

# Central Counterparties and Systemic Risk

August 2020

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## Introduction

A CCP is an entity that positions itself in-between two parties to a contract, becoming the buyer to every seller and the seller to every buyer. It does this via a legal process – mainly novation and open offer. Through novation, an existing bilateral trade contract is terminated and replaced with two contracts with the CCP. In an open offer process, a contract is concluded with the CCP immediately after the matching of trading details. By interposing itself between two parties to a trade, it becomes the legal counterparty to each trading party, who thereafter no longer have a legal contract between themselves – the CCP breaks this. Therefore, when you interpose a CCP you concentrate the counterparty risk across the whole market. The CCP's role is risk management and its clearing members lend their balance sheets to the CCP's risk mutualisation.

There has been some recent controversy in the CCP space following the guidance issued by the Financial Stability Board (FSB), early this year, regarding how national regulators should manage the failure of a CCP and the market response.

On 4 May 2020 the Financial Stability Board issued draft guidance on the resolution of central-counterparty clearing houses, seeking comments by 31 July. The Systemic Risk Council considers that the proposed guidance is not fit for purpose as it currently stands, since it does not provide a clear, internationally agreed solution to the problems of procyclicality and the currently inadequate incentives embedded in plans based on clearing houses' existing rules.

The SRC's full text:



Several CCP experts, including the Systemic Risk Council, have argued that CCPs do not have enough incentives to prevent failures since their full equity, depending on the CCPs' waterfall, is not at risk, calling for an increase in the CCP's skin in the game buffer. CCPs, through the European Association of Clearing Houses, have responded that an increase in their skin in the game capital would create a moral hazard as clearing members would have fewer incentives to fail.



So, another option could be for regulators to increase the collateral required by CCPs to clearing members. However, this could have serious implications from a liquidity perspective. The amount of top quality (AAA-rated) collateral has been diminished as sovereign downgrades have reduced the eligibility of the mainstay type of collateral, government bonds, particularly in the Eurozone. Collateral managers have therefore come under increasing pressure to provide mechanisms to optimise collateral usage, and collateral takers are being driven to come up with solutions to reduce the gross levels of required collateral from participants without compromising risk management. The securities lending market has become active in providing ‘collateral upgrade’ trades to assist the process in the US.

*The main focus of clearing members' attention falls predominantly on the CCP's counterparty risk management, primarily the initial margining methodology, the default fund calculation, collateral and the waterfall procedure. To a certain point this makes sense, as it represents the quantifiable risk to which the clearing member is exposed; however, there are other factors that put CCP participants, be they clearing members or their clients, at risk.*

Regardless of the decisions made by regulators and CCPs alike, these issues, and the risk concentration effects of central clearing, have rendered the understanding and monitoring of the risks faced from using CCPs of the utmost importance.

## The CCP Silver Bullet

Since the financial crisis of 2008-9, CCPs have become one of, if not the, central actor within the derivatives marketplace. The G20 central clearing mandate of 2009 not only placed CCPs in the spotlight, but also ensured that increasing numbers of investors and financial market participants would have exposure to them. CCPs have been the victim of their own success. They held during the Lehman default when LCH Ltd tested the OTC derivative default mechanism for the first time. It worked, to great relief. The horror of AIG's unmarginated credit default swap positions that required an enormous bailout was simply unforgivable – especially since they were all reported to the Trade Information Warehouse at the DTCC.

The main political advantage of CCPs were that they made the market underwrite the risk – taxpayers' money would be safe and further shame on the banking sector would be avoided – they just had to make up and take their punishment.

So G20 (the collective governments) mandated the FSB to make CCPs the solution. Now CCPs are necessary for exchange traded derivatives (ETD) and optional for equities. They were also utilised for approved interest rate and credit default swaps. A major incentive was to force institutions (e.g. AIG) to centrally clear swaps and margin them on a daily basis (variation margin) thereby avoiding any unfinanced exposures. Take all your problems, put them in a single basket and manage it to death. A good idea at the time but as always – between the idea and the reality falls the shadow. Did the Hollow Men get it right?

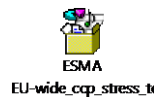
If you are an owner of a CCP – typically an exchange or the clearing brokers, then you can make it work. One promised advantage of SwapClear when it was first mooted (late 1990s) was the possibility to offset swaps against futures with a potential significant reduction in initial margins. Keep the capital requirements



of the CCP low (good owner ROE), make the initial margins high (clients finance their own risk) and keep the default fund low (good clearing member ROE). Seems fair enough. However, this did not achieve the objective which was to make the banks take their punishment. In Europe, the balance was in favour of the institutions – too many politicians lost money over Madoff. In the USA it was more about protecting taxpayers' money and letting the banks get on with it. The EMIR regulations in Europe introduced CCP skin-in-game and closely defined the default fund requirements and margin period of risk. There was much pointless debate between a two-day net versus a one-day gross margin methodology. Stick it in SPAN – it will work it out.

