



A PATH FORWARD FOR CCP Resilience, Recovery, and Resolution

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The Principles for Financial Market Infrastructures (PFMIs) that were agreed upon by global standards-setting bodies in 2012 and supplemented by additional guidance in the following years established the foundation for central counterparty (CCP) risk management standards.¹ These principles have largely been incorporated into statutory and/or regulatory regimes in key jurisdictions, providing meaningful frameworks to enhance CCP safety and soundness, particularly in light of CCPs' increased systemic importance post derivative market reforms.

Throughout this process, clearing participants have provided diverse perspectives and detailed feedback to CCPs and regulators through individual firm and industry association position papers, targeted comment letters, and participation in regulatory and industry-sponsored forums on a global scale. While CCPs and the regulatory community have taken significant steps to address the feedback received, there remain outstanding issues that require additional attention. Last year's major default by a member of Nasdaq Clearing AB notably raised again broader concerns related to CCP governance as well as risk and default management standards and practices.²

This paper brings together perspectives from clearing members and end users, identifies issues that regulators and CCPs should consider, and makes recommendations to address these outstanding issues. The purpose of these recommendations is to

enhance financial stability by protecting the safety and soundness of CCPs through enhanced risk management standards and aligning incentives through requirements for meaningful CCP own capital for covering both default and non-default losses and recapitalization resources. It is important to remember that most CCPs have for-profit ownership structures that do not in and of themselves provide the incentives necessary to proceed down this path unassisted; hence, regulatory action on this front is needed.

These recommendations are intended to ensure that clearing members' and end users' exposures and liabilities to the CCP are limited, ascertainable and manageable. To this end, globally consistent, clear and transparent rules to resolve the unaddressed issues will provide greater certainty for market participants, particularly in times of stress.

We organize our recommendations under three broad categories: resilience, recovery, and resolution. While some of the recommendations have been central to the ongoing public dialogue, we provide new ideas for consideration, including enhanced member governance via the introduction of a clearing member voting mechanism to support CCP recovery, and the prepositioning of financial resources for resolution. One potential option we raise is to require CCPs or their holding companies to issue long-term debt that could be bailed in for recapitalization.

1. The PFMIs are available [here](#). For the related guidance, see [Recovery of Financial Market Infrastructures](#), [Resilience of Central Counterparties \(CCPs\): Further Guidance on the PFMIs](#), [Guidance on Central Counterparty Resolution and Resolution Planning](#), and [Financial Resources to Support CCP Resolution and Treatment of CCP Equity in Resolution](#).

2. We acknowledge Nasdaq's remediation efforts to address gaps within its risk framework that were identified through a full, independent review undertaken immediately after the member default.

Below we summarize our recommendations. That summary is followed by a schematic of a proposed CCP default waterfall (Figure 1) and a more detailed discussion. We start with resilience to emphasize the importance of reducing the likelihood of ever needing to enter a recovery or a resolution process.

To improve **resilience**,³ we recommend:

- Incorporating liquidity and concentration factors into initial margin (IM) calculations and applying appropriate margin periods of risk that factor in time needed to liquidate portfolios.
- Sizing the default fund (DF) to a minimum “Cover 2” standard, using extreme but plausible scenarios.
- Increasing CCP contributions to the default waterfall to meaningful levels of “skin in the game” (SITG), which is particularly critical with respect to for-profit institutions.
- Requiring effective and credible default management processes (DMP).
- Limiting clearing to liquid products with adequate market capacity to absorb defaulters’ portfolios in times of stress.
- Enhancing governance practices to obtain and address input from a broader array of market participants on relevant risk issues.
- Publishing meaningful, standardized and audited disclosures on CCP risk methodologies, back testing and stress testing to all relevant stakeholders.
- Applying rigorous governance and clear limits to emergency powers.
- Requiring CCPs to be responsible for non-default losses (NDLs), supported by appropriately sized regulatory capital requirements.

