

## CHAPTER 4

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# Resolution of Failing Central Counterparties

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A central counterparty (CCP) is a financial market utility that lowers counterparty default risk on specified financial contracts by acting as a buyer to every seller, and as a seller to every buyer. Thus, if either of the original counterparties fails to perform, the CCP effectively guarantees payment to the other. When at risk of failure, a CCP could be forced into a normal insolvency process, such as bankruptcy, or an administrative failure resolution process. This chapter reviews some alternative approaches to the design of insolvency and failure resolution regimes for CCPs. I focus on the allocation of losses and the question of whether and how to provide for continuity of clearing services. I discuss how one might adapt to CCPs some of the failure resolution approaches currently being designed for other forms of systemically important financial institutions. A key policy question is when to interrupt a contractually based CCP default management process with an overriding failure resolution process, for example a bankruptcy or a government administered process.

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The balance sheet of a CCP is quite different from those of other major types of systemically important financial institutions such as banks, broker-dealers, and insurance companies. Special failure management procedures are suggested. The bulk of the financial risk of a CCP is not represented by conventional assets and liabilities. Rather, a CCP is essentially a nexus of contracts by which its clearing members net and mutualize their counterparty default risk. In the normal course of business, the daily payment obligations of a CCP automatically sum to zero. Because of this, a CCP tends to have tiny amounts of equity and conventional debt relative to its largest potential clearing obligations. Most of the tail risk of a CCP is allocated to its clearing members.

When the market value of a centrally cleared derivatives contract increases on a given day, any clearing member who is a buyer of that contract type collects a variation margin payment from its CCP on the next day, equal to the assessed change in market value of the position. Any seller is likewise required to make a variation margin payment to the CCP. Because the total amounts of cleared bought and sold contracts are identical, the CCP's positions are exactly balanced, long against short, leaving the CCP with zero net payment obligations. If, however, one or more clearing members fail to meet their payment obligations, the CCP has unbalanced exposures and must find the resources necessary to liquidate the failed positions and rebalance itself. If it cannot, its failure must be resolved.

Because there is now general international regulatory agreement that standard derivatives are to be centrally cleared, the failure of a major CCP could be a catastrophic event if its resolution procedures are not carefully designed and implemented. The greatest risks are (a) contagion, by which the failure of a clearing member could cause the CCP to fail to meet its obligations to other systemically clearing members; (b) fire sales of collateral or derivatives contracts, exacerbating broad market volatility; and (c) loss of continuity of critical clearing services on which the financial system has come to depend.

As an example of the significant counterparty risk managed by a single CCP, SwapClear, a cross-border central counterparty operated

by LCH.Clearnet currently has a total notional amount of cleared interest-rate swaps of approximately \$400 trillion.<sup>1</sup> Large CCPs are systemically important, and are becoming even more important as the implementation of new regulations forces more and more positions into CCPs. In the United States, the CCPs of the Chicago Mercantile Exchange and ICE Trust have been designated as systemically important by the Financial Stability Oversight Council.

The failure of a major CCP would probably come at an extremely stressful moment because it is most likely to be precipitated by the failure of one or more systemically important clearing members, who would probably have also failed to meet their payment obligations to many other major financial firms, including other CCPs. Ironically, the better the quality and depth of the risk-management resources of a CCP, the more likely it is that its failure could only have been caused by the collapse of extremely large clearing members, and probably by more than one of them. Under the principles of the CPMI (formerly known as the Committee on Payment and Settlement Systems-International Organization of Securities Commissions), a global systemically important CCP must have the resources necessary to cover the failures of its two largest clearing members.<sup>2</sup>

Beyond derivatives, central counterparties may also manage the counterparty risk associated with securities trade settlement and repurchase agreements. Failure resolution procedures for CCPs should vary according to the application. Here, I am focusing mainly on the case of derivatives clearing, although most of the principles apply to the failure resolution of other forms of CCPs.

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1. See [http://www.lchclearnet.com/swaps/swapclear\\_for\\_clearing\\_members/](http://www.lchclearnet.com/swaps/swapclear_for_clearing_members/). Notional positions do not translate directly to risk. More commensurate to risk is the total amount of initial margin held, which for LCH Clearnet Group was 443 billion euros as of its most recent financial statements, for year-end 2013, [http://www.lchclearnet.com/documents/731485/762550/LCH.Clearnet+Group+Limited+Consolidated+Financial+Statements\\_2013/5c92c5c1-a69b-45f0-99fd-16debc19f9a2](http://www.lchclearnet.com/documents/731485/762550/LCH.Clearnet+Group+Limited+Consolidated+Financial+Statements_2013/5c92c5c1-a69b-45f0-99fd-16debc19f9a2).

2. See Principle 4 of CPSS-IOSCO “Principles of Financial Market Infrastructure,” CPSS-IOSCO, April 2012. The CPMI is the Committee on Payments and Market Infrastructure.

