



Central Counterparties: Addressing the Too-Big-To-Fail problem in central clearing

Lucia Országhová¹

With the increased importance of central counterparties (CCPs) for financial stability, regulators have become concerned about ensuring the continuity of their critical functions in circumstances of financial distress. This article describes the main elements of the loss absorption mechanism of a CCP, highlights the role of incentives and provides an input to the ongoing legislative debate in the EU on the appropriate framework for resilience, recovery and resolution of CCPs.

¹ University of Economics in Bratislava. The article should not be reported as representing the views of the University of Economics in Bratislava or any other institutions the author has been associated with. The views expressed and mistakes made remain of the author.

REGULATORY INITIATIVES

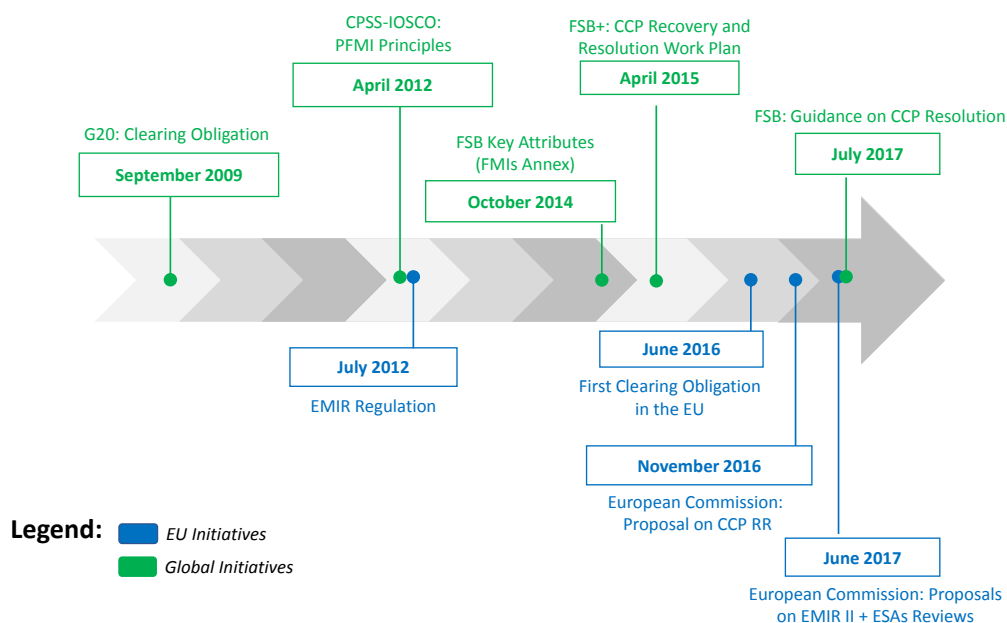
Despite the likelihood of a CCP failure being very low, the systemic nature of CCPs points to the need for an effective recovery and resolution framework. This has been recognised at the international level by G20 leaders, who have endorsed an approach to address the risks to the financial stability stemming from a failure of any systemic financial institution, including CCPs, via comprehensive and appropriate recovery and resolution tools.

An increased interest of regulators in functioning of CCPs could be dated back to the global crisis and the introduction of the clearing obligation (Figure 1). The primary legislative efforts focused on reducing the likelihood of a default, by improving the resilience of CCPs and by introducing recovery tools. As the second step, regulators turned to the issue of reducing the consequences

of a default, by setting-up a resolution framework for CCPs.

At the international level, the Financial Stability Board (FSB), the Committee on Payments and Markets Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) have cooperated closely in developing their respective sets of standards and guidance for CCP recovery and resolution. The PFMI Principles, agreed in 2012, established a set of minimum requirements for CCP's resilience (CPSS-IOSCO 2012). These measures include minimum loss absorbency requirements related to CCP's default waterfall and a requirement that CCPs should develop recovery tools, in order to promote continuity of critical services in periods of extreme stress. The PFMI Principles have been complemented by specific CPMI-IOSCO guidance on recovery plans and on resilience of CCPs.

Figure 1 Regulatory initiatives



Source: Author.



The international work on the CCP resolution was launched in 2014, when the FSB updated Key Attributes with sector-specific annexes, including an annex on financial market infrastructures (FSB 2014). The FSB issued further guidance on CCP resolution in 2017 (FSB 2017).

