

# CCP RISK MANAGEMENT, RECOVERY & RESOLUTION

An LCH.Clearnet White Paper

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# EXECUTIVE SUMMARY

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- The core purpose of central clearing counterparties (CCPs) is the management and mitigation of risk. By acting as the buyer to every seller and the seller to every buyer, CCPs reduce counterparty risk, absorb shocks and help to prevent the buildup of excessive risk in the financial system. In addition, CCPs bring efficiencies to market participants by reducing counterparty exposure through the multilateral netting of positions and, in some cases, offering services such as portfolio compression.
- LCH.Clearnet Group (LCH.Clearnet) is one of the world's leading CCPs. We operate CCPs in the United States, UK and France, serving 275 customers in more than 20 countries across a range of asset classes, including equities, fixed income, derivatives, commodities and foreign exchange (FX). As we have expanded our clearing services, we have taken major steps to strengthen the protections we provide to our customers and the financial markets more broadly. Simply, our mission is to be the most trusted CCP in the markets we serve.
- This paper explains LCH.Clearnet's approach to three areas: risk management, recovery and resolution. Recent debate on these issues has focused on a CCP's total loss-absorbing capacity and the size of a CCP's own resources. In our view, this debate has not been clear as to the distinction between clearing members' risks and resources, and those of the CCP operator. For the members, a CCP is essentially a risk management system through which they can mitigate their counterparty risk and benefit from other services; e.g., portfolio compression. The CCP operator is responsible for the design and functioning of this system, and primarily has operational and business risks.
- The differences in the risk profile of the CCP operator and the clearing members are reflected in the resources that they hold against their risk exposures. The resources of the CCP operator are designed to protect against operational and business risks and, if necessary, to manage an orderly wind-down. The resources of the clearing members are designed to help manage a member default.

- In some CCPs, the operator also allocates a portion of own resources (referred to as “skin in the game”) to the member default waterfall. Its purpose is to align the incentives of the CCP operator with those of the clearing members. Skin in the game is not designed to be a material component of loss absorption. However, at 25% (as prescribed in EMIR), it is a material percentage of the CCP operator’s regulatory capital, and thus achieves the appropriate alignment. Any requirement for the CCP operator to contribute significant additional resources to the default waterfall and link them to the overall member exposure would fundamentally change the operator’s risk profile, creating increased risk exposure to member default at the very time that the operator should be resilient in order to ensure continuity of the clearing service and stability of the market.
- The Total Loss-Absorbing Capacity (TLAC) of a CCP is essentially the level of prefunded and contingent resources that are available to the CCP operator to manage a clearing member default. The resources – whether prefunded or not – must be provided by the clearing members. The CCP is a mutualised risk structure for the members, and the risk of a default must therefore be borne by the members.

**Figure 1** TLAC of a CCP

		CCP MEMBER	CCP OPERATOR
RISK TYPES		<ul style="list-style-type: none"> <li>• Member Default</li> </ul>	<ul style="list-style-type: none"> <li>• Operational Risk</li> <li>• Business Risk</li> <li>• Collateral &amp; Liquidity Management</li> </ul>
LOSS ABSORBING RESOURCES	PRE-FUNDED	<ul style="list-style-type: none"> <li>• Defaulter’s Initial Margin &amp; Default Fund Contributions</li> <li>• Mutualised Default Fund</li> </ul>	<ul style="list-style-type: none"> <li>• Regulatory Capital</li> </ul>
	CONTINGENT	<ul style="list-style-type: none"> <li>• Assessment Powers</li> <li>• Variation Margin Gains Haircutting</li> <li>• Other</li> </ul>	<ul style="list-style-type: none"> <li>• Insurance</li> <li>• Other</li> </ul>
	PROVIDER	<ul style="list-style-type: none"> <li>• CCP Member</li> </ul>	<ul style="list-style-type: none"> <li>• CCP Operator</li> </ul>
OPERATOR INCENTIVES	PRE-FUNDED	<ul style="list-style-type: none"> <li>• Skin in the Game</li> </ul>	
	PROVIDER	<ul style="list-style-type: none"> <li>• CCP Operator</li> </ul>	

## 1. Risk Management

The Principles for Financial Market Infrastructures (PFMI) produced by the Committee on Payment and Market Infrastructures and International Organisation of Securities Commissions (CPMI–IOSCO) provide the foundation for CCP risk management<sup>3</sup>. They are designed to ensure that CCPs have sufficient prefunded financial resources to withstand a clearing member default, even in extreme but plausible circumstances. Under the PFMI, CCPs with more complex risk profiles or that are systemically important in multiple jurisdictions must maintain financial resources sufficient to cover the simultaneous default of the two participants, and their affiliates, to which the CCP has the largest exposures (so-called Cover 2).

The PFMI provide the minimum risk management standards that a CCP should apply. However, LCH.Clearnet has chosen to go further. For example, the methodology for calculating initial margin that a CCP should collect from its members is set in the PFMI, which require a minimum 99% confidence level for all products. In Europe, EMIR requirements go further, with a minimum 99.5% confidence level for OTC derivatives. LCH.Clearnet has chosen a margin beyond even the highest of the regulatory minimum requirements. Our policy is to apply a confidence level of 99.7% across all our products.

CCPs have been criticised for a lack of transparency in their risk management methodologies. We look forward to publication of CPMI-IOSCO quantitative transparency standards and would encourage all CCPs to implement them so that market participants are able to compare risk management practices and make informed decisions on where to clear their business.

We are also supportive of standardised stress tests of CCP risk management methodologies and believe that disclosure of the results could help increase confidence in CCPs and identify best practices. Developing a stress test methodology will not be without its challenges, and some form of global coordination may be necessary. However, in our view, the benefits would be significant in enabling regulators and market participants to come to an informed view of the relative strength of each CCP. LCH.Clearnet would welcome the opportunity to engage with policymakers in the development of a harmonised stress testing methodology.

## 2. Recovery Tools

CCP operators must have the necessary tools available to deal with the unlikely event that prefunded resources are not sufficient to manage a clearing member default. CCP operators should also have recovery tools to deal with a non-default loss that could potentially arise as a result of operational disruption or business risk.

We strongly believe that CCP recovery tools should be developed in consultation with clearing members and their clients, and agreed upon ex ante. Recovery tools, and the triggers for their use, should be transparent and predictable so that clearing members, their clients and the shareholders of the CCP can understand in advance how they will be applied. While a CCP operator must retain some flexibility to deal with the particulars of any given situation, market participants and regulatory authorities should have a full understanding of, and confidence in, the actions that it will take to recover after a major default.