## Recovery versus Resolution

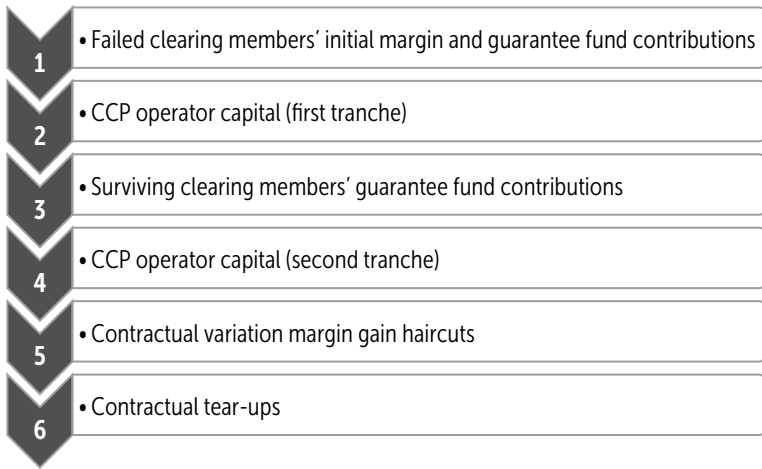
Tensions can arise over the decision of whether to attempt the recovery of a CCP that has been weakened by the failure of some clearing members, given the alternative of placing the CCP into a failure-resolution procedure that aims for liquidation or recapitalization. Recovery and resolution processes share some features. Distinctions between them are based to a large extent on whether loss allocation is achieved contractually or via a more ad-hoc and externally administered insolvency process that overrides contracts.

Each clearing member gives its CCP access to initial margin funds in an amount that is intended to cover the shortfall that arises when the member fails to make payments due on its cleared positions. Clearing members also contribute to the default guarantee fund of the CCP. At the failure of one or more clearing members, whenever the cost of liquidating the failed members' positions exceeds the margin and default guarantee funds provided by the failed members, the surviving members and the CCP operator absorb the remaining cost of liquidating the failed positions, if that is actually possible with the available resources.

The surviving clearing members may absorb some of these losses through their contributions to the default guarantee fund. Some of these guarantee-fund contributions are paid in advance. If this paid-in fund is depleted, clearing members are obliged to make additional contributions to replenish the default guarantee fund, at least to some extent.

Some of the capital of the CCP operator is also designated to absorb losses. While the contribution of CCP capital to the default management resources is important as a loss absorber, it is typically most significant as a means of giving the CCP operator some skin-in-the-game incentive to design and manage the CCP safely. The incentive of the CCP operator to impose sufficient initial margin requirements and to monitor membership creditworthiness is improved by having a layer of CCP operator capital that is subject to loss immediately after the failed member's initial margin and guarantee fund contribution are exhausted, as illustrated in figure 1.

In a recovery process, a CCP might assign losses to its surviving members (and perhaps their clients) in a manner that causes significant



**Figure 4.1.** Example of CCP Default-Management Waterfall of Recovery Resources

distress costs. The existence of a contractual recovery approach that avoids the insolvency of a CCP does not imply that the contractual recovery approach should be followed to its end regardless of the situation. The “creditors’ bargain” suggested by Jackson (1982) recognizes that contracts cannot be written perfectly. There may be unforeseen circumstances in which total distress costs can be lowered by winding down or restructuring a CCP with a procedure that overrides contracts, such as bankruptcy or a government-administered resolution process.

Contractual agreements by clearing members to make guarantee-fund replenishment contributions should be robust but limited. The obligation to make uncapped guarantee-fund replenishment payments during a crisis could destabilize some clearing members. At some CCPs, these replenishment payments are already contractually capped. At some other CCPs, guarantee fund replenishment payment obligations have been uncapped, at least until recently.<sup>3</sup> Uncapped obligations to CCPs are increasingly rare because they now

3. For examples, see Annex Table 1A of Elliott (2013) and comments by The Clearinghouse (2012).

imply extremely onerous regulatory capital requirements for financial institutions.<sup>4</sup>

In any case, guarantee-fund replenishment payments may not arrive quickly enough to be a useful source of liquidity or capital, if they are paid at all. For example, in mid-December 2013, HanMag Investment Securities failed to meet its option margin payment obligations to the clearinghouse of Korea Exchange (KRX). After KRX was forced to use some of the clearinghouse guarantee fund to cover the losses, clearing members were contractually obliged to make replenishment payments within about one month. Some clearing members, however, failed to do so, and the replenishment payments were postponed until the end of March 2014.

The “waterfall” of recovery resources of some CCPs extends beyond the guarantee fund by permitting the CCP to contractually restructure its clearing payment obligations to clearing members. One such procedure is “variation margin gains haircutting” (VMGH). By this approach, the CCP can conserve or accumulate cash by canceling or reducing the variation margin payments that it would otherwise have been required to make to clearing members. At the same time, the CCP collects 100 percent of the variation margin payments that it is due to receive from clearing members.<sup>5</sup> Beyond its role as a short-term liquidity backstop, VMGH could in some cases continue until the CCP has enough resources to pay for the liquidation of failed positions. There is no assurance that VMGH would be sufficient to entirely rebalance the CCP, although experts believe that VMGH would suffice in most scenarios.<sup>6</sup> Those clearing members suffering losses from VMGH could in principle be given compensating claims, for example equity or debt issued by the CCP.

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4. Under Basel III, uncapped exposures to a CCP would rule out the lower risk-weighting of CCP exposures to the 2 percent level associated with “qualified” CCPs.

5. A version of this approach has been adopted by the Japanese Securities Clearing Association. See Japanese Securities Clearing Association, <http://www.jscc.co.jp/en/cash/irs/loss.html>.