The EU legislation has followed closely the international developments. The EMIR regulation, which has established common rules for CCPs across the EU, was introduced in 2012.² It has significantly enhanced resilience of CCPs in the EU. The focus of the debate in the EU turned recently to the ability of a CCP to withstand a crisis, with a Commission proposal for a regulation on CCP recovery and resolution (European Commission 2016). The text is currently discussed among co-legislators. Moreover, it needs to be seen in a dynamic perspective and in conjunction with another proposal by the European Commission on a change of the overall architecture of the supervision of CCPs in the EU (see Orszaghova 2018, Box 2).

LOSS ABSORPTION MECHANISM

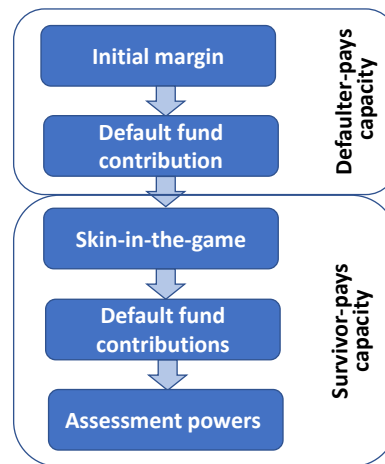
The resilience, the recovery as well as the resolution of CCPs are built around a tiered loss absorption mechanism. It is a protocol that defines the use of resources in the case of losses at the CCP. The losses could be a result of a default of a clearing participant (or several of them), but they could also be associated with a non-default event, such as business and operational failures, custodial failures or investment losses. The available resources could be divided into pre-funded resources (in the form of initial margin, default fund contributions and CCP's dedicated capital, referred to as the skin-in-the-game) and assessment powers (or recovery tools), which are not pre-funded. The combined value of these resources defines the value of losses that a CCP could absorb without entering into insolvency.

The main principle in the loss absorption mechanism is that the loss is shared among the parties whose decisions contributed to the loss. For the non-default-related losses, the financial responsibility of a CCP is widely recognised while the involvement of clearing participants is foreseen for certain non-default events only.³ The loss absorption mechanism differs, depending on the type of the non-default event, however in general, it consists of less layers of protection than in the case of a default event.

The loss absorption mechanism used in the default event is called a default waterfall. It consists of several layers of protection and their stylised representation is shown in Figure 2. In an event of a clearing participant's default, a CCP faces potential losses until the time it achieves a matched book again. It tries to stabilise the situation first, by either auctioning the defaulted clearing member's portfolio or by liquidating it. Losses, which result from the hedging and liquidation process, are then covered by the different layers of the default waterfall.

The default waterfall refers to a sequence in which a CCP applies different resources to cover

Figure 2 Stylised default waterfall



Source: Author.

default losses. It is broadly accepted to apply first the "defaulter-pays" approach, followed by the loss mutualisation among remaining clearing participants (or the "survivor-pays" approach). The initial margin and the default fund contribution of the defaulted clearing member represent the first line of defence. Once these resources are depleted, the CCP could use default fund contributions of remaining clearing participants alongside (or after) the dedicated CCP capital. In a case where the pre-funded resources are not sufficient, the CCP enters into a recovery process.⁴

With their involvement in the loss absorption mechanism, all stakeholders are concerned about the risk that their resources could be used to cover losses arising at the CCP. As such, they are motivated to pursue prudent risk management and to monitor other stakeholders. Incentives depend to a great extent on the relative size and position of a particular party's contribution and the value of resources that precede it.

Clearing participants contribute to the default waterfall throughout several layers. The defaulter-pays component provides incentives for a clearing participant to manage the risks it brings to the CCP, addressing thus the free-rider problem and information asymmetry. It also reduces incentives for a strategic default (Reserve Bank of Australia 2009). The survivor-pays component involves a risk that the contributions of surviving clearing participants could be used to absorb losses arising from the default of another clearing participant. Clearing participants are therefore motivated to monitor the broader risk management framework of the CCP and to proactively support CCP's default management process (e.g. auctions), to ensure that losses imposed on them are reduced to the minimum. This incentive seems to be strong in particular for CCPs that clear OTC derivatives (Carter and Garner 2015). In the recovery and resolution, where clearing members play an important role, incentives for their active involvement are expected to work along the similar patterns.

² Regulation (EU) 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories.

³ According to CPMI-IOSCO, general business losses are the responsibility of a CCP, while losses related to custody and investment risks could be shared between the CCP and clearing participants (CPMI-IOSCO 2014). For further details on the loss allocation mechanism for non-default losses, see e.g. Lewis and McPartland (2017).

⁴ The recovery process is triggered with the use of assessment powers, while the previous period is often referred to as resilience. It is impossible to decide upfront on the boundary between the recovery and resolution.