There must also be certainty and transparency around the size of any contingent liabilities. CCP recovery plans cannot assume the liability of clearing members is unlimited. In the event of a clearing member default, a CCP operator should cap the number of additional cash contributions it requests from surviving members.

In addition, where a CCP exercises a recovery tool such as variation margin gains haircutting, we believe any net recoveries it makes from the estate of the defaulter should be used to reimburse surviving clearing members.

## 3. Resolution

Resolution planning is also essential. Although the risk is remote, there may be circumstances where the recovery measures undertaken by the CCP operator have failed to restore the viability of the clearing service or have not been implemented in a timely manner, or where the resolution authority determines that the CCP's recovery measures are not reasonably likely to return the CCP to viability or would be likely to compromise financial stability. In any of these cases, the resolution authority will be required to step in to take over management of some or all of the CCP in order to prevent the CCP ceasing to operate and entering disorderly liquidation, and to ensure that trading/markets are not disrupted.

In our view, CCP resolution will be most effective if it is led by the resolution authority of the jurisdiction in which the CCP is established. Resolution will require rapid decision making, and the home resolution authority will be most familiar with the CCP's operations and able to act decisively. Of course, any successful resolution will require close cooperation between the home resolution authority and the resolution authorities of those jurisdictions where the CCP provides clearing services. We therefore support guidance from the Financial Stability Board (FSB), which envisages coordination taking place through crisis management groups comprising the relevant supervisors, central banks and other public authorities.

As regards resolution tools, the risks to which a CCP can be exposed are very different than those of a bank or other financial institution. It therefore follows that the resolution tools will be different as a result. For example, bail-in is not appropriate for a CCP model. CCP operators are typically equity funded and are obliged to hold high-quality, liquid resources. Instead of obliging the CCP operator to raise debt or contingent equity simply in order to be able to bail in, the priority should be to ensure that the operator's regulatory capital is sized correctly in the first instance, and that members' initial margin and default fund contributions are also calibrated correctly.

## Conclusion

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Post-crisis regulatory reforms have done much to strengthen the resilience of the financial system, and banks in particular. Clearing members themselves are now subject to recovery and resolution regimes, and this has benefits for CCP resilience. If a bank's liabilities to a CCP are not subject to bail-in, then the CCP would have the absolute benefit of the member's own recovery and resolution resources prior to reaching the start of the CCP waterfall.

As we have explained above, the majority of a CCP's total loss-absorbing capacity comes from its clearing members. The purpose of skin in the game is to align the incentives of the CCP operator with those of the clearing members. Any requirement for the CCP operator to contribute significant additional resources to the default waterfall would fundamentally change the operator's risk profile, creating increased risk exposure to member default at the very time that the market needs the operator to be resilient. This would also result in the CCP operator becoming an active part of the risk structure, which clearly would be detrimental to financial stability.

Initial margin must therefore remain the first and most important defence and must be sized, along with default funds, to ensure that sufficient prefunded resources are available to manage the risk of a member default. It is vital that each CCP's risk management methodology is robust and that margins are calculated in accordance with the highest risk management standards. Greater transparency of risk management methodologies and disclosure of the results of a standardised stress testing regime will increase confidence in the resilience of the CCPs and enable clearing members to make an informed decision on where they choose to clear.

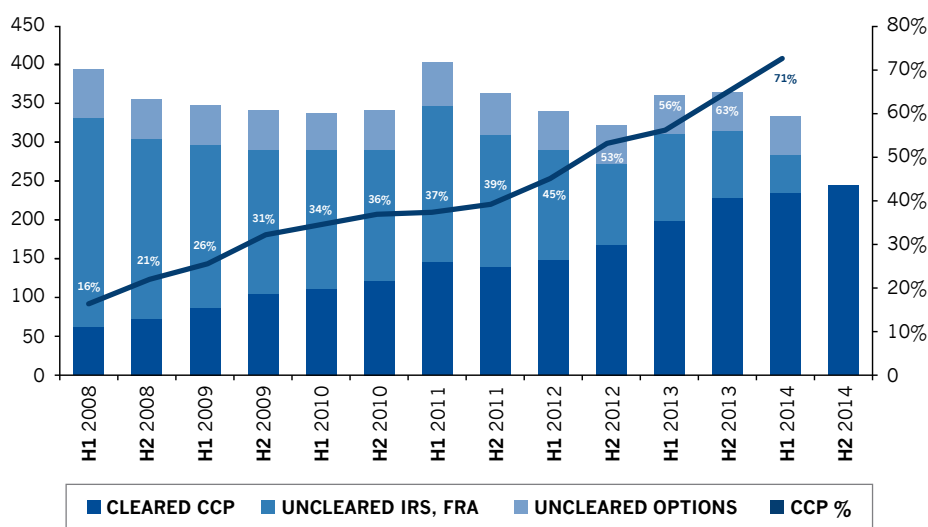
# Introduction

At their Pittsburgh Summit in 2009, G20 leaders committed to strengthening the derivatives markets by encouraging greater central clearing<sup>1</sup>. The aim was to promote financial stability by mitigating counterparty credit risk through the use of central counterparty (CCP) clearing infrastructure, which had operated effectively during the financial crisis. For example, at the height of the crisis in 2008, LCH.Clearnet successfully managed the default of Lehman Brothers, one of its clearing members with a significant over-the-counter (OTC) derivatives position, without drawing upon any mutualised member resources.

G20 members have worked to implement their commitment to increased central clearing, with the greatest progress in the United States, Canada, Europe, Australia and Japan. In the United States and Japan<sup>2</sup>, mandatory clearing requirements are already in effect for certain interest rate swaps (IRS) and credit default swaps (CDS). In Europe and Australia, the authorities have consulted on clearing obligations for IRS, and the expectation is for mandates to come into effect in 2015. Europe has also consulted on mandatory clearing of CDS and certain foreign exchange (FX) derivatives.

## FIGURE 2 CCP Clearing Progress

The latest BIS semi-annual OTC derivatives statistics indicate the market has progressed materially from clearing around one third of interest rate derivatives (34%) when Dodd-Frank was enacted in summer 2010 to now clearing around two thirds (71%).



H2 2014 data available to October not including Uncleared Options or Uncleared IRS, FRA



Mandatory clearing, and additional capital incentives under Basel III, will increase the concentration of derivatives activity in CCPs. It is therefore vital that regulators and market participants have confidence in each CCP's risk management procedures and ability to manage a default.

The risk management framework for day-to-day running of CCPs is well established. CPSS-IOSCO's PFMI set global minimum risk management standards, which CCPs may choose to exceed. In Europe, these principles have been implemented through the European Market Infrastructure Regulation (EMIR), which provides the regulatory framework for the authorisation and operation of CCPs. In the United States, they have been taken forward through the Commodity Futures Trading Commission's (CFTC's) Part 39 rules, including Subpart C of those rules, for derivatives clearing organisations (DCOs)<sup>4</sup>.