6. See, for example, ISDA (2013) and Singh (2014).

Another potential contractual restructuring approach is a “tear-up,” by which the CCP could cancel some or all of its outstanding notional derivatives positions with selected clearing members. For example, suppose the failure of a clearing member has left the CCP with a net short position in some specific class of derivatives that is 90 percent of the total of its outstanding long positions. In this case, the CCP could, assuming that it has the necessary contractual right, rebalance its exposure by stipulating that all long positions shall henceforth be 90 percent of their former notional size. An alternative is to simply tear up 100 percent of all outstanding positions of the affected type.

Variation margin gain haircuts and tear-ups have the beneficial incentive effect of encouraging clearing members to reduce the sizes of their positions with weak CCPs. They have the disadvantage of sharing losses unpredictably, given that it would be difficult to predict much more than a day in advance whether it would be long or short position holders that would be allocated the losses. This is unlike the situation facing normal creditors, who know they are in line for losses at the borrower’s default, and know the priority order in which they will take losses. In terms of sharing distress costs, one would prefer to have losses borne by all CCP members, perhaps pro rata with some measure of the expected amount of potential loss that a clearing member would impose on the CCP, conditional on both the failure of the clearing member and the failure of the CCP.<sup>7</sup>

On a risk-corrected basis, this might suggest end-of-waterfall loss sharing that is proportional to total paid-in initial margins. Like VMGH and tear-ups, loss-sharing in proportion to total initial margins would also encourage clearing members to reduce their positions with weak CCPs. Unfortunately, there is no obvious method for collecting payments of this sort from clearing members. Initial margin funds are the property of clearing members. These funds are not legally accessible to CCPs, absent voluntary contracting to make

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7. Both conditioning events are relevant, as explained by Dembo, Deuschel, and Duffie (2004).

them available at the end of the default-management waterfall.<sup>8</sup> It is not clear why many CCPs and clearing members prefer to use VMGH or tear-ups rather than to adjust their clearing agreements so as to allow legal end-of-waterfall access to initial margin funds.

In any case, more predictable loss-sharing is normally more efficient. There are no clear incentive benefits associated with disproportionate and unpredictable loss-sharing by clearing members who happen to be buyers, or who happen to be sellers. Moreover, economic principles suggest that it is better for a clearing member to suffer a moderate loss with certainty when a CCP fails to meet its clearing obligations than to “flip a coin” to determine whether the size of the loss is zero or not. The marginal cost to a clearing member of bearing an incremental unit of unexpected loss is normally increasing in the total amount of loss, a “convexity effect” that suggests sharing losses across all clearing members, pro rata to the loss exposures they impose on the CCP. This is one of the reasons that CCPs are supposed to ensure adequately sized paid-in guarantee funds, which do share losses predictably and broadly. When the default guarantee fund is revealed to be inadequate, and when it is deemed appropriate to attempt recovery through further contractual loss-sharing rather than resolution, there seems to be no persuasive reason to switch to a preference for unequal and unpredictable loss sharing.

Variants of these restructuring procedures are described by Elliott (2013) and by various commenters to a 2012 CPSS-IOSCO consultative report.<sup>9</sup> In principle, a CCP might also have the contractual right to assign derivatives positions to surviving clearing members at prices that are not equal to their fair market values, but are feasible for the CCP to cover with its available default-management resources.

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8. See European Parliament (2012), which states that “A CCP shall have a right of use relating to the margins or default fund contributions collected via a security financial collateral arrangement, within the meaning of Article 2(1)(c) of Directive 2002/47/EC of the European Parliament and of the Council of 6 June 2002 on financial collateral arrangements provided that the use of such arrangements is provided for in its operating rules.”

9. CPSS-IOSCO (2012b).



Not surprisingly, market participants are not fully aligned with each other on the net benefits of end-of-waterfall recovery approaches. For example, BlackRock,<sup>10</sup> a large asset-management firm, expressed the view in April 2014 that in the event that a CCP has exhausted its guarantee fund, end-user market participants would rather be “money good” than “position good.” The assertion here is that investors would prefer to have the CCP immediately wound down than to be exposed to a CCP with a heavily impaired guarantee fund. BlackRock stated that recovery and continuity of CCP operations are not paramount in this situation. BlackRock’s policy note recognizes the potential usefulness of VMGH in the context of a resolution process.<sup>11</sup>

On the other hand, in August 2013 the International Swaps and Derivatives Association (ISDA) stated<sup>12</sup> that “the primary goal in a default situation should be recovery and continuity of the CCP.” (ISDA went on to say that “the need for resolution cannot be excluded and resolution mechanisms must also be in place.”) ISDA advocated that variation margin gain haircuts should be applied in order to achieve recovery and continuity of the CCP. The exception suggested by ISDA is the “remote circumstance” that VMGH does not generate enough funds to liquidate the failed member positions, in which case ISDA believes there should be a 100 percent tear-up of all derivatives in the class of derivatives that had failed to be rebalanced.

For CCPs that have the contractual right to haircut variation margin or to tear-up positions in order to attempt recovery and continuity, government failure-resolution administrators may someday be faced with a decision of whether and when to halt the contractual recovery process, forcing the CCP into resolution. The right to do so

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10. See “Central Clearing Counterparties and Too Big to Fail,” BlackRock, April 2014.