5 For example, ASX Clear (Australia) does not collect participants contributions and Options Clearing Corporation (USA) does not include any CCP capital into the waterfall (Carter & Garner 2015).

6 For example, with an exception of a single CCP, the ratio of own resources to default funds is below 10% for all authorised CCPs in the EU (Alfranseder et al 2018).

Similar to clearing participants, CCPs are motivated to minimise the risk that their own resources will be used. It is therefore in their interest to manage risks prudently, e.g. by setting adequate margin requirements and membership conditions (Box 1).

There is no single optimal default waterfall structure. Some CCPs apply additional layers, while others depart from the typical default waterfall structure.⁵ Regardless of the default waterfall structure, the incentives of different stakeholders need to be balanced, in order to ensure appropriate and prudent risk management outcomes. It is also crucial that the new resolution framework for CCPs does not inappropriately change the incentives of different stakeholders.

RESOLUTION FRAMEWORKS FOR BANKS AND CCPs

The EU proposal on recovery and resolution (RR) for CCPs builds on the bank RR framework. As

such, the two regimes are identical in terms of main objectives and principles. They both aim to safeguard financial stability, ensure the continuity of critical functions and protect taxpayers in the event of the distress or failure of an institution, in particular in situation where insolvency proceedings would not result in an optimal outcome. Both frameworks provide a set of recovery measures (which aim at reducing the probability of a failure of an institution) and resolution measures (which have for the objective to reduce the impact of a failure of an institution). There is a large degree of commonality in the RR approaches for banks and CCPs, however there are also some important differences, given the different risk profiles as well as different financial and market structures.

Contrary to the bank resolution framework, the EU proposal for CCPs provides for a non-exhaustive list of CCP resolution tools. It explicitly mentions several tools proposed by the FSB Guidance (FSB 2017), however the CCP resolution authority

Box 1

CCP's skin-in-the-game

The proposal on CCP resolution has revived a discussion on the role of CCP's dedicated resources in the default waterfall. There are no international requirements on the use of CCP's own resources in the default waterfall. In the EU, however, the size as well as the position of the CCP's skin-in-the-game is regulated in EMIR. This box outlines the main elements of this long-standing debate.

First, under the current regulatory framework, only a slice of CCP's equity, namely the skin-in-the-game, is at risk in default. No rule obliges shareholders to contribute to the loss absorption mechanism beyond the amount of the statutory skin-in-the-game. This means that CCP owners have only limited liability, although they are primarily responsible for the governance and risk models of a CCP. In order to optimally set the incentives of the CCP owners, it is often requested that the skin-in-the-game constitutes a material portion of CCP's own capital and that the whole CCP's equity is put at risk. The CCP resolution framework addresses the latter requirement, by introducing the bail-in tool, however its practical application requires further testing.

Furthermore, the CCP's skin-in-the-game constitutes only a small part of prefunded resources.⁶ On one hand, the CCP does not have exposures in the markets it clears, it does not bring risk to the CCP and its book becomes unbalanced only in a case of a clearing participant's default. On the other hand, it is the CCP which has ultimate control over CCP's risk management framework and should bear the costs if its risk model fails. This provides a legitimate request that the layer of loss-absorbing capital of the CCP is enhanced.

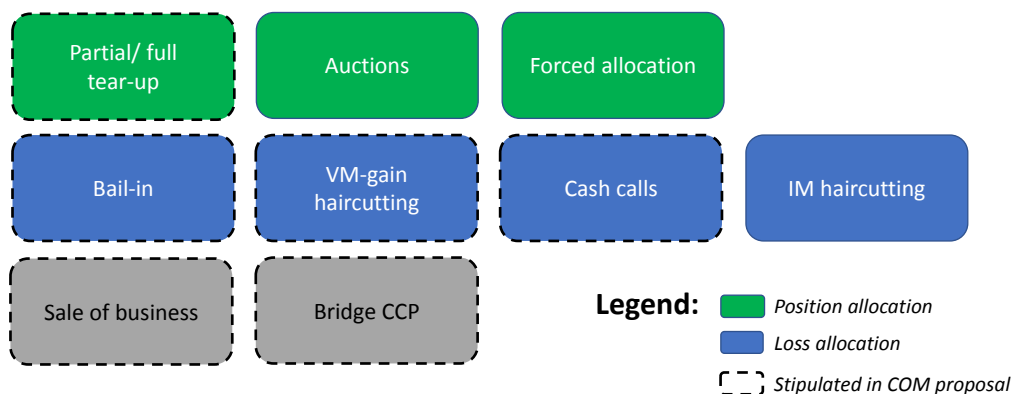
Several proposals have been put forward, for example to calculate the CCP resources relative to the size of total default waterfall or to the level of the CCP's clearing activity, in order to ensure that the incentives are somewhat proportionate to the quantitative dimension of the risks the CCP manages (ESRB 2017a).