Ideally you would want all your derivatives in a CCP, but some contracts were just too unique and not eligible for a roller coaster swap warehouse. If all the IRS and most of the credit default swaps (CDS) could be cleared through a CCP you could manage with bi-lateral margins for what remains.

Roll forward to the latest ESMA stress test for CCPs and all is good – except for LME Clearing:



Plenty of shoving the risk buckets between CCP, clearing broker and client – each CCP has a different outcome, but the taxpayer looks good. ABN AMRO took a \$250 million loss before tax in Chicago but it has a big balance sheet.

Problem solved. Let's move onto more exciting issues like climate change and ESG.

## The CCP Time Bomb

Are CCPs the silver bullet we think they are? Much good effort has gone into designing a framework that is robust and tries to balance the conflicting interests. Capital requirements across the board have been increased to cover cyclicity and stress test scenarios. The Covid-19 crisis, combined with the Saudi oil price war (who would have predicted those two in a stress test scenario?) tested CCPs with a vengeance. They stood the test. Under-margined positions were alarming at times:



and a crisis always flushes out the weak players - Hin Leong Trading Singapore filed for bankruptcy protection. The company [admitted](#) to \$800m in undisclosed losses and is the subject of a police investigation – so that's fraud not trading risk. There were no calls on default funds (unlike the NASDAQ default in 2018).

No need to worry about the Recovery & Resolution regulations – not required.

Problem solved? Not to everybody's satisfaction. There are concerns remaining.

LCH Ltd was proposing swap/futures offsets in the late 1990s but they didn't come until Eurex Prisma went ahead with these in 2014. Why the delay? The regulators had already defined the margin period of risk – in



Europe 2 days for ETD and up to 10 days for swaps. Consider the scenario (with a 5-day MPOR for swaps). Offset future margins against swap margins (say long the swap hedged with short futures). The net margin covering this is small. On default the ETD contract is closed within 2 days leaving three days of swap exposure with only a net margin covering a gross position. Presumably LCH Ltd were not happy with that but Eurex went ahead with offsets and in a competitive marketplace LCH Ltd did the same. EMIR does not forbid this – it actively encourages it.

The USA did not impose skin-in-the-game. Why not? Take a look at an extract from CME Group Inc's balance sheet:

	2019	US\$ million
Intangible assets—trading products		17,175.30
Intangible assets—other, net		5,117.70
Goodwill		<u>10,742.50</u>
		<u>33,035.50</u>
Class A common stock		3.6
Additional paid-in capital		21,113.20
Retained earnings		5,008.70
Accumulated other comprehensive income		<u>3.4</u>
CME Group shareholders' equity		<u>26128.9</u>

Intangibles and goodwill far outweigh shareholders' funds. Technically insolvent in the words of one rating agency. CME Group Inc is an exchange not a CCP so why worry? There is no CCP in the USA, they are DCOs (Derivative Clearing Organisations). Key word here is Organisation, not entity, separate subsidiary, independent operation. CME Clearing is a division within CME Inc. When you put up your margin money it is going to an exchange, not a CCP. Surely the intangibles and goodwill are solid assets? Contact your friendly account and ask them to run IAS 36 (Impairment of Assets) over those amounts. They are predicated on future revenues based on a regulatory monopoly, not on physical assets acquired or developed. Competition is stiff and ICE is a seasoned competitor.

This doesn't mean skin-in-the-game is the answer. There is a massive flaw in the CCP model. It is fundamental that you do not take responsibility without authority. Think of this in terms of your own management function. Why would a CCP accept responsibility for something that it has no authority over? It can raise margins for large positions, but it cannot trade on behalf of a client. The clearing members are blindsided from a default, they cannot see it coming. If the CCP were a partnership and not a limited liability company, the partners would know each other's business, but this is not commercially acceptable.

There is more than one massive flaw. EMIR provides for portability predicated on individual segregation. CSDR has no such concept. Imagine the following scenario. Client A defaults at the CCP and brings down clearing member Z. The rest of Z's clients do not care, they have individual segregation and they port to clearing member Y. The markets are still volatile and the CCP calls for more margin from clearing member Y. It's client B (which ported from clearing member Z) which says no problem, I'll sell some equities and



use the cash to meet the margin call. It's all about the balance sheet, the P&L account went red a long time ago. However, client B uses clearing member Z at the CSD (the old relationship pre default) but clearing member Z is in default and there's no portability at the CSD so the cash is stuck. Client B fails to meet is margin call and brings down clearing member Y. I used to play dominos with the old folk in the pub. I got fleeced – you have to pay to learn they told me. Regulatory systemic risk built in from the outset.

