouse. As a result, government intervention is necessary to avoid enhanced systemic risk.

Two solutions for regulators to ensure that derivatives clearinghouses successfully reduce systemic risk include (1) regulations providing for strict collateral, capital, and default fund requirements to minimize the risk of clearinghouse insolvency, and (2) the creation of an ex ante guarantee fund to serve as a government backstop and provide liquidity to an insolvent derivatives clearinghouse.

First, regulators must try to minimize the potential for a derivatives clearinghouse to become insolvent. As seen with LCH.Clearnet, a clearinghouse can effectively manage a counterparty default and reduce systemic risk if it maintains appropriate collateral requirements and default management procedures. Accordingly, regulations that provide for strict collateral, capital, and default fund thresholds are necessary to ensure that existing and new clearinghouses maintain sufficient capital and margin requirements to permit effective management of a member default. Without strict regulation, clearinghouses may

would be permitted to access collateral posted by a clearinghouse registered in another country. As a result, LCH—the only clearinghouse to successfully implement linking thus far—has not been able to compete for clients in the United States. *Id.* Nevertheless, interoperability of derivatives clearinghouses could be one solution to the significant problem of the current system's inability to manage a derivatives clearinghouse's insolvency.

have incentives to lower the financial contributions necessary for membership in order to compete for members. Likewise, newly established clearinghouses may not have the expertise to determine the amount of collateral, capital, or default fund contributions necessary to effectively manage a member default. However, if the collateral, capital, and default fund levels are not closely monitored and carefully maintained, the clearinghouse may be unable to manage a member default. Setting sufficient threshold levels is critical. Additionally, requiring a certain degree of expertise for clearinghouse management could help address concerns about new clearinghouses' ability to make the necessary decisions in the best interest of clearing members and the financial markets under the pressure of member default. Thus, regulators must play an important role in setting standards to ensure clearinghouses effectively manage counterparty defaults and decrease systemic risk.

Second, because the government would be forced to intervene to provide liquidity to an insolvent derivatives clearinghouse, one solution to avoid the use of taxpayer money would be the creation of an ex ante guarantee fund. This fund could provide the liquidity necessary to prevent a run on the institution and thus avoid increased systemic risk. While the U.S. Treasury would be the ultimate backstop, the government could also charge premiums on each transaction that would be designed to cover the expected value of the loss. The government could utilize a risk-based premium method, charging premiums based on the clearinghouse's collateral, capital, and default fund levels. Thus, to avoid higher fees, the clearinghouse would have an incentive to maintain a robust default fund and sufficient capital. Accordingly, the necessary government backstop would exist to avoid a run on an insolvent clearinghouse, and ideally the premiums would prevent the use of taxpayer dollars: the fund could provide needed liquidity and prevent enhanced systemic risk upon a derivatives clearinghouse's insolvency.

While one concern with forming an ex ante fund is the creation of a moral hazard problem, careful regulation can more readily be achieved for a derivatives clearinghouse than for other major financial institutions thus minimizing moral hazard. Moral hazard exists when knowledge that a third party will bear the costs of some harm creates a risk that the actor may fail to take precautions to avoid the harm. The concern in the case of a derivatives clearinghouse would be that because a guarantee fund exists ex ante, the clearinghouse would lose the incentive to carefully monitor and ensure that it could effectively manage member defaults. However, careful regulation of a derivatives clearinghouse is attainable: strict collateral and capital requirements, as described above, would decrease the potential for ineffective default management. Moreover, clearinghouses do not have the discretion to take on risk in the same way that, for example, an investment bank does. Clearinghouses are public utilities intended to clear trades; they are not entities trying to profit through high-risk, high-return strategies. Accordingly, the creation of an ex ante guarantee fund is one solution to the inevitable need for government intervention upon a clearinghouse's

insolvency: the premiums charged based on compliance with capital and default fund requirements create incentives to minimize the risk of insolvency, and also will provide the necessary liquidity if a clearinghouse fails. By permitting the government to intervene early and prevent a run on the clearinghouse, regulators would avoid enhanced systemic risk upon the clearinghouse's insolvency.

CONCLUSION

Dodd-Frank's mandatory clearing requirements will effectively decrease systemic risk only if clearinghouses can handle the increased volume of derivatives requiring clearing and still maintain robust margining and default management procedures. If these procedures do not function effectively and a clearinghouse becomes insolvent, the government will be forced to intervene and provide liquidity to cabin the resulting systemic risk. Even given LCH.Clearnet's relatively long history and its success in managing the Lehman default, Dodd-Frank mandates significant changes in the derivatives space such that the functioning of the derivatives markets will dramatically change.

The two best options to unwind an insolvent clearinghouse would not provide for effective management of systemic risk. While the Orderly Liquidation Authority's limitations on the safe harbor provisions may help avoid the problematic incentive structure that results with Chapter 11 bankruptcy proceedings, the logistical complexities of creating a bridge financial company and auctioning an insolvent clearinghouse's positions make successful implementation unlikely. As a result, the government would be forced to intervene. A derivatives clearinghouse's central role in the financial system would require taxpayer money to support the clearinghouse in order to avoid a ripple effect of failures among major financial institutions. Despite the stated purpose of the Dodd-Frank legislation to end too big to fail, the mandatory clearing requirements in reality create incentives for clearinghouses to become too big to fail.

Nevertheless, there are at least two measures that would serve to improve a derivatives clearinghouse's ability to effectively manage and minimize systemic risk: (1) regulations providing for strict collateral, capital, and default fund requirements to minimize the risk of clearinghouse insolvency, and (2) an ex ante guarantee fund to serve as a government backstop and provide liquidity to an insolvent derivatives clearinghouse. If regulators adopt these recommendations, then derivatives clearinghouses will contribute to improved management of systemic risk in the financial markets: they will effectively prevent a counterparty default from creating a contagion effect among other major financial institutions, thereby enhancing economic stability in the United States.