11. A possibly analogous situation is the inability of insolvent US broker-dealers to reorganize, whether under the Securities Investor Protection Act (SIPA) or the Bankruptcy Code. Under both SIPA and subchapter III of Chapter 7 of the US Bankruptcy Code, a failed broker-dealer must be liquidated. This preference for liquidation may arise from the view that protection of client claims takes priority over general unsecured creditors.

12. See “CCP Loss Allocation at the End of the Waterfall,” ISDA, August 2013.

presumably exists in the United States and United Kingdom, and will likely soon exist throughout the European Union whenever financial stability is threatened, even if the CCP is currently meeting its contractual obligations.

J. P. Morgan (2014) recently expressed the opinion<sup>13</sup> that “maintaining critical operations of the CCP should be the driving principle in default” and that “CCPs should be recapitalized rather than liquidated upon failure, to continue systemically important activities.” J. P. Morgan suggested that VMGH could be a step toward resolution and continuity through recapitalization.

## CCP Failure Resolution

Failure resolution procedures should be designed so as to minimize the total expected distress costs of all market participants, including clearing members and CCP operators, as well as unrelated market participants and taxpayers who could suffer from failure spillover costs.

Resolution procedures should be transparent and predictable, to the extent that this could be reasonably expected, so that the attendant risks can be better managed and priced into contracts, improving ex-ante incentives for lowering expected distress costs. Predictability may lessen costly failure-time defensive reactions, such as sudden runs or fire sales. “Slow runs,” however, may be socially desirable. When clearing members are able to correctly foresee increasing expected future losses associated with their exposures to a weakening CCP, they have an incentive to lower their exposures to the CCP by entering offsetting positions cleared at that CCP. If there is enough predictability, this process can exploit market forces to reduce the amount of systemic damage that would occur if and when the CCP actually fails. It is critical, however, that a rush for the exits does not exacerbate a liquidity crisis for the CCP.

While the government bailout of a systemically important CCP should not be legally impossible, reliance on government capital should not be part of the failure resolution design, given the attendant

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13. See “What Is the Resolution Plan for CCPs?” J. P. Morgan Chase & Co., Office of Regulatory Affairs, September 2014.

moral hazard. In order to align incentives in a socially efficient manner, the CCP operator and its clearing members should expect that they are on the hook for all of the losses, one way or another. The key questions are (a) how to efficiently allocate the CCP's losses, (b) how to mitigate fire sales, and (c) how to arrange for the prompt continuation of clearing services.

In the United States, it seems likely that Title II of the Dodd-Frank Act assigns the administration of the failure resolution process of systemically important CCPs to the Federal Deposit Insurance Corporation (FDIC). Whether this is in fact the case, however, is not a completely settled matter, as explained by Steigerwald and DeCarlo (2014). If Title II does apply, then the FDIC can become the receiver of a CCP in the event that the secretary of the treasury, the Federal Reserve Board, and the FDIC find that there would otherwise be a risk of financial instability. In that case, the FDIC could liquidate the CCP, or alternatively could assign its assets and obligations to another CCP or to a "bridge," which in principle could become a successor CCP.

CCPs can be legally structured in many ways, for example as bankruptcy-remote special-purpose entities operated by a firm that manages various such CCPs on a "silo by silo" basis. For example, LCH.Clearnet currently operates seven legally distinct CCPs, based in part on capital provided at the parent level. The capital of a CCP operator that is not contractually designated for loss-sharing in one silo remains available to back commitments to other silos operated by the same parent firm. It is important to design a multi-silo CCP so that obligations to and from clearing members that are common across CCPs can obtain legally enforceable close-out netting in the event that the CCP fails. Further discussion of this is found in section VI.A of ISDA (2013). Likewise, the resolution process for a CCP should be designed so as to avoid the breakup of netting sets. This raises particular concerns with the resolution of a CCP silo by transferring its assets to a bridge CCP, which could potentially block cross-silo netting. This concern is greater to the extent that CCP capital is held at the parent level relative to the CCP silo level. If the CCP must be resolved via a bridge at the parent level in order to take advantage

of netting, then its other silos can be affected, adding to contagion risk. A potential disadvantage of resolution under the authority of Title II of the Dodd-Frank Act is the apparent preference for a bridge approach as opposed to reorganization of the existing entity. Chapter 11 of the US Bankruptcy Code could in principle provide for reorganization of a failed CCP, but is not currently well adapted to that purpose. For example, clearing agreements are exempted from bankruptcy.

At the point of resolution of a CCP, most or all of its waterfall of contractually available resources has likely been exhausted. As the resolution procedure begins, the CCP may therefore have very limited remaining resources with which to restructure its obligations to clearing members.

In principle, a resolution authority addressing a CCP in this financial condition could simply declare that the CCP will discontinue clearing and return any remaining assets to its clearing members, pro rata to unmet clearing obligations. This liquidation approach is more easily contemplated when continuity of clearing services can be provided by an alternative CCP handling the same classes of trades. During a wind-down, a CCP may need to haircut variation margin gains as a cash management strategy. (I will later discuss access to other forms of resolution liquidity.)