Another issue is the position of the CCP's skin-in-the-game in the default waterfall. EMIR requires that CCP's dedicated resources are drawn before the default fund contributions of non-defaulting clearing participants; however, this principle is not internationally recognised. Several models exist. For example, some CCPs introduced additional tranches of CCP dedicated resources while other CCPs do not have any skin-in-the-game in their waterfall structures. It has been argued in the literature that if the CCP's skin-in-the-game is positioned directly after the prefunded resources of a defaulted clearing member, this provides for maximum incentives for a CCP to manage its risk conservatively (Carter and Garner 2015).

CCPs do not contribute proportionately to the default management and the costs of their failure are shifted to clearing participants. CCPs should be encouraged to add further sources into default waterfall. For example, Sing and Turing (2018) advocate that CCPs could widen their sources of capital, build reserves and consider default insurance or catastrophe bond issuance. The EU proposal on CCP RR framework foresees some new powers to the resolution authorities in the EU, which go in this direction, e.g. to set aside additional resources should the available resolution funding deem insufficient.



Figure 3 Resolution tools



Source. Author based on FSB (2017).

is entitled to use any other tool, which is consistent with the objectives of CCP resolution. The non-exhaustive list provides for flexibility to deal with any unforeseen circumstances.⁷ At the same time, it could be a source of legal hazard (ESRB 2017b).

Another specificity of the CCP RR framework is the close interdependencies between the recovery and resolution phases and an overlap between recovery and resolution tools. For example, a CCP resolution authority is required to enforce outstanding contractual obligations before using any resolution tool. Moreover, if it deviates from the CCP's operating rules, clearing participants who ended up being worse-off are entitled for a compensation.⁸ Since it is impossible to delineate fully the boundaries between the two processes, some authors regard the resolution as a second round of recovery (Singh and Turing 2018). Moreover, there could be a little appetite to support such a process, e.g. via further cash injections, if the recovery process failed. Given the central role of the recovery in the resolution process, the recovery process should be subject to more scrutiny, e.g. in order to ensure that it provides the right incentives for all stakeholders and that it does not limit a successful resolution.

The success of the CCP resolution process depends to a large extent on the willingness and capacity of CCP's clearing participants to fund the resolution process, rather than shareholders and equity owners of a CCP. The loss sharing mechanism may be a source of contagion for surviving clearing participants. The potential failure of further clearing participants, e.g. due to sudden exposures they are unable to manage, could further exacerbate financial stability, in particular given the interconnectedness of CCPs. In order to avoid further defaults in the resolution process, it is important to ensure that clearing participants could measure and manage their potential exposures.⁹ It follows that before applying any of the resolution tools, a careful consideration of its impact on financial stability is crucial, e.g. in terms of potential contagion, misalignment of incentives or uncertainty of participants obligations. At

the same time, the request for predictability is at odds with the requirement of sufficient flexibility of the resolution authority's actions, which we discussed above.

The global nature of CCPs requires an involvement of a wider scope of authorities in the CCP resolution than in the case of the bank resolution. Given the significant externalities, the cooperation across jurisdictions as well as across different sectors of the financial system is important. A default of a CCP could affect several banking groups, while a default of a clearing participant could affect several CCPs at once, given a common set of banking groups acting as major clearing members and service providers to several CCPs (Fedor et al 2017). It follows that a coordinated action of supervisors and resolution authorities for CCPs and for banks across the EU is crucial. The current institutional framework for CCPs is based on a supervision at the national level, however a proposal for an increased EU action, similar to the banking union, has been already put forward (see Orszaghova 2018, Box 2).

CCP RESOLUTION TOOLS

An overview of resolution tools, as proposed by the FSB Guidelines (FSB 2017), is provided in Figure 3. There are a few tools, which are also common to the bank resolution framework, namely bridge institution tool, sale-of-business tool and the bail-in tool. The use of bail-in tool is rather limited in the case of CCPs. CCPs are not leveraged entities and do not hold risk-bearing debt, unlike banks.

CCP-specific resolution tools could be divided into loss allocation and position allocation tools; however, they are often applied together. In the case of a default, a CCP applies first position allocation tools in order to re-establish a balanced book. As a second step, it allocates losses via different distribution mechanisms.