CPMI-IOSCO and the Financial Stability Board (FSB) have also developed guidance on CCP recovery and resolution<sup>5</sup>. In broad terms, a CCP's recovery plan will be triggered when the prefunded financial resources available under its risk management framework have been exhausted. Resolution will be triggered when the CCP's recovery tools have been exhausted, or when the authorities decide the recovery tools have not been implemented in a timely manner or are insufficient to restore the CCP's viability.

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“ CCPs offer state-of-the-art margining and risk management methods that do not exist to the same extent in the bilateral world, which either relies on standardised margining methods that are not very risk-sensitive or on bank-internal margining models that may not necessarily meet the same high standards that CCPs are required to meet. ”

Benoît Cœuré  
*European Central Bank*

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LCH.Clearnet fully supports efforts to strengthen the resilience of CCPs. This paper explains our current risk management procedures and sets out our views on the key principles that we believe should underpin the regulatory frameworks for CCP recovery and resolution.

# Chapter 1

## A Resilient Risk Management Framework

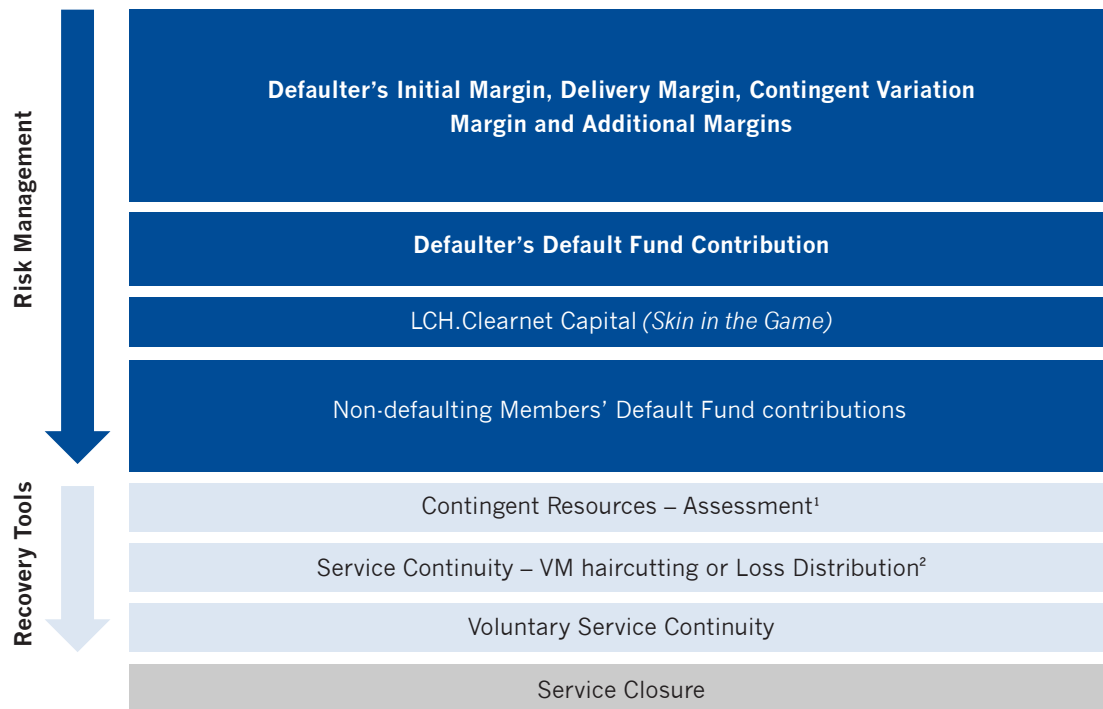
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CPSS-IOSCO's PFMI set minimum international standards for CCP risk management. At LCH.Clearnet, the guiding principle in designing the risk management framework across all our services is that the defaulting clearing member should bear the costs of the default (the "Defaulter Pays" principle). In a default, we will first use the resources of the defaulting member (its variation and initial margin, additional margin, if any, and its default fund contribution) to absorb any losses or costs incurred in the process of liquidating the defaulter's positions. If this is not sufficient, we will next use some of our own capital ("skin in the game"). Only upon exhaustion of these resources will we utilise the prefunded mutualised resources (the default fund).

In addition, LCH.Clearnet has put in place governance arrangements and incentive structures to ensure the interests of its participants are taken into account and the incentives of its shareholders and participants are aligned. These arrangements reflect, but also predate, the new regulatory requirements under EMIR.

The following section sets out LCH.Clearnet's risk management framework for mitigating the impact of the default of a clearing member.

**FIGURE 3** LCH.Clearnet Default Waterfall



<sup>1</sup> Callable up to the value of each member's Default Fund contribution at the time of the default.

<sup>2</sup> The resources available in the service continuity phase are determined by the LCH.Clearnet Rulebooks.

## 1.1 Default Management Framework

### Strict Membership Requirements

At LCH.Clearnet, clearing members must meet minimum levels of net capital and have appropriate banking arrangements and systems to manage their clearing activities. In addition, a minimum internal credit score is set for joining a clearing service within LCH.Clearnet. The independently validated credit scoring framework takes account of financial analysis and market data, external ratings and an assessment of operational capability. These components are continually monitored and credit scores adjusted. Increased margin is applied when a member's credit score deteriorates below the entry level, while other actions may include reduced credit tolerances and forced reduction of exposures.

### Independent Risk Committees

Our independent risk committees are central to our risk management framework. Each risk committee reports to the board of the relevant CCP and is responsible for approving all significant new products, risk models, methodologies and frameworks used to determine initial margin. They also determine the size of the default funds, and the framework that governs our reinvestment of margin and own funds. Clearing members and clients are represented on risk committees at each CCP within our group to reflect the interests of participants.

## Margin Beyond the Regulatory Minimum

In the event of a clearing member default, initial margin is the first and most important line of defence. The minimum level of initial margin that a CCP should collect from its participants is set in the PFMI. This standard is reflected in the Dodd-Frank rules, which require a minimum 99% confidence level for all products. In Europe, EMIR requirements go further, with a minimum 99% confidence level for cash instruments and listed derivatives, but 99.5% for OTC derivatives. LCH.Clearnet has chosen a margin beyond even the highest of the regulatory minimum requirements. Our policy is to apply a confidence level of 99.7% across all our products.