So just maybe we still need Recovery & Resolution. Concentration and contagion have not really been tested yet. Think of a scenario and plan for the unexpected. When the earth's magnetic field collapses – anytime soon – there will be no comms, no navigation, etc, etc. It's the last two that will hurt.

*If you are concerned by any of this, take a look at the introduction to Thomas Murray CCP Risk Assessments below.*

## Thomas Murray CCP Risk Assessments

### Understanding the Risks

#### Counterparty Risk

Whilst it is important be aware of how a CCP calculates initial margin, there are other aspects to risk management that must be examined. These include membership requirements (minimum capital and credit rating requirements); default fund calculation, contribution allocation and stress testing; and the structure of the default waterfall. The first and last points were recipients of great scrutiny in December 2013 when a Korean brokerage with USD 20 million of capital, and that was a direct clearing member of the Korean CCP, defaulted. Due to erroneous trading, the firm accumulated losses of USD 45 million, and its variation margin, initial margin and default fund contributions were not sufficient to cover these losses. This resulted in the CCP having to use non-defaulting members' default fund contributions to cover the vast majority of the losses. This event raised two major questions: 1) how can a firm with USD 20 million of equity capital be allowed to become a full clearing member? and 2) why were none of the losses allocated to the CCP's own capital? Thomas Murray's analysis of KRX quickly answered these questions. Firstly, KRX's minimum capital requirements for CCP membership was set at the time at USD 10 million, and secondly, the CCP's waterfall did not place any CCP capital, or 'skin in the game', before the default fund contributions of the non-defaulting members. This was not commensurate with CCP best practice, as defined in European regulation (EMIR). This one event caused many clearing members to start taking an interest in risk aspects outside of those traditionally associated with CCP counterparty risk management.

#### Treasury & Liquidity Risk

The ability to access liquidity quickly is a core aspect of the operation of a CCP. If a CCP is not able to convert non-cash collateral into cash that can be used to close out positions then it will not be able manage a default situation safely and effectively. As such, how a CCP accesses liquidity should be of great interest to clearing members. Thomas Murray's analysis identified one large CCP whose rulebook allowed it to solve



any possible liquidity constraints by swapping non-defaulting members' default fund cash deposits for the non-cash assets that it couldn't liquidate via the market. This would result in the clearing member, temporarily, losing control of its cash and being given illiquid assets in its place.

Treasury operations, and particularly cash investment, is a factor that could bring risks to clearing members and clients if not understood and monitored properly. CCP users need to ensure that any investments CCPs make are highly liquid, short term and low risk in order to ensure rapid liquidation should the CCP require cash quickly.

### Asset Safety Risk

This is an important risk for clearing members and their clients alike. It is standard practice for banks to monitor their network of entities around the globe that hold assets on their behalf and on behalf of their clients. As such, it's just as important to understand how CCPs account for cleared positions and how collateral posted as margin is held. European regulation, specifically the European Markets Infrastructure Regulation (EMIR) is very prescriptive with regard to the types of account structure that European CCPs, and those wishing to gain third-country recognition, must offer. Clearing clients need to be aware of the risks posed to their assets by the default of a clearing member or a fellow clearing client of their clearing member. Fellow-customer risk is a very real risk when opting for the use of an omnibus client account where net margining is applied, for example. This may be cheaper to run on a day-to-day basis in terms of fees, but the long-term cost could be much greater should another clearing client of an investor's clearing member default. The use of a net-margin omnibus account would also make the porting of client positions and collateral more difficult should a clearing member go into default. If porting is not possible, and clearing clients' positions need to be liquidated, it is important to understand in what form collateral is transferred back to the client. Is non-cash collateral returned in cash value only, in a similar but not identical format, or is the identical collateral returned? All of this depends on the account structures and systems put in place by the CCP.

### Financial Risk

The financial health and strength of a CCP has become of greater importance since regulation moved CCPs to the centre of markets and required them to put their own capital into the default waterfall. When Thomas Murray first began analysing CCPs in 2012, this was the area that caused the most surprises. It was discovered that The Options Clearing Corporation (OCC) had just USD 12 million of capital, and that CME Clearing has no capital at all due to the fact that it is not a separately capitalised subsidiary within CME Group. This fact remains unresolved, but OCC has subsequently added significant amounts of new capital to its balance sheet.

### Operational Risk

Understanding and monitoring the operations of entities within a firm's network of counterparties, including Financial Market Infrastructures (FMIs), is a key part of managing that network, and CCPs are no exception. This doesn't just include the systems used, but also processes, procedures, how the CCP identifies and manages operational risk, and business continuity and disaster recovery procedures. There are multiple

factors that need to be considered to assess the robustness of a CCP's operations. As clearing increases, thereby increasing cleared volumes, the smooth operation of a CCP becomes of greater importance to participants and markets as a whole.