With the exception of forced allocations, all position allocation resolution tools are also available to the CCP in the recovery. The tear-up tool allows the resolution authority to terminate existing contracts of a clearing member in default,

⁷ Moreover, it allows the CCP resolution authorities to use tools contained in the CCP rulebook.

⁸ Recovery plans play a key role in determining the non-creditor-worse-off in resolution insolvency counterfactual.

⁹ Clearing participants play a critical role already during the recovery process. Given the financial stability implications of some of the instruments, the use of tools with significant and unpredictable costs for clearing members should be avoided in the recovery phase. For example, the initial margin haircutting is explicitly prohibited in the EU proposal during the recovery process.





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Box 2

CCP failures and near misses in the past

Failures of CCPs have been historically extremely rare. Literature refers to three cases of CCP failures and two examples of near failures, with often similar reasons behind their failures (Gregory 2014 and IMF 2010):

- Caisse de Liquidation (France, 1974): This French CCP was active on the Paris white sugar market. Its failure was caused by a high concentration of its clearing members and that the CCP did not increase margin requirements in response to greater market volatility. The problem was further aggravated by non-transparent prices and methods for allocating losses among clearing participants.
- Kuala Lumpur Commodity Clearing House (Malaysia, 1983): The CCP was closed after six clearing members defaulted following a crash in palm oil futures prices. The slow changes to

margin requirements in response to greater market volatility as well as a failure in coordination with the exchange have been considered as primary reasons for the failure.

- Hong Kong Future Exchanges (Hong Kong 1987): The CCP had to close for four days before it was bailed out by the government. The main problems were the lack of response of margins to the rising volatility, high concentration of brokers as well as the fact that the brokers were not collecting margins from their customers.
- Chicago Mercantile Exchange and Options Clearing Corporation (both USA, 1987): Both CCPs experienced severe difficulties in receiving margins on time. As a result, they both introduced a policy of automated payments from clearing members.

affected clearing service or asset class (partial tear-up) or of all contracts of a CCP in resolution (full tear-up). Since the continuity of CCP's critical functions is one of the resolution objectives, partial tear-up should in principle have priority over full tear-up. Auctions represent a way of allocating unmatched positions in a voluntary manner, while forced allocation could be used by the resolution authority if an auction has failed. Moreover, the fear of their application could also serve as an incentive for clearing participants to participate actively in voluntary auctions.

From the loss allocation resolution tools, cash calls and variation margins gain haircuts are also applied by CCPs in the recovery process. With cash calls, the non-defaulting clearing members are required to make a contribution in cash to the CCP up to a certain amount. A dedicated resolution cash call is envisaged in the resolution phase, limited up to an amount equivalent to clearing member's contribution to the default fund. Under variation margin gains haircutting, the resolution authority imposes a haircut on variation margin gains, payable by the CCP to non-defaulting clearing members. The advantage is that losses fall to those best able to control their loss allocation by flattening their trade positions, however this process could be considered as unfair for the in-the-money end-users.

Initial margin haircutting is defined as a last resort tool in the FSB Guidance (2017). The EU proposal prohibits its use in the recovery phase, however the legislative text remains silent on its use in the resolution process. This tool applies a haircut on the initial margin, a large pool of pre-funded resources immediately available at the CCP. Contrary to variation margin gains haircutting, these sources are predictable and could be attributed in a transparent manner. However, the tool is also

associated with some drawbacks, such as procyclicality. Moreover, it would leave a CCP under-protected during a certain period, until the initial margin is replenished. In case further defaults occur, the remaining initial margin might not be sufficient to cover the losses (ESRB 2017b).

The resolution authority will have a variety of tools at its disposal. However, the majority of them address the consequences (a loss), but not the source of the problem, which is a failure of the risk models of a CCP (Sing and Turning 2018). For example, if a loss related to a default of a clearing member is larger than the available pre-funded resources, the changes to the risk management framework of a CCP need to be addressed together with the replenishment of the financial loss.

CONCLUSION

The work on recovery and resolution for CCPs has not progressed at the same pace as that for banks, since the lessons learned from the financial crisis have not demonstrated an equally urgent need for an action. With the increased role of CCPs in the financial markets, however, the recovery and resolution framework for CCPs has become one of the priorities.

There have not been any recent experiences with a CCP failure (Box 2) and the existing analysis lacks the necessary evidence. A CCP failure is a remote scenario, and to a large extent a theoretical concept, however with significant implications for financial stability, if realised. A well-timed entry into the resolution is key for ensuring an effective process and avoiding any unnecessary destruction of economic value and contagion. Moreover, a resolution of a CCP requires an immediate action and a close cooperation of a large number of authorities.