## Auction Incentives

We believe clearing members should actively participate in the default management process, including by taking on the remaining hedged risk of the defaulter. Our rule books provide that clearing members should make all reasonable efforts to participate and provide a bid during the auction process. We allocate each member's contribution to the default fund across a set of auction incentive pools according to its relative risk in each currency. This creates a set of currency-specific resource pools that act as a first mutualised line of defence against losses on positions in that currency. It also encourages members active in a currency (as measured by open risk) to support the default management process in that currency.

Clearing members are incentivised to participate in the auction process, as they have their capital at risk to the CCP, the levels of which will be a factor of:

- their risk-weighted contributions to the default fund;
- their risk profile to each currency portfolio, relative to other clearing members; and
- their bidding behavior during the auction of each currency portfolio, relative to others.

## Skin in the game

Skin in the game helps align the incentives of the CCP's management and its shareholders with those of the clearing members. LCH.Clearnet's rules provide that any losses incurred when managing a default that have not been absorbed by the defaulter's own resources (margin and default fund contributions) should be allocated to the CCP's shareholders ahead of allocation to surviving members. This approach complies with the structure of the default waterfall as prescribed under EMIR<sup>6</sup>.

## Mutualised Default Fund

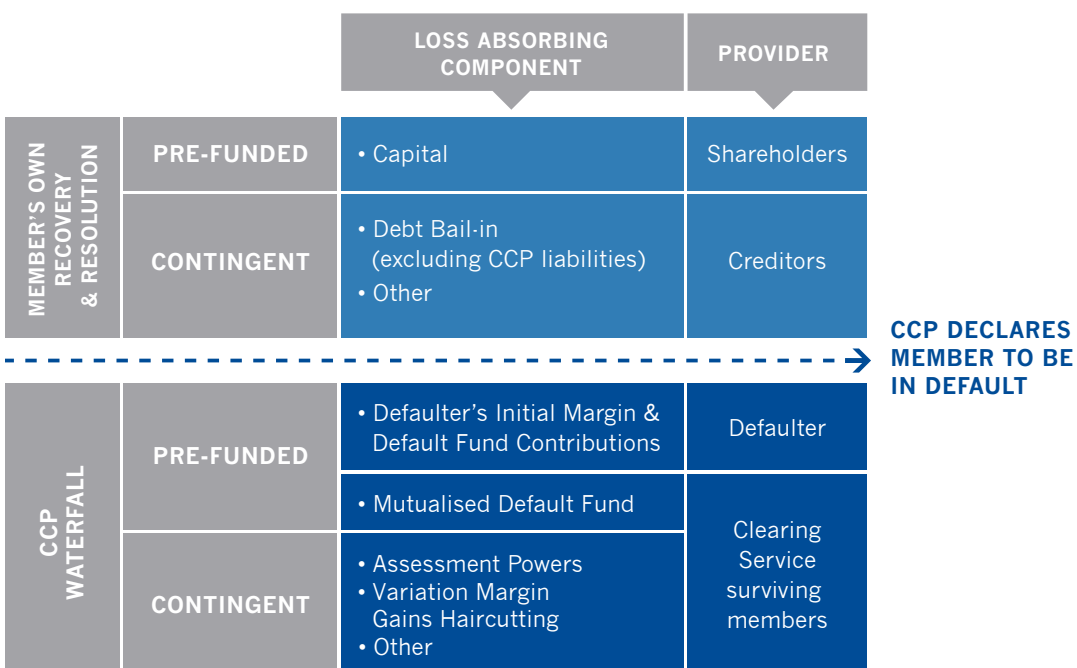
LCH.Clearnet will only draw upon the mutualised default fund in the event all of the resources of the defaulting clearing member, as well as our own skin in the game, have been exhausted. All our default funds are fully prefunded and sized to cover the losses that would occur if the two clearing members and their affiliates that would potentially cause the largest credit exposure defaulted at the same time in extreme but plausible market conditions (Cover 2). We use extreme historical scenarios experienced in the last 30 years as well as hypothetical stresses to size our default funds.

LCH.Clearnet employs separate default funds for each asset class in order to minimise the risk of contagion between asset classes. Each default fund is calibrated monthly and tested daily to be sufficient to withstand extreme market conditions.

## 1.2 Policy issues

Recent debate has focused on the transparency of CCPs' risk management methodology, the size of prefunded resources available and the sequence in which these resources should be applied. We will address each of these issues below, but first, it is worth reemphasising that CCP recovery and resolution cannot be considered in isolation from the recovery and resolution regimes that have already been introduced for their clearing members. CCP resilience has benefited greatly from the general strengthening of banks' balance sheets and the introduction of bank recovery and resolution regimes. If a bank's CCP liabilities are not subject to bail-in, then the CCP would have the absolute benefit of the member's own recovery and resolution plan and resources prior even to reaching the *start* of the CCP waterfall.

**FIGURE 4** TLAC in event of a member default



## Transparency

CCPs have been criticised for a lack of transparency in their risk management methodologies. There is concern that CCPs do not provide sufficient information to enable their clearing members to assess the rigor of the methodology that is applied to calculate the margin and default fund contributions, or the total loss-absorbing capacity (TLAC) of the CCP.

LCH.Clearnet agrees that transparency is very important. In 2014, we voluntarily adopted the Federal Reserve Bank of New York Payment Risk Committee recommendation<sup>7</sup> to disclose information to clearing members regarding risk and corporate governance, initial margin and default fund methodologies, default procedures and investment balances and policies. We believe it is important that our clearing members have access to this information so that they can conduct their own due diligence on our CCPs.

This voluntary industry initiative has paved the way for the introduction of binding global transparency standards. CPMI-IOSCO is expected to publish quantitative transparency standards shortly that will require CCPs to make information on credit, liquidity, operational, investment and business risks publicly available. To enable clearing members and clients to assess the risk management and resilience of CCPs, LCH.Clearnet stands ready to implement CPMI-IOSCO transparency standards. It will be essential that all CCPs comply so that market participants are able to compare risk management practices and make informed decisions on where to clear their business.

## Stress Testing

The CPMI-IOSCO transparency standards propose that CCPs disclose their stress test results for credit and liquidity risks. We understand that consideration is being given to extend this further, with some policymakers suggesting a standardised stress testing framework for CCPs<sup>8</sup>. For example, in 2013, the Bank of England announced<sup>9</sup> that it was considering the need for a stress testing regime for CCPs given their importance for financial stability. This message was reiterated in November 2014<sup>10</sup>.