To facilitate **recovery**, we recommend including in CCP default waterfalls:

- Pre-defined assessment rights capped at one times each clearing member’s DF contribution (1xDFC).
- A second tranche of pre-funded CCP resources after clearing member assessments.
- Provisions to allow for additional (voluntary) CCP capital infusions.
- A clearing member ballot to determine if sufficient market support is available to allow the CCP to call for an additional assessment capped at 1xDFC in return for compensation (additional to the initial 1xDFC assessment).
- Limited use of variation margin gains haircutting (VMGH) and/or partial tear-ups (PTUs) as additional recovery measures, upon review and approval by resolution or systemic risk authorities, to take systemic implications into account.
- Residual CCP capital that is available as a last resort to absorb outstanding losses.
- Compensation to be provided to clearing members and end users for losses incurred through post-ballot assessments, VMGH or PTUs, whether during recovery or resolution.

To enhance **resolution**, we recommend that resolution authorities:

- Require CCPs to set aside ex ante resources (e.g., issuance of long-term debt that could be bailed in) for recapitalization.
- Conduct regular reviews of CCP rulebooks in conjunction with CCPs’ primary regulators and systemic risk regulators to ensure a common understanding of CCP risk and default management, governance, policies and key procedures.
- Form cross-border crisis management groups to develop and test resolution playbooks.
- Work with CCPs to develop clear and credible resolution plans and provide sufficient transparency on these plans to the market.

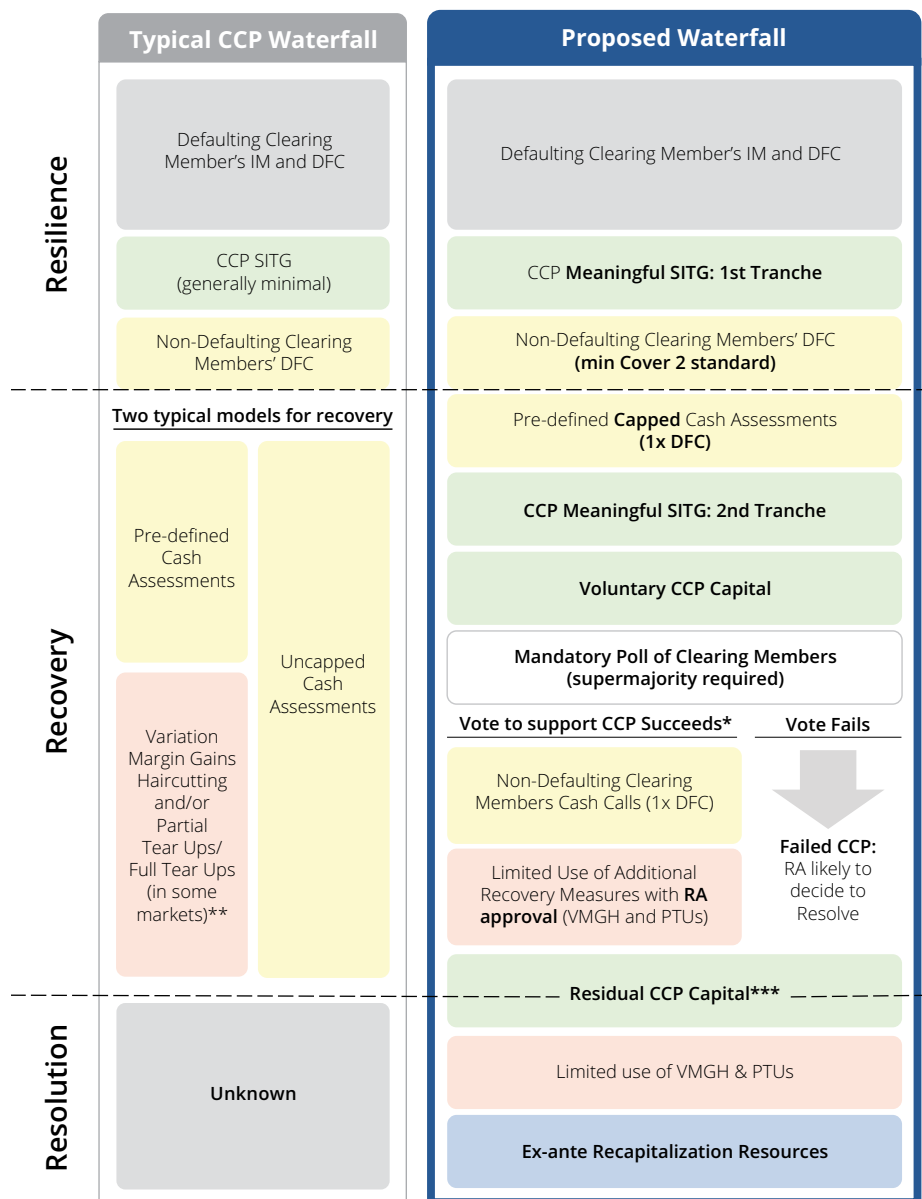
3. We acknowledge that other important elements of CCP resilience are not directly addressed in this paper. These include, but are not limited to, membership criteria and surveillance, collateral eligibility, investment standards and liquidity risk management. We selected a subset of topics for which we believe regulatory attention is particularly warranted at this time.