The alternatives to liquidating an insolvent CCP are:

1. Reorganizing the CCP through some combination of new capital injections and restructuring of its clearing obligations. The debt of the CCP can also be restructured, but in practice CCPs do not usually have much debt.
2. Transferring the clearing obligations of the CCP, if necessary after some restructuring, to another existing CCP or to a bridge CCP.

Under either approach, the legacy shareholders of the CCP should probably recover little or nothing for their equity, if indeed the CCP is even structured as a corporation with equity shareholders.<sup>14</sup>

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14. For example, ICE Trust is an LLC trust company.

J. P. Morgan recently suggested that<sup>15</sup> capital for a successor CCP could be provided by the legacy clearing members and CCP operator through pre-committed funds held in escrow, for example in a trust fund. These prefunded contributions could be in the form of “bail-in” debt. If and when the CCP fails to meet its contractual obligations, or is otherwise undergoing a bankruptcy or other failure resolution process, the debt obligations of the trust to the clearing members and legacy CCP operator would be cancelled. The trust funds would then be used to meet the clearing members’ new guarantee fund contributions to the bridge CCP. This is analogous to recent proposals for resolving systemically important financial institutions with a single-point-of-entry failure resolution or with the “quick sale” approach of Jackson (2015) under a proposed new Chapter 14 of the bankruptcy code. (The set of financial firms to which Chapter 14 would apply excludes CCPs.)

As previously emphasized, it is important to design any such legal framework so as to avoid the breakup of cross-silo netting sets. Further, there is a critical decision of when to trigger this form of resolution, balancing the harm caused by lack of access of the original CCP to additional default-fund contributions from clearing members that could prevent a CCP failure, relative to the harm caused by draining capital from systemically important clearing members without necessarily the prospect of emerging with a viable CCP.

Nothing rules out the prefunding of recapitalization funds from unrelated investors who may wish to earn rents associated with “insurance” of this form. For example, a large unrelated institutional investor could be a creditor to a CCP recapitalization trust fund, using a debt instrument that is “bailed in” at resolution in the manner suggested for clearing-member recapitalization bonds in the J. P. Morgan proposal. The advantage of wider loss-sharing is obvious. There would be an offsetting moral-hazard disadvantage of separating the loss-bearing from those who could discipline the risk management of the CCP. Some insurance firms have suggested that they would be willing to participate in CCP loss-sharing as a fee-based business, but as part of

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15. See “What Is the Resolution Plan for CCPs?” J. P. Morgan Chase.

the CCP's contractual recovery default-management resources rather than as part of the failure-resolution recapitalization.<sup>16</sup> An additional concern is the benefit of leaving some significant element of control of the recapitalized CCP in the hands of equity owners who have a sophisticated working knowledge of CCPs.

Even if prefunded and escrowed funds are available to set up a new guarantee fund, the CCP (or its successor or bridge) may need additional capital to cover the cost of liquidating failed positions. Several approaches for this have been suggested, including tear-ups and variation margin gains haircutting, along the same lines that could be applied contractually in a recovery process.

If restructuring is an option, bankruptcy courts or failure resolution administration procedures could be given the legal authority to apply VMGH or tear-ups even if that option is not contractually recognized in clearing agreements. Under a US Title II failure administration procedure, the FDIC has the legal right to reject contracts, provided that rejection is not applied selectively across contracts with the same counterparty. It is not clear whether or how the FDIC could conduct VMGH or partial tear-ups. To this point, the FDIC has not described the failure-resolution strategies that it would use in the case of CCPs.

## Stays on Clearing Agreements

Agreements between a CCP and its members may give clearing members the right to terminate their agreements at specified "default" events of the CCP. Under current US bankruptcy law, clearing agreements are exempt from automatic stays and from certain trustee-avoiding powers covering constructive fraud and preferences.<sup>17</sup> In order to allow

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16. The insurance firm GSCA made such a proposal in its September 2013 comment on the "Consultative Report on the Recovery of Financial Market Infrastructure," <http://gcsacapital.com/wp-content/uploads/2013/12/Consultative-Report-on-the-Recovery-of-Financial-market-Infrastructure.pdf>.

17. Under interoperability agreements between CCPs, initial margin or its effective equivalent can be provided by one CCP to another or to a third-party custodian. These additional agreements would also need to be treated in a failure resolution.

an effective treatment of CCP failure, whether by a bankruptcy-style insolvency process or by an administrative failure resolution process, new legislation may be needed to enable a temporary stay on clearing agreements, as suggested by Duffie and Skeel (2012). A stay of clearing agreements is already possible in the United States under Title II of the Dodd Frank Act (assuming that Title II applies to CCPs), and is anticipated in the European Union.<sup>18</sup> The US Bankruptcy Code should now be amended to permit stays of clearing agreements for systemically important CCPs. In both the United States and Europe, there is a stated preference to use insolvency processes such as bankruptcy, and to resort to administrative failure resolutions only when an insolvency process is deemed to be ineffective.

One may consider the situation envisioned in the J. P. Morgan proposal to obtain continuity by setting up a recapitalized bridge CCP. In the event that a bankruptcy court or resolution administrator such as the FDIC wishes to resolve a CCP along these lines, it would first stay the clearing members' contractual rights to terminate (assuming a suitably enabling statutory amendment in the case of the bankruptcy code). In the case of an administered failure resolution process based on a bridge CCP, clearing agreements could then be transferred to the bridge CCP, along with the initial margin funds, residual guarantee funds, and new guarantee funds obtained from the pre-committed trust funds. Other necessary assets, including licenses and other intellectual property, would also be transferred to the bridge.