LCH.Clearnet is supportive of standardised stress tests of CCP risk management methodologies; for example, around the calculation of initial margin, default fund contributions and CCP skin in the game. We believe that disclosure of the results of such tests could help increase confidence in CCPs and enable regulators and clearing members to identify best practices. As no two CCPs are identical, it is important that such stress tests take into account the individual circumstances of the CCP, including the asset classes that are cleared, the margin confidence levels appropriate to that asset class and the size of the default fund that is required to cover the losses of the two clearing member groups posing the largest credit exposures to the CCP. Any disclosure should explain how the stress testing methodology reflects the specificities of the CCP and be presented in a way that enables the results to be understood (i.e., not just numerical results) but prevents clearing members from using reverse engineering to determine the positions of other clearing members.

Global coordination will be essential. In our view, CPMI-IOSCO is the most appropriate organisation to undertake this role – it has the necessary expertise, as its members include central banks as well as securities regulators, and of course, CPMI-IOSCO is very familiar with the role of CCPs, having developed the PFMI and principles for recovery of financial market infrastructures. LCH.Clearnet would welcome the opportunity to engage with policymakers in the development of a harmonised stress testing methodology.

## Skin in the game (SIG)

The calibration of SIG has been considered extensively in Europe. Under EMIR, the European Securities and Markets Authority (ESMA) is responsible for determining the SIG calculation methodology and consulted on this in 2012. Having originally proposed that SIG would be equal to 50 percent of a CCP's minimum capital requirement, ESMA ultimately considered this level to be excessive, as it could threaten the financial viability of the CCP<sup>11</sup>. ESMA concluded that 25 percent of a CCP's minimum capital requirement was the most appropriate and effective way of providing the right incentives for CCPs<sup>12</sup>.

LCH.Clearnet believes that skin in the game is an effective means of aligning the incentives of the CCP operator with those of the clearing members. We have skin in the game at each of our CCPs, including in the United States, even though this is not a requirement. In our view, the size of skin in the game should be calculated in relation to the CCP's Operator's capital base. A calibration based on the size of the default fund has three main drawbacks:

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“ SIG is not a component of the CCP's minimum capital requirement, but a component of the default waterfall that has the primary purpose of incentivising proper risk management rather than the protection of mutualised resources in times of stress. ”

European Securities  
and Markets Authority

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1. It would fundamentally change the risk profile of the CCP operator, creating increased risk exposure to member default at the very time that the operator needs to be resilient.
2. It would create an incentive for a CCP to minimise the size of the default fund; for example, by increasing initial margin requirements.
3. It could result in the CCP operator needing to raise additional capital at short notice, potentially at a time of market stress. The default fund fluctuates in size, as it is primarily dependent on the amount of risk brought into the CCP by its clearing members.



## Chapter 2 CCP Recovery Tools

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Post-crisis regulatory reforms have strengthened the resilience of the financial system in a variety of ways. Importantly, clearing members themselves are now subject to recovery and resolution regimes. This materially reduces the risk of a member default, and the possibility for bail-in of a failing bank reduces still further the potential for a member default to threaten the viability of a CCP. This will be further enhanced if CCP liabilities are not subject to bail-in during a bank resolution.

Although the risk that a member default will exhaust all of a CCP's prefunded resources is remote, such an event has the potential for severe systemic disruption. It is therefore essential that CCPs have recovery plans in place to deal with a clearing member default where losses exceed the prefunded resources and solvency-threatening scenarios that could arise from severe operational disruption or exceptional treasury losses (so-called "non-default losses").

### 2.1 Recovery Tools for Default Losses that Exceed Pre-funded Resources

CPMI-IOSCO recommends in its Recovery of Financial Market Infrastructures (2014) that the recovery tools of FMIs "should be transparent and designed to allow those who would bear losses and liquidity shortfalls to measure, manage and control their potential exposure." We strongly endorse this approach. Our rule book<sup>13</sup>, which we developed in consultation with our clearing members, specifies for each of our services the recovery tools available and the sequence in which they will be used.

## Assessment Powers

When prefunded resources have been exhausted, most CCPs can ask members to provide further funds. This ability to request additional contributions from surviving participants – a so-called “assessment power” – is recognised as an important recovery tool.

LCH.Clearnet caps these assessment powers so that members do not have unlimited liability. The size of contribution reflects the risk that each member brings to the CCP and is calibrated on the size of the member’s contribution to the default fund. A maximum of three assessments can be undertaken within a six-month period.

## Variation Margin Gains Haircutting (VMGH)

Variation margin gains haircutting (VMGH) enables the CCP to reduce (“haircut”) pro rata across clearing members the variation margin payments that it is due to make to those members whose positions have increased in value since the default. Meanwhile, members whose positions have decreased in value must continue to pay the variation the margin in full<sup>14</sup>.

VMGH is acknowledged to be a powerful recovery tool. It is similar to loss allocation under general insolvency but has the benefit of avoiding the costs and delays associated with insolvency proceedings. It also has an important advantage over an uncapped cash call in that it does not create an unlimited contingent exposure from a clearing member to the CCP. A clearing member can lose no more than the amount by which its position has gained in value since the default. Clearing members can therefore model their claims on the CCP and estimate any potential exposure.

LCH.Clearnet’s default waterfalls for swaps include VMGH as a recovery tool. However, VMGH is not suitable for all asset classes – for example, physically settled products such as equities and repos where variation margin does not reflect realised profits or losses but rather collateral against fluctuations in the value of the cleared instrument.

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“VMGH has been identified as a practical method for allocating unfunded losses to the creditors of the CCP in a manner similar to loss allocation under general insolvency... It does, however, avoid the costs and delays associated with insolvency proceedings.”

Reserve Bank of Australia

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## **Voluntary Service Continuity and Service Closure**

If auction incentives, assessment powers or VMGH do not succeed in closing out a defaulter's positions, CCPs can seek voluntary contributions from clearing members in order to make a final attempt to re-establish a matched book. Under LCH.Clearnet's rules, the failure of voluntary service continuity efforts will lead to service closure.

LCH.Clearnet's segregated default funds make it possible for the clearing service for one asset class to close while clearing services for other asset classes continue. This would be the case if a defaulter's positions are able to be closed out for one or more asset classes and a matched book re-established while the defaulter's positions in another asset class or classes remain open.

Service closure involves the closeout of all outstanding contracts at a price established under LCH.Clearnet rules. This process is referred to as "tear-up." Non-defaulting clearing members that are in the money will also receive variation margin profits and coupon payments on a pro rata basis. Initial margin will be returned to all non-defaulting clearing members. For most asset classes cleared by LCH.Clearnet, service closure will completely allocate any residual losses incurred due to the default and the tear-up of contracts to the non-defaulting clearing members.

CPMI-IOSCO notes that complete tear-up of positions will cause significant disruption to the products or markets where it is used, although market participants may consider it the least bad option in an extreme situation. CPMI-IOSCO advises that complete tear-up should be avoided to the extent practicable. A resolution authority may consider the use or imminent use of this tool to be a trigger for resolution<sup>15</sup>.