Figure 1: Recommended CCP Default Waterfall

This visual representation of a default waterfall incorporates the relevant points in this discussion paper.

The following elements are key additions to a typical CCP waterfall:

1. Meaningful, multiple tranches of CCP SITG to better align interests (particularly important for for-profit CCPs) and allow residual capital to be utilized as a last resort.
2. A ballot mechanism to facilitate additional support from clearing members for a failing CCP, over and above DF contributions and 1xDFC committed assessments, in exchange for compensation.
3. Limited broad loss allocation to market participants subject to resolution authority or systemic risk regulator's approval, with appropriate compensation arrangements for such losses.
4. A provision for ex ante resources (e.g., through issuance of long-term debt that could be bailed in) which could be used for recapitalization of the resolved CCP.



- Defaulter's resources
- CCP resources
- Non-defaulting CM resources
- CM and end-user resources
- CCP debt that can be bailed-in (as example)
- DFC: Default fund contribution
- IM: Initial margin
- PTU: Partial tear-up
- RA: Resolution authority
- SITG: Skin in the game
- VMGH: Variation margin gains haircutting

* Losses borne by CMs and end-users after this point are subject to compensation claims.
 ** Under current structures, losses borne by CMs and end-users are NOT subject to compensation claims.
 *** Residual CCP capital could be used as a last resort in recovery to absorb outstanding losses; however, we would expect the RA to step in before the residual CCP capital is exhausted.

The following sections provide further detail on our specific recommendations related to CCP resilience, recovery and resolution.

CCP RESILIENCE

Although regulators have made progress in enhancing a minimum level of CCPs' prefunded resources and setting risk management standards, several gaps in CCP resilience remain. Our recommendations to address these gaps follow.

Robust and stable initial margin

Regulators should ensure that CCPs size IM requirements conservatively to cover, with a high degree of confidence, any potential loss that a CCP could incur in liquidating an individual portfolio. To do this, a CCP must incorporate into its IM methodology an appropriate margin period of risk that accurately factors in the time needed to liquidate the relevant portfolio based on product market depth and complexity, independent of whether the product is listed on an exchange or traded over the counter. IM should include buffers to account for concentration risk embedded within large portfolios, and CCPs need to provide clearing members with sufficient information on the drivers to these buffers. CCPs should size IM requirements in a way that limits the pro-cyclical effects of increasing margin in stressful conditions. While much regulatory guidance exists on IM standards through the PFMI and at an individual jurisdictional level, implementation and compliance with these standards should be enhanced.

Conservative default fund sizing and coverage model

Extreme market stress events are likely to affect multiple clearing members. Therefore, to cover potential default risks effectively, a CCP should size its DF to cover, at a minimum the uncollateralized credit losses that would arise if the CCP's largest two clearing member groups were to default, either concurrently or in short succession, using extreme but plausible historical, hypothetical (i.e., what-if scenarios) and theoretical (i.e., statistical scenarios) simulations.⁴ Each individual CCP should also consider whether a Cover 2 standard is sufficient to account for the unique risk distribution of its particular membership.