It is not clear whether clearing agreements will be amended along the lines of a new international protocol for ISDA derivatives contracts.<sup>19</sup> Under this approach, so long as a designated systemically important CCP undergoing a failure resolution process is meeting its payment obligations to clearing members, the clearing members would not have the right to terminate their clearing agreements and must continue to meet their own payment obligations to the CCP. If this approach were adopted, however, any non-contractual variation

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18. See European Commission (2012).

19. See ISDA (2014).

margin haircuts or tear-ups would presumably trigger the rights of clearing members to terminate their clearing agreements, unless those rights are statutorily stayed by virtue of the appointment of a failure resolution administrator such as the FDIC.

The CPMI consultative paper on failure resolution of financial market infrastructure (FMI)<sup>20</sup> states that an FMI’s “ability to continue to make payments is a fundamental part of the service” provided by the FMI and that a “resolution authority’s decision to impose a moratorium to prevent outgoing payments by the FMI even for a short period is therefore likely to carry the risk of continuing or even amplifying systemic disruption.”

Whether or not there is a stay, clearing members whose agreements with the CCP have not been rejected or otherwise terminated or modified by the process would continue to have an obligation to make replenishment payments to default guarantee funds.

How to resolve the cleared positions of clients of clearing members is beyond the scope of this chapter.

There is a potential for CCPs handling over-the-counter derivatives to “interoperate” with each other. This is rare in practice. Interoperability can be effected through various procedures, for example by allowing clearing members to port positions from one active CCP to another. This involves inter-CCP margins, which may be held in a third-party custodian. Inter-CCP agreements of this sort should not be stayed, if that can be avoided, because they are designed to protect against a domino-style sequence of CCP failures.

## Sources of CCP Liquidity in Failure Resolution

In addition to its immediately available cash, a CCP could obtain liquidity through financing that is secured by non-cash assets. These include assets held in the default-management waterfall as initial margin (to the extent legally permitted) or paid-in guarantee fund contributions, and claims to future contributions to the default guarantee fund. A further potential source of liquidity is VMGH—to the extent legally permitted.

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20. See CPSS-IOSCO (2012b).



Under conditions stated in the Dodd-Frank Act under Title VIII, a designated US CCP is eligible to receive secured financing from the Federal Reserve, provided that private-market sources of liquidity have been exhausted.<sup>21</sup> Similarly, the Bank of England gives CCPs access to its Discount Window Facility.<sup>22</sup> During insolvency, assuming that the CCP still meets the designation requirements, this is a potential supplement to other sources of liquidity, including any debtor-in-possession (DIP) financing that might be obtained in bankruptcy. If DIP financing or central bank liquidity is to be secured specifically by derivatives payables to the CCP, rather than by a general super-priority claim on the estate of the CCP, then the provider of financing might need some means to perfect an interest in those derivatives payables.

In the event of a Dodd-Frank Title II failure resolution procedure, there is also access to liquidity through the Orderly Liquidation Fund (OLF) of the US Treasury, subject to its legislative restrictions. Title II rules out OLF funding beyond 10 percent of the value of the pre-resolution assets of the covered institution, or 90 percent of its post-resolution value, as explained by Skeel (2015). Depending on the legal interpretation of “assets,” a failed CCP may in some scenarios have a small amount of assets relative to the amount of liquidity necessary to provide continuity of clearing. Even healthy CCPs and their operators

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21. “The Board of Governors may authorize a Federal Reserve bank under section 10B of the Federal Reserve Act (12 U.S.C. 347b) to provide to a designated financial market utility discount and borrowing privileges only in unusual or exigent circumstances, upon the affirmative vote of a majority of the Board of Governors then serving (or such other number in accordance with the provisions of section 11(r)(2) of the Federal Reserve Act (12 U.S.C. 248(r)(2)) after consultation with the Secretary, and upon a showing by the designated financial market utility that it is unable to secure adequate credit accommodations from other banking institutions. All such discounts and borrowing privileges shall be subject to such other limitations, restrictions, and regulations as the Board of Governors may prescribe. Access to discount and borrowing privileges under section 10B of the Federal Reserve Act as authorized in this section does not require a designated financial market utility to be or become a bank or bank holding company.”

22. See paragraph 79 of the Bank of England’s Red Book.

tend to have balance sheets that are tiny in comparison with potential losses, as we have discussed. The maximum extent of OLF funding for potential future CCP resolutions should be clarified.

Skeel (2015) offers a general analysis of sources of liquidity at the bankruptcy of a systemically important financial institution.

## No Creditor Worse Off

An objective or requirement of some bankruptcy and failure resolution processes is that no creditor should be allocated greater losses than would have occurred in a counterfactual scenario in which the failing entity is simply liquidated. The philosophy, as explained for example by Davies and Dobler (2011), is that allowing the contractual loss allocation to run its course all the way to liquidation is a benchmark. Resolution processes that cause some creditors to lose more than they would have in a liquidation scenario, in order to reduce total social losses, would in this sense involve some sort of violation of property rights. If necessary, the principle of “no creditor worse off” could be supported in failure resolution through compensating payments to affected creditors.