Fortunately, operational failures at CCPs are rare, and those that have occurred have been limited to functions such as margin calculation or settlement and have been quickly resolved without any loss to clearing members or clients. That being said, understanding and monitoring a CCP's operations helps to identify where more major failures could occur and what frameworks the CCP has in place to monitor its operations and operational risk.

### Governance & Transparency Risk

Like any firm, the management structure is a central part of the smooth running of a CCP. There are certain aspects of CCP management that are unique, the main one being the role of the Risk Committee. Whilst the traditional Risk Committee is focused on managing a firm's operational risk, at a CCP the primary responsibility is overseeing the techniques used by the CCP to manage its risk exposure to its clearing members. This specific role specialist knowledge and experience, and in order to maintain robust risk management, the CCP's Board needs to ensure that it has the skills and experience on the Risk Committee. From a broader perspective, it must be ensured that reporting lines are clear and that Boards are meeting on a regular basis in order to maintain oversight of the business.

## Methodology

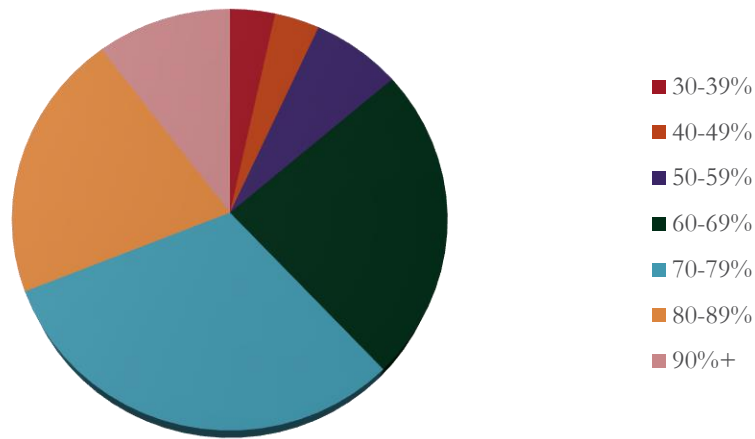
Thomas Murray uses publicly-available information alongside a comprehensive questionnaire, developed in conjunction with several international clearing brokers, to collect the relevant data required to analyse and assess each CCP. The methodology applied to the data has been constructed based upon international regulation and principles, and widely-recognised market best practice. CCPs are exceedingly heterogeneous, and the methodology allows for the normalisation of the data received in order to enable an assessment of each CCP to be undertaken as well as a comparison of the risk elements across CCPs.

The questionnaire breaks down the six headline risks identified into their contingent parts, with the questions designed to capture the key information that is fed into the methodology. The data received is then assessed against the methodology to produce a qualitative assessment that analyses the CCP's operations and identifies risks within each of the six headline risks. This allows the user to easily see the various risks from all parts of the CCP's operations that could have an impact on its business. Each component risk and each headline is weighted according to the size of the potential impact that a failure within that area would have on a clearing member and/or its clients.

Currently Thomas Murray does not apply risk grades to the CCPs that it monitors, but it does apply a Transparency Index, which indicates the level of information that the CCP makes available either publicly or via its questionnaire response. In addition, it uses the data and methodology to form an opinion based on the risks identified. The CCP risk assessments are moving towards formal risk grades based upon a scoring methodology, bringing it into line with some of Thomas Murray's other risk products. Its development and implementation is being supported by a number of CCPs, allowing the firm to test and refine the framework.



### Transparency Index Scores (%)



#### CCP Risk Assessments Available

- Australia - ASX Clear (Futures) Pty Ltd
- Canada – CDCC
- France - LCH Clearnet SA
- Germany - Eurex Clearing AG
- Hong Kong - Hong Kong Futures Exchange (HKFE) (HKCC)
- Hong Kong - Hong Kong Securities Clearing Corp Ltd (HKSCC)
- India - The Clearing Corporation of India Ltd (CCIL)
- Israel - Tel Aviv Stock Exchange Clearing House (TASECH)
- Italy - CC&G
- Japan - Japan Securities Clearing Corporation (JSCC)
- Malaysia - Bursa Malaysia Derivatives Clearing Bhd
- Mexico - Asigna
- Mexico - Contrapartos Central de Valores (CCV)

- Singapore - SGX-DC
- Singapore - The Central Depository (Pte) Limited (CDP)
- South Africa - JSE-Clear
- South Korea - Korea Exchange (KRX)
- Spain - BME Clearing
- Sweden - Nasdaq OMX
- Switzerland - SIX x-clear
- Taiwan - TAIFEX
- UAE - DCCC
- UK - ICE Clear Europe
- UK - LCH Ltd
- USA - CME Clearing (CME)
- USA - ICE Clear Credit
- USA - ICE Clear U.S.
- USA - The Options Clearing Corporation (OCC)