Material CCP skin in the game

Prefunded CCP capital, also known as CCP skin in the game (SITG) within the default waterfall is the principal mechanism to align a CCP's incentives and ensure effective risk management related to the CCP's clearing activities. We remain concerned that most for-profit CCPs still lack sufficient amounts of SITG to effectively achieve this alignment.

To address this, regulators should require for-profit CCPs in particular to maintain a material amount of SITG (e.g., a meaningful proportion of the DF, such as 20%) and place it in two equally sized tranches in the waterfall: (1) a junior tranche before the CCP applies any non-defaulting member's DF contribution and (2) a senior tranche after the DF is depleted and the CCP has assessed each non-defaulting clearing member in an amount equal to its most recent DF contribution. Placing SITG in two tranches in the waterfall provides incentives for a CCP to maintain robust IM calibration (so as to protect the junior tranche) and a conservative DF (to protect the senior tranche). In turn, the robust IM models and conservative DF sizing ensures that clearing members are incentivized to maintain their own appropriate risk management standards.⁵

Sizing the SITG relative to the DF aligns the CCP's exposure to the level of risk that the CCP is responsible for managing. The size of a CCP's DF should be a good proxy for the riskiness of a CCP's clearing activities because the DF is sized as the amount of uncollateralized stress loss that a CCP determines it would incur in an extreme but plausible scenario, assuming a specified number of defaults. Sizing the SITG as a percentage of the CCP's minimum regulatory capital, on the other hand, does not effectively align CCP incentives with risks because jurisdictions that currently set minimum CCP capital requirements do not calibrate them in a way that reflects a CCP's responsibility for managing default risks.

4. Although some CCPs size DF resources to meet this Cover 2 standard, many do not, and a number of jurisdictions do not require Cover 2.

5. Assuming that the CCP recovers, the CCP and non-defaulting members would be expected to replenish their respective SITG and DF contributions at the end of a reasonable period covering sequential defaults.

More broadly, although CCP regulatory capital definitions exist in some jurisdictions, they generally do not result in a meaningful amount of capital. Therefore, we urge the global regulatory community to work together to develop a meaningful capital framework that addresses all aspects of both default and non-default losses to be borne by CCPs. (See the Resilience “Non-default losses” section below)

Effective and credible default management process

The viability of a CCP depends primarily on its ability to manage clearing member defaults effectively by successfully transferring a defaulter’s portfolio to a solvent clearing member or another participant. Accordingly, each CCP should have a robust, transparent and credible DMP, which should be overseen by expert traders and risk managers. While CCPs need flexibility within their rules on how to approach a case-by-case market situation to achieve an optimal outcome for the overall market, this must be combined with strong governance, including a representation from clearing members whose default fund is at risk and end users who could be negatively impacted in a severe tail scenario. We support the work that both [CPMI-IOSCO](#) and [ISDA](#) have undertaken on this important topic.

Separately but importantly, the successful porting of customer positions and collateral to other clearing members following a clearing member default is the least disruptive way to stem losses arising from such positions and provide continuity to customers. However, various challenges to porting — including the need for a customer to satisfy the receiving clearing member’s legal and regulatory requirements and market, financial, operational and capital constraints faced by clearing members⁶ — threaten to delay or entirely thwart the ability of a CCP to transfer customer positions quickly. Regulators should work with CCPs and market participants to identify and remove these impediments.⁷

Product suitability

A likely cause of an unsuccessful DMP is the failure to liquidate a defaulter’s portfolio on an exchange or through an auction when its risk exceeds the market’s capacity to absorb it. A CCP should therefore clear only products whose markets it determines, based on daily observable prices and daily traded volume/capacity, to be liquid enough to reliably absorb the risk of its largest participants, particularly in times of stress. In addition, each CCP should regularly assess market dynamics for each product it clears and increase IM requirements incrementally for products with deteriorating liquidity.