## **Replenishment of Default Fund**

CPMI-IOSCO recommends that the CCP's recovery tools also address the need to replenish any depleted prefunded financial resources so that it can remain viable as a going concern and continue to provide critical services. Following the successful completion of the default management process, if the balance of the prefunded default fund is below the level required by the CCP, clearing members will be required to make cash payments to replenish the default fund. LCH.Clearnet sets a floor for the balance of the fund and the time in which replenishment to that floor level and to full size must be achieved. Additionally, our rules limit the number of times that the default fund can be replenished within a prescribed period of time.

## 2.2 Recovery Tools For Non-default Losses

CCPs must also have recovery tools in place to deal with a scenario where the viability of the CCP is at risk because of losses that are not related to a participant default. Such losses might arise from general business, custody and investment risks, and would need to threaten the solvency of the CCP before the recovery tools could be triggered.

EMIR imposes a very strict framework to minimise these risks, and LCH.Clearnet has stringent policies to reduce investment, settlement, payment and custodian risks and adequate tools to cover any resulting exposures. This means the probability of a solvency-threatening non-default loss is very low.

CPMI-IOSCO has identified three broad tools available to a CCP through which non-default losses can be allocated. These are:

- Capital and recapitalisation;
- Insurance or indemnity agreements; and
- Other tools, such as loss allocation and cash calls from participants.

### Capital and Recapitalisation

In Europe, EMIR requires CCP operators to hold capital against the credit, counterparty and market risk of their treasury activities (that is, the reinvestment of cash posted as initial margin and default fund) as well as any operational and business risks. In addition, EMIR requires CCP operators to hold sufficient capital to conduct an orderly wind down over a minimum of six months. In the United States, CCP operators must hold sufficient capital to cover operating costs for 12 months.

CPMI-IOSCO considers that a CCP operator must have sufficient capital to enable it to absorb general business losses. Even where capital is sufficient, however, the CCP operator will need to replenish it after it has been used. CCP operators should therefore have plans in place to increase their capital; for example, by recapitalisation after extraordinary losses, or capital conservation measures such as suspension of dividends and payments of variable remuneration.

CPMI-IOSCO envisages that a further means of raising capital could be for the FMI to develop ex ante arrangements with the existing debt holders regarding the bail-in of their instruments. While converting debt into equity under a bail-in scenario may be an appropriate tool for some financial market infrastructures, CCP operators tend not to issue any debt and hold their capital in high-quality liquid assets. We therefore do not believe that this is an appropriate recovery tool for CCPs.

## Insurance

Insurance or indemnity agreements may also be an effective way of mitigating the impact of non-default losses. CCPs may benefit from insurance cover for operational and general business risk events, including civil liability and crime, internal and external fraud, property damage and business interruption. However, these arrangements would be subject to a number of factors (for example, the lead time required for having a claim processed and paid). Therefore, a CCP may decide that additional recovery tools would be prudent.

## Other Tools: Loss Allocation and Cash Calls

In the UK, all CCPs are required to have loss allocation arrangements in place for non-default losses. In July 2013, the Recognition Requirements for UK CCPs were amended to require UK CCPs to put rules or other arrangements in place to address losses from sources other than a member default that could threaten their solvency<sup>16</sup>. As a consequence, LCH.Clearnet introduced loss allocation rules for its UK CCP, following consultation with our members. Any losses we incur in our investment activity (due to an investment counterparty default) after our taking the first loss will be distributed among our clearing members in proportion to their total margin liabilities.

However, the risk of this scenario arising is very remote. We operate a strict investment policy and only invest in high-quality securities that are subject to maturity and concentration limits. We apply internal rating criteria for investment counterparties as well as counterparty/concentration limits. Daily stress testing is performed on the investment portfolio, and capital-related limits are set for maximum interest rate risks.

Other jurisdictions may follow the approach taken by the UK and consider requiring CCPs to have arrangements in place for non-default losses, depending on the risk profile of the CCP and the products it clears<sup>17</sup>.

## 2.3 Policy Issues

### Impact of VMGH

To mitigate the impact of VMGH, LCH.Clearnet will cap the haircut that may be applied to variation margin payments. For example, the cap may be the highest of 100 percent of the member's contribution to prefunded financial resources or a fixed amount of, say, EUR 100 million, depending on the clearing service. Although some CCPs have chosen not to cap the haircut that they may apply to variation margin payments, we believe this is the best way to provide certainty for clearing members and their clients around the scale of any contingent liabilities.

### Compensation

Where a CCP exercises VMGH as a recovery tool, we believe any net recoveries it makes from the estate of the defaulter should be used to reimburse surviving clearing members. This is in line with the spirit of the EMIR skin in the game requirements. LCH.Clearnet's rule book provides that, in the event of VMGH, any recoveries LCH.Clearnet makes from the defaulting clearing member should be used to reimburse non-defaulting clearing members pro rata based on their resources that have been applied in managing the default<sup>18</sup>. Clearing members may choose to share this reimbursement with their clients whose gains were subject to VMGH.

### Depository Risk

We believe that central banks should support global financial stability by permitting all CCPs active in their currency to deposit cash in central bank accounts. This will provide a secure location for CCPs to deposit cash and will limit the exposure of the CCP to commercial bank risk. It is also consistent with the PFMI preference for having CCPs conduct money settlements in central bank money. Additionally, central banks should provide CCPs with access to available liquidity facilities to the extent consistent with the law of the jurisdiction. In this context, we welcome the announcement by the Bank of England<sup>19</sup> that it will extend access to its Sterling Monetary Framework to CCPs operating in UK markets, either authorised under EMIR or recognised by ESMA (i.e., in principle, these facilities are available to CCPs meeting these criteria whichever jurisdiction they are located in). This further confirms the important role played by CCPs in the provision of critical financial services to the real economy.

## **Total loss absorbing capacity (TLAC)**

The concept of TLAC has principally been debated in the context of managing a major balance sheet loss in banks. The equivalent of TLAC for a CCP would be the total loss-absorbing resources available to manage a clearing member default. These principally comprise prefunded resources (initial margin and default fund contributions) and contingent resources (e.g., assessment powers).

If the regulator or the CCP operator considers the total loss-absorbing resources to be insufficient for a CCP to manage a member default, then the focus should be on increasing initial margin so that the defaulter pays first principle is adhered to, rather than introducing another source of potential capital in the form of contingent equity or bail-in debt.

The concept of TLAC to cover CCP operator risk is clearly not comparable with the purpose of TLAC for a bank. For a CCP, these risks should be appropriately covered by the operator's regulatory capital and other resources (e.g., insurance). These regulatory capital resources are already provided by equity and held in high-quality liquid form. As CCP operators do not typically fund themselves with debt, requiring the operator to issue bail-in debt does not seem necessary or appropriate.