In the case of a CCP, it is not clear what would be the most relevant counterfactual benchmark scenario, when judging whether some creditors are worse off than they would have been in that scenario. Failure resolution administrators have significant discretion over when the contractual default management process is to be interrupted by failure resolution, and also over which of various loss-allocation tools could be used in the counterfactual scenario. It is likely to be difficult to predict which of those tools would have been used.

How to apply the no-creditor-worse-off principle to CCPs therefore remains murky. The Treasury of the United Kingdom<sup>23</sup> summarized its views on this issue by writing: “It is anticipated that clearing house compensation orders would be made only in exceptional circumstances. That being the case, it is not considered necessary to prescribe the provision that should form part of any such order in advance.”

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23. See H. M. Treasury (2014).

## **Outline of a CCP Failure Resolution Process**

Based on our discussion, an administrative CCP failure resolution process could have the following basic steps.

1. Verify the conditions for initiating a failure resolution process and initiate the process. Consult with relevant foreign authorities.
2. Stay the termination of clearing agreements and other contracts, with the likely exception of interoperability agreements with other CCPs.
3. Replace the senior CCP management if that is deemed appropriate, while taking steps to retain key personnel.
4. Assess the immediate cash needs of the CCP and the available sources of liquidity. Make a plan to access liquidity in priority order. Obtain the necessary cash, whether for orderly wind-down or for continuity of clearing.
5. In the event of insufficient cash, interrupt payments to clearing members as legally feasible under contracts or stays, and as appropriate to minimizing the aggregate losses of all parties, including unrelated market participants.
6. Enter claims on the estates of failed clearing members.
7. In a restructuring aimed at the continuation of clearing services:
  - a. If the CCP undergoing resolution is not suitable for restructuring and continuation as a single entity, then transfer un-rejected clearing agreements and other CCP property and agreements to a bridge or other successor CCP.
  - b. Replenish the default guarantee fund, using prefunded assets as available and additional replenishment contributions from clearing members to the extent permitted by contract and judged systemically safe from the viewpoint of contagion risk.
  - c. Rebalance the derivatives positions of the CCP. For example, conduct tear-ups or allocate failed derivatives positions to surviving members, for example by auction.
  - d. Assign the equity and any debt claims of the recapitalized or bridge CCP.

- e. Resume clearing new trades.
- f. Make appropriate changes to the CCP's rules, clearing agreements, and risk management procedures.
- g. Permit clearing member resignations after a cooling-off period.
- 8. In a liquidation and wind-down:
  - a. Tear up remaining positions or novate them to other CCPs.
  - b. Evaluate claims against the assets of the CCP held by clearing members and other creditors.
  - c. Liquidate the CCP's remaining assets.
  - d. Assign the liquidated assets of the CCP to claimants.

It is not clear whether a CCP should continue clearing new derivatives trades while undergoing resolution. This should presumably be determined by the circumstances at the time, with the objective of minimizing the total distress costs of clearing members and other market participants. An inability to clear new trades could present some difficulty to market participants who have come to rely on straight-through processing of trades (including clearing) and are attempting to quickly add or replace hedges. Moreover, US regulations may require that a designated clearing organization (DCO) continue to provide clearing services and (subject to exemptions) that market participants continue centrally clearing designated “standardized” derivatives. Whether waivers of these regulations can be obtained, and under what circumstances, is not clear. If a CCP is unable to clear during its reorganization, then regulatory clearing requirements should, if possible, be temporarily waived for those types of derivatives for which there are no alternative CCPs.

## **Cross-Border Issues**

Most major CCPs have, or will soon have, administrative failure resolution processes under designated national authorities. In the United Kingdom, the Financial Services Act of 2012 established a resolution regime for central clearing parties under which the Bank of England acts as the resolution authority. In the United States, the FDIC may have the necessary legal authority for managing the resolution of systemically important CCPs, subject to interpretation of the Dodd-

Frank Act. Some CCPs are cross-border and some CCP operators manage CCPs in multiple jurisdictions.

In its submission to CPMI, the Global Financial Markets Association<sup>24</sup> wrote:

To the extent key functions of the FMI are performed through an affiliated group of entities, some of which may be formed in jurisdictions other than the home jurisdiction of the FMI, it is essential that the resolution process encompass all such entities in a single process, and that all applicable jurisdictions agree to respect the determinations of the primary jurisdiction. During the financial crisis, we have seen circumstances in which courts in two jurisdictions claimed jurisdiction over a dispute, rendered conflicting judgments, and refused to enforce each other's judgments—leaving market participants with no clear form of redress. Where multiple resolution authorities may claim jurisdiction over a single FMI, including as a result of different jurisdictions of formation of its affiliates, these authorities should agree in advance as to which authority has primary jurisdiction and how to ensure that its determinations have finality in other jurisdictions.

Gleeson (2015) offers a general legal analysis of cross-border recognition of resolvency regimes, including the issue of whether a Title II resolution would be recognized by English courts as an “insolvency regime.”

## References

- Bank of England. 2014. “The Bank of England’s Sterling Monetary Framework,” Bank of England, November, <http://www.bankofengland.co.uk/markets/Documents/money/publications/redbook.pdf>.
- BlackRock. 2014. “Central Clearing Counterparties and Too Big to Fail,” BlackRock Viewpoint, April.
- CDS Default Management Working Group. 2011. “Principles and Best Practices for Managing a Defaulting Clearing Member’s Remaining Portfolio and Shortfall in Available Funds,” January.