Strong CCP governance

Regulators should require CCPs to adopt governance arrangements that ensure that the CCP’s board of directors⁸ makes decisions that balance the CCP’s role as a provider of critical market infrastructure with its obligation to earn returns for shareholders.

In particular, governance arrangements need to capture input from both clearing members and end users. There should be a clearly defined process that requires CCPs to obtain and address clearing member and end user feedback and for such feedback to be disclosed to regulators. Such consultation should be separate from risk committees (which can include employees from both clearing members and end users) because those committees’ members generally have duties that preclude them from representing their employers. Through this separation, all market participants can freely represent the views of their firms and other similarly situated market participants. In addition, CCPs should be required to obtain explicit approval from clearing members before making any rule or methodology changes or introducing novel or complex products that materially affect the risk profile of the CCP.

6. Prudential rules such as the leverage ratio, the global systemically important bank surcharge (G-SIB surcharge) and standardized approach to counterparty credit risk (SA-CCR) have become key [constraints in clearing members’ capacity](#) to provide client clearing services and have led to a well-documented increase in the [concentration of client clearing service providers](#) that could potentially affect successful porting of clients’ positions.

7. Some of the impediments to porting are discussed in this [report](#) produced by the CCP Risk Management Subcommittee of the CFTC’s Market Risk Advisory Committee in 2016.

8. CCP management may make decisions to the extent that powers are delegated by the board in line with recommendations included within Resilience of Central Counterparties (CCPs): Further Guidance on the PFMLs.

Also, given the impact that the CCPs' rules may have on the financial system and broader economy, any rule or procedure that may increase systemic risk (such as loss allocation provisions and wind-down rules) should be subject to pre-approval by the resolution authority and/or systemic risk regulator in addition to the CCP's primary regulator.

Disclosure and transparency

The PFMI and subsequent published guidance set out quantitative and qualitative disclosures standards for CCPs.⁹ These releases acknowledged that, to permit robust diligence on CCPs, CCPs would need to supplement these standards. Unfortunately, several CCPs have not adequately done so, and the published guidance has not been implemented in many jurisdictions. Existing CCP disclosures thus continue to be limited by a lack of detail and are often inconsistent across CCPs. In addition, in some cases there is a lack of specific formal mechanisms in place to hold CCPs accountable for the timeliness and accuracy of their disclosures.

To fill this gap, regulators should require CCPs to provide enhanced public disclosures with supporting details (including explanatory text) to both clearing members and end users regarding CCP risk methodologies, back testing, stress testing, and clearing member and end-user loss allocation.¹⁰ In addition, regulators should mandate greater standardization of disclosures across CCPs and implement audit requirements to ensure that disclosures are accurate, clear and consistent.

Limitations on emergency powers

Many CCP rulebooks provide the CCP with broad and vaguely defined emergency powers. These open-ended provisions create uncertainty for clearing participants about their potential exposures. To limit uncertainty in the event of a member default, CCP rulebooks should make clear that the CCP will apply a well-defined DMP (as described above under "Effective and credible DMP"),

rather than utilize emergency powers. Emergency powers should be reserved for extreme circumstances, such as the inability of a CCP to function under its established rules due to force majeure events, and their use should be subject to rigorous governance arrangements, such as those discussed above, and consultation with the CCP's primary regulator. Any exercise of these powers must be in the public interest, promote prompt and safe clearance and settlement of trades in a prudent manner and seek to avoid any loss allocation to participants.

Non-default losses

A clearing member default is not the only source of risk faced by a CCP and its members and users. CCPs are responsible for managing substantial amounts of collateral on a daily basis and are consequently vulnerable to cyber-threats and attacks that could lead to significant monetary loss that may not be recoverable. CCPs could also incur losses resulting from operational failures, fraud, theft or malicious acts of employees or external actors, credit deterioration of investments and custodian or settlement bank failure.