## Chapter 3 CCP Resolution: Providing Continuity of Service

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Resolution is the responsibility of the authorities who would be required to step in if the measures taken by a CCP in the recovery phase were not sufficient to restore its viability. Resolution planning is essential because, in the absence of an appropriate resolution framework, there is a risk that a CCP would cease operating and enter liquidation; trading might be disrupted in the markets cleared by the CCP; firms may not be able to fulfill their clearing obligations; and clearing members may not be able to access margin and any remaining default fund contributions for some time.

The objective of the resolution authorities should be to provide continuity of clearing services. This objective may be achieved by restoring the viability of the CCP, or in some circumstances, by transferring the clearing function to another CCP (an option made more viable where open access regimes are in place)<sup>20</sup> or bridge institution and winding up of other, non-viable elements. However, such measures will only be successful if the CCP's entry into resolution does not trigger a right to acceleration or early termination by the CCP's participants. The FSB's guidance that such rights can only be triggered where the CCP fails to meet payment or delivery obligations is central to any successful CCP resolution.

### **Lead Resolution Authority**

CCP resolution will require rapid and effective decision making and is therefore more suited to the clear direction of one single resolution authority, underpinned by a recognition framework between the relevant jurisdictions and their respective insolvency regimes.

In our view CCP resolution will be most effective if it is led by the resolution authority of the jurisdiction in which the CCP is established. The home resolution authority will be most familiar with the CCP's operations and will be able to act decisively. However, the home resolution authority must cooperate closely with the authorities of other jurisdictions that have an interest in the CCP's resolution.



## **Cross-border Coordination**

Any successful resolution will require close cooperation between the home resolution authority and the resolution authorities of those jurisdictions where the CCP provides clearing services. LCH.Clearnet supports the FSB's guidance, which foresees that the home resolution authority should coordinate with crisis management groups<sup>21</sup>, comprising the relevant supervisors, central banks and other public authorities, in the event of a cross-border financial crisis.

Coordination will be critical to avoid systemic disruption in cross-border and interlinked financial market infrastructures. In this context, we believe that arrangements for dispute and conflict resolution within the crisis management groups should be agreed ex ante in order to ensure fast resolution of disagreements.

Work should begin to establish the enforceability of cross-border resolution regimes. For example, the authorities should consider:

- Cross-border recognition of the special insolvency rules and decisions/actions of home state resolution authorities in resolution scenarios; and
- Cross-border enforceability of tear-up, porting, cash calls, changes in insolvency rights of creditors and loss allocation.

In addition, we believe it is essential that the members of the crisis management groups undertake regular crisis management exercises in order to test their resolution plans and to identify any potential barriers to successful cross-border resolution. Over time, we would encourage the crisis management groups to invite CCPs to participate in these exercises.

## **Resolution Powers**

We support the resolution powers the FSB sets out in its report, in particular with respect to the authorities' power to allocate losses and to terminate contracts. The power to transfer critical functions to a solvent third party or bridge institution is also important, but for this to work successfully during resolution, we believe that CCPs and the authorities should work together ex ante to identify and address the potential-legal and operational challenges.

## **Resolution Should Not Give Rise To Open-ended Liability**

Resolution should not give rise to an open-ended liability for clearing members and clients, such that they must indefinitely recapitalise a failed CCP. We believe resolution regimes must accommodate the scenario that the market may not have the appetite to recapitalise a failed CCP, and that orderly wind-down is the preferred solution. Applying an open-ended requirement to recapitalise a failed CCP would place a burden on the market that it may not be able to accommodate. EMIR already requires that a CCP's clearing members must have a limited exposure to a CCP, which we believe would need to be factored into any resolution framework in the EU.

Finally, bail-in is another possible tool available to resolution authorities. However, in our view, bail-in as a concept is not appropriate for a CCP operator. Unlike banks, CCP operators typically do not issue debt. CCPs are equity funded and are obliged to hold high-quality, liquid resources. We do not believe that bail-in is appropriate for a CCP model. In our view, the priority should be to ensure that a CCP's regulatory capital is sized correctly in the first instance. This is a more effective way of achieving the intended outcome (resilience of the CCP operator) than obliging the CCP to raise debt or contingent equity simply in order to be able to bail in.

## **Prefunded Resolution Funds**

In policy discussions of CCP recovery and resolution, some have suggested there could be value in a fully prefunded resolution or recapitalisation fund. However, the risks to which a CCP can be exposed are very different than those of a bank or other financial institution. It follows that the tools that are needed for the resolution of a CCP will also be different. In particular, the focus should not be on the creation of a single resolution fund (as has been introduced in Europe for banks). The concept of mutualisation of risk is already central to a CCP's operations. A firm that joins a CCP as a clearing member must contribute financial resources to a mutualised default fund in proportion to the risks it brings to the CCP. This default fund can be used to allocate losses that arise in the management of the default of another member.

Rather than create an additional layer of prefunded resources to be deployed only after contingent resources have been exhausted, the priority must be to ensure that initial margin and default fund contributions are calibrated correctly. Similarly, for operational risk, the size of a CCP's regulatory capital should be sized appropriately in the first instance.

## Conclusion

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LCH.Clearnet welcomes the work underway at the national, EU and international level to improve transparency of CCPs' risk management policies and procedures and further strengthen their resilience. We support the introduction of standardised stress testing of CCPs' risk methodologies and believe that the results should be disclosed to enable clearing members to compare the approach that individual CCP operators have taken. Clearly, the stress test methodology will require careful calibration and, in our view, international coordination. This will not be without its challenges, but the benefits would be significant in enabling regulators and market participants to come to an informed view of the relative strength of each CCP.

CCPs play a vital role by acting as “shock absorbers” and helping to manage systemic risk. However, CCP operators are not responsible for bailing out the system in extreme distress. The risks to which CCP members are exposed are different than those of the CCP operator. The majority of a CCP's total loss-absorbing capacity comes from its clearing members. The capital of the CCP operator is designed to protect against operational and business risks and, where necessary, manage an orderly wind-down. Skin in the game is not designed as a material component of loss absorption; its purpose is to align incentives of the CCP operator with those of the clearing members. Any requirement for the CCP operator to contribute significant additional resources to the default waterfall would fundamentally change the operator's risk profile, creating increased risk exposure to member default at the very time that the market needs the operator to be resilient.

Initial margin must therefore remain the first and most important line of defence and must be sized, along with default funds, to ensure there are sufficient prefunded resources available to manage the risk of a member default in most adverse market scenarios.