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24. See <http://www.bis.org/cpmi/publ/comments/d103/theglobalfin.pdf>.

- The Clearinghouse. 2012. "Central Counterparties: Recommendations to Promote Financial Stability and Resilience," December, <http://www.theclearinghouse.org/index.html?f=074643>.
- Committee on Payment and Settlement Systems, Board of the International Organization of Securities Commissions. 2012a. "Principles For Financial Market Infrastructure," Bank for International Settlements, April, <http://www.bis.org/cpmi/publ/d101a.pdf>.
- Committee on Payment and Settlement Systems, Board of the International Organization of Securities Commissions. 2012b. "Recovery and Resolution of Financial Market Infrastructures," consultative report, July, <http://www.bis.org/publ/cpss103.pdf>; comments, <http://www.bis.org/publ/cpss103/comments.htm>.
- Committee on Payment and Settlement Systems, Board of the International Organization of Securities Commissions. 2014. "Recovery of Financial Market Infrastructures," consultative report, October.
- Davies, Geoffrey, and Marc Dobler. 2011. "Bank Resolution and Safeguarding the Creditors Left Behind," Research and Analysis, *Bank of England Quarterly Bulletin*, Q3: 213–23.
- Dembo, Amir, Jean-Dominique Deuschel, and Darrell Duffie. 2004. "Large Portfolio Losses," *Finance and Stochastics* 8:3–16.
- Duffie, Darrell, and David A. Skeel. 2012. "A Dialogue on the Costs and Benefits of Automatic Stays for Derivatives and Repurchase Agreements," in *Bankruptcy Not Bailout: A Special Chapter 14*, ed. K. E. Scott and J. B. Taylor (Stanford, CA: Hoover Press).
- Elliott, David. 2013. "Central Counterparty Loss-Allocation Rules." Bank of England, Financial Stability Paper 20, April, [http://www.bankofengland.co.uk/research/Documents/fspapers/fs\\_paper20.pdf](http://www.bankofengland.co.uk/research/Documents/fspapers/fs_paper20.pdf).
- European Commission. 2012. "Consultation on a Possible Recovery and Resolution Framework for Financial Institutions Other than Banks," Directorate General, Internal Markets and Services.
- European Securities and Markets Authority. 2012. "Draft Technical Standards under the Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC Derivatives, CCPs and Trade Repositories, Final Report," September, [http://www.esma.europa.eu/system/files/2012-600\\_0.pdf](http://www.esma.europa.eu/system/files/2012-600_0.pdf).
- European Union. 2012. "Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC Derivatives, Central Counterparties and Trade Repositories," Official Journal of the European Union,

- June 12, <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:201:0001:0059:EN:PDF>.
- European Union. 2014. "Directive 2014/59/EU of The European Parliament and of the Council of 15 May 2014, Establishing a Framework for the Recovery and Resolution of Credit Institutions and Investment Firms," Official Journal of the European Union, June 12, [http://eur-lex.europa.eu/legal-content/ENTXT/?uri=uriserv:OJ.L\\_.2014.173.01.0190.01.ENG](http://eur-lex.europa.eu/legal-content/ENTXT/?uri=uriserv:OJ.L_.2014.173.01.0190.01.ENG).
- Financial Stability Board. 2014. "Key Attributes of Effective Resolution Regimes for Financial Institutions," Basel, October 15.
- Gleeson, Simon. 2015. "The Consequences of Chapter 14 for International Recognition of US Bank Resolution Action," chapter 5 of this volume.
- H. M. Treasury. 2014. "Secondary Legislation for Non-Bank Resolution Regimes," consultation outcome, June 9, <https://www.gov.uk/government/consultations/secondary-legislation-for-non-bank-resolution-regimes/secondary-legislation-for-non-bank-resolution-regimes>.
- Huertas, Thomas. 2013. "Safe to Fail," Ernst & Young LLP, May 7.
- ISDA. 2013. "CCP Loss Allocation at the End of the Waterfall," August.
- ISDA. 2014. "Resolution Stay Protocol," November 4, <http://assets.isda.org/media/f253b540-25/958e4aed.pdf/>.
- Jackson, Thomas H. 1982. "Bankruptcy, Non-Bankruptcy Entitlements, and the Creditors' Bargain." *Yale Law Journal* 91, no. 5: 857–907.
- Jackson, Thomas H. 2015. "Building on Bankruptcy: A Revised Chapter 14 Proposal for the Recapitalization, Reorganization, or Liquidation of Large Financial Institutions," chapter 2 of this volume.
- J. P. Morgan Chase & Company. 2014. "What Is the Resolution Plan for CCPs?" Office of Regulatory Affairs, September.
- Singh, Manmohan. 2014. "Limiting Taxpayer 'Puts': An Example from Central Counterparties." International Monetary Fund Working Paper, October.
- Skeel, David. 2015. "Financing Systemically Important Financial Institutions in Bankruptcy," chapter 3 in this volume.
- Steigerwald, Robert, and David DeCarlo. 2014. "Resolving Central Counterparties after Dodd-Frank: Are CCPs Eligible for 'Orderly Liquidation,'" working paper, Federal Reserve Bank of Chicago, November.