It is generally not appropriate for clearing members or end-users to bear these NDIs since they are not responsible for the choices that led to them. Therefore, CCP rulebooks should make clear that CCPs bear responsibility for NDIs.¹¹ Regulators should also require CCPs to manage, monitor and hold sufficient capital against NDIs to ensure that such losses do not disrupt the CCP's ability to perform its obligations. We believe current capital requirements are insufficient in this regard as noted above in "Material CCP skin in the game".

9. These other releases are [Public Quantitative Disclosure Standards for Central Counterparties](#) and [Principles for Financial Market Infrastructures: Disclosure Framework and Assessment Methodology](#). These releases require CCPs to provide, among other information, quantitative data regarding the sizing of the CCP's IM and DF requirements and descriptions about how the CCP addresses each of the PFMI's.

10. Examples of enhanced disclosures include aggregate CCP level and anonymized member-level back testing, excluding concentration and liquidity add-ons; back-testing results for individual products (as opposed to overall portfolios) so as to identify potentially under-margined products; the distribution of uncollateralized stress loss on an anonymous basis and explanatory text that addresses material data moves and/or inconsistencies, such as timing mismatches between data points.

11. We acknowledge that there may be specific scenarios related to custodial and settlement bank risk in which CCPs disclaim responsibility for potential losses within their rules. In these instances, we would expect that the enforceability of these rules would remain subject to a standard of care in the CCP managing such risk.

CCP RECOVERY

CCPs currently retain broad ability to further allocate losses to clearing members and end users once pre-funded resources are exhausted. To ensure that recovery measures are sufficient to restore the CCP to viability, without causing losses to spill over to the broader economy, we propose the following recommendations.

Pre-defined capped cash assessments

If a CCP's DF is insufficient to cover losses, most CCPs have the ability under their rules to assess clearing members for additional resources. In these cases, CCPs should not be permitted under local regulatory regimes to make unlimited assessments on members, for either a single default or across multiple defaults, without allowing clearing members the opportunity to withdraw from the CCP and cap their liability. A CCP should only be permitted to assess over a reasonable period, covering sequential defaults, an amount of cash from each clearing member that is no greater than the clearing member's DF contribution (1xDFC) immediately before the default. This would limit the pro-cyclical effect of assessments, enabling members to measure and manage their exposures and reduce the likelihood that the assessments lead to systemic risk or a liquidity crunch.

Voluntary CCP contribution

If the pre-defined 1xDFC capped assessment and the second tranche of SITG (described above in Resilience "Material Skin in the game") are still insufficient to cover losses arising from a default, then the CCP will require additional resources to remain viable. To address this possibility, a CCP's shareholders should be able to contribute additional resources to cover remaining losses and support the CCP. Such voluntary contribution should help mitigate the risk of a resolution event and instill market confidence in the CCP.

Mandatory poll of clearing members

For a CCP-led recovery to continue past the initial mandatory contributions (DF plus 1xDFC assessment) from clearing members, plus contractual and voluntary CCP resource contributions, we believe a CCP should be required to conduct a poll of clearing members to determine if they are willing to put additional resources into the CCP (beyond what is defined in the rulebook). To enable members to make an informed decision about supporting additional recovery measures, as part of this poll, the CCP should provide clearing members with clear and detailed information about the particular risk issues causing the CCP's default management challenges and the resources that are required to address them. In a time of stress, the CCP would need to provide this information on an expedited basis to complete the poll quickly.

Given that this support from clearing members would be over and above the funded DF plus 1xDFC assessment, it is important to ensure that there is broad support for the CCP. As such, a super-majority (e.g., measured as a certain percentage of the DF contributions) should be required to vote for continued support before a CCP can require clearing members to contribute additional resources. A clearing member's voting share in this poll should be proportional to its DF contribution because that contribution will be the upper bound on any further cash the clearing member provides, as noted below.

If a super-majority agrees to support the CCP, the CCP should be permitted to assess from each clearing member a further amount of cash up to 1xDFC. Members would be incentivized to support the CCP by receiving compensation in exchange for the additional assessment (described below in Recovery, "Loss compensation"). We acknowledge that losses that lead to this mandatory poll of clearing members are likely to be situation specific. As such, in addition to compensation, certain conditions, such as those related to CCP governance and/or management changes, might be attached to clearing members' decision to further support the CCP in its recovery efforts.