Finally, it is important to remember that post-crisis regulatory reforms have already done much to strengthen the resilience of the financial system, and banks in particular. Clearing members themselves are now subject to recovery and resolution regimes, and this materially reduces the risk of, and the potential scale of, a member default. Recovery and resolution for CCPs cannot be considered in isolation from the recovery and resolution regimes for their members, and if a bank's CCP liabilities are not subject to bail-in, then the CCP would have the absolute benefit of the member's own recovery and resolution plan and resources prior even to reaching the start of the CCP waterfall.

# Glossary of Terms

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**CCP**

Central Counterparty

**CDS**

Credit Default Swaps

**CFTC**

Commodity Futures  
Trading Commission

**CM**

Clearing Member

**CPMI**

Committee on Payments and  
Market Infrastructures

**CPSS**

Committee on Payment and  
Settlement Systems

**DCO**

Derivatives Clearing Organisation

**EMIR**

European Market Infrastructure  
Regulation

**ESMA**

European Securities and  
Markets Authority

**FMI**

Financial Market Infrastructure

**FSB**

Financial Stability Board

**IRS**

Interest Rate Swaps

**IOSCO**

International Organisation of  
Securities Commissions

**PFMIs**

Principles for Financial Market  
Infrastructures

**SEC**

Securities and Exchange Commission

**SIG**

Skin in the game

**TLAC**

Total Loss Absorbing Capacity

**VMGH**

Variation Margin Gain Haircutting

## Footnotes

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- <sup>1</sup> G20 Pittsburgh Declaration, [https://www.g20.org/sites/default/files/g20\\_resources/library/Pittsburgh\\_Declaration\\_0.pdf](https://www.g20.org/sites/default/files/g20_resources/library/Pittsburgh_Declaration_0.pdf)
- <sup>2</sup> The Financial Stability Board monitors progress against the G20 commitment. Its most recent progress report was published on November 7, 2014. OTC Derivatives Market Reforms: Eighth Progress Report on Implementation, <http://www.financialstabilityboard.org/wp-content/uploads/8th-OTC-derivatives-progress-report-for-publication-7Nov.pdf>
- <sup>3</sup> CPSS-IOSCO Principles For Financial Market Infrastructures, <http://www.bis.org/cpmi/publ/d101a.pdf>. The Committee on Payment and Settlement Systems (CPSS) changed its name to the Committee on Payment and Market Infrastructures (CPMI) on September 1, 2014. Reference to reports published before that date use the committee's previous name.
- <sup>4</sup> In the United States, the Securities and Exchange Commission (SEC) has jurisdiction over CCPs that clear securities and security-based swaps (single-name CDS). As yet, the SEC has not finalised its rules implementing the PFMI.
- <sup>5</sup> CPMI-IOSCO report on recovery of financial market infrastructures, <http://www.bis.org/cpmi/publ/d121.pdf>; FSB report on key attributes of effective resolution regimes for financial
- <sup>6</sup> See Article 45 of EMIR
- <sup>7</sup> Federal Reserve Bank of New York Payment Risk Committee recommendations for supporting clearing member due diligence of central counterparties, [http://www.ny.frb.org/prc/files/report\\_130205.pdf](http://www.ny.frb.org/prc/files/report_130205.pdf)
- <sup>8</sup> <http://www.risk.net/risk-magazine/news/2375168/fed-cftc-officials-back-standard-stress-tests-for-ccps>; <http://www.risk.net/risk-magazine/news/2373001/regulators-plan-standard-stress-tests-for-ccps>
- <sup>9</sup> <http://www.bankofengland.co.uk/financialstability/fsc/Documents/discussionpaper1013.pdf>
- <sup>10</sup> <http://www.bankofengland.co.uk/publications/Documents/speeches/2014/speech781.pdf>
- <sup>11</sup> "Such a large percentage of capital dedicated to the SIG might threaten the financial viability of the CCP itself or result in a breach of its minimum capital requirements should a large Clearing Member default. Furthermore, such a level of the SIG might lead to a situation where CCPs are encouraged to hold as little capital as possible and, consequently, to a situation where CMs are less incentivised to participate in a close-out auction as they know that a significant part of any loss would be borne by the CCP," ESMA's Final Report: 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, [http://www.esma.europa.eu/system/files/2012-600\\_0.pdf](http://www.esma.europa.eu/system/files/2012-600_0.pdf)
- <sup>12</sup> *Ibid*, p. 44
- <sup>13</sup> <http://www.lchclearnet.com/rules-regulations/rulebooks>
- <sup>14</sup> David Elliot at the Bank of England describes very eloquently the process for VMGH and the potential advantages over insolvency. Financial Stability Paper No. 20 – April 2013: Central Counterparty Loss-Allocation Rules, [http://www.bankofengland.co.uk/research/Documents/fspapers/fs\\_paper20.pdf](http://www.bankofengland.co.uk/research/Documents/fspapers/fs_paper20.pdf)
- <sup>15</sup> CPMI-IOSCO, report on recovery of financial market infrastructures, pp. 26-27
- <sup>16</sup> The Bank of England's supervision of financial market infrastructures – Annual Report, March 2014, <http://www.bankofengland.co.uk/publications/Documents/fmi/fmiap1403.pdf>

## Footnotes

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- <sup>17</sup> The CFTC's rules in Subpart C of Part 39 cover similar ground.
- <sup>18</sup> For SwapClear, ForexClear and RepoClear, where LCH.Clearnet has engaged in VMGH, the rule book provides that any recoveries it makes from the defaulting clearing member as a result of LCH being a creditor of the defaulting member should be used to reimburse non-defaulting members pro rata based on their resources that have been applied in managing the default. The equities, listed derivatives and commodities default funds work slightly differently: these provide that any recoveries made will be used to reimburse the loss distribution charge and any excess used to reimburse the non-defaulting clearing members, but, rather than pro rata, in the reverse order to which they were applied in the default fund waterfall. Again, prior to the loss distribution charge being applied, LCH.Clearnet is not required to reimburse recoveries to clearing members.
- <sup>19</sup> The changes that the Bank of England has introduced are set out in its "Red Book," <http://www.bankofengland.co.uk/markets/Documents/money/publications/redbook.pdf>
- <sup>20</sup> [www.lseg.com/resources/open-access](http://www.lseg.com/resources/open-access)
- <sup>21</sup> According to the FSB guidance, crisis management groups should include the supervisory authorities, central banks, resolution authorities, finance ministries and the public authorities responsible for guarantee schemes of jurisdictions that are home or host to entities of the group that are material to its resolution, and should cooperate closely with authorities in other jurisdictions where firms have a systemic presence.
- <sup>22</sup> Article 43

## Disclaimer

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