Limited use of additional recovery measures with resolution or systemic risk authority approval

Even if a super-majority of clearing members votes to continue supporting the CCP, an additional cash assessment may not be sufficient to cover the CCP's losses and restore its matched book. If there are no additional voluntary sources of capital available in such circumstances, it may be necessary for the CCP to employ partial tear-ups¹² and/or variation margin gains haircutting.¹³

These measures, however, could subject clearing members and end users to undesirable market or liquidity risk. Therefore, any use of PTUs must be aimed solely at the limited number of transactions that are too illiquid to close, such as when there is no price the market is willing to bear. VMGH must similarly be limited in amount and time (e.g., no more than a day).

In addition, due to the broader impact of PTUs and VMGH on the financial system and broader economy, the relevant systemic risk regulator and/or resolution authority should be required to review and approve any use of PTUs or VMGH. That review should include a careful analysis of whether the use of PTUs or VMGH would restore the CCP to viability and be in the public interest, taking into account whether such use would exacerbate systemic risk and is as narrowly tailored as possible. Only if the systemic risk regulator and/or resolution authority determines that the use of PTU or VMGH meets these criteria should the CCP be permitted to apply the measure. Otherwise, we would expect the resolution authority to take the CCP into resolution, assuming there is no immediate private sector solution.

Loss compensation

If, after the clearing member poll described above, a CCP (or the resolution authority if the CCP is placed in resolution) allocates losses to clearing members and/or end-users through the additional round of cash assessments, VMGH or PTUs, the CCP (or the resolution authority) should provide appropriate compensation through predefined instruments. Such instruments should be equity-like to ensure that they would not render the CCP insolvent during the recovery process and should place the claims of participants who contributed to the recovery of the CCP ahead of the claims of CCP shareholders.¹⁴

Residual CCP capital

If the foregoing measures are not enough to restore the CCP to viability, the CCP's residual capital (funds that are held to support the CCP's day-to-day operations, outside the default waterfall) could be applied in recovery as a last resort to absorb outstanding losses. However, a CCP would need to replenish this capital immediately to meet minimum regulatory capital requirements and to continue to operate outside of resolution. We would expect the resolution authority to step in before this remaining capital is exhausted.

12. In PTU, the CCP would tear up a subset of the defaulter's portfolio of contracts to restore the CCP to a matched book, affecting beneficial owners holding equal and opposite positions of the defaulter. Although we believe that limited use of PTUs may be necessary in certain circumstances, CCPs should not be permitted to forcibly allocate positions to non-defaulting clearing participants as they may not have the risk appetite or ability to risk-manage such positions.

13. In VMGH, the CCP would reduce pro rata the amount it is due to pay participants with in-the-money positions, while continuing to collect money owed from those participants with out-of-the-money positions. We note that VMGH is not appropriate for securities transactions such as repos where haircutting the mark-to-market on securities collateral could reduce market liquidity in certain bonds. Additionally, initial margin haircutting (IMH), or allowing the CCP to use a portion of the cash margin of non-defaulting participants as a mutualized resource to cover CCP losses, should be prohibited for use in either recovery or resolution. IMH could lead to a broad-based run for the exit at the first sign of difficulty as well create ex ante liquidity constraints for CCPs as participants may prefer posting non-cash collateral to avoid the risk of IMH.

14. For further detail, see [FIA/IIF/ISDA Response to the FSB Discussion Paper "Financial resources to support CCP resolution and the treatment of CCP equity in resolution"](#).

CCP RESOLUTION

We would expect a CCP to be placed into resolution if either the clearing members vote against supporting the CCP, the resolution authority concludes that no private sector solution is possible to restore the CCP to viability and the CCP is not likely to return to viability within a reasonable time frame, or the clearing members vote to support the CCP but the recovery measures either threaten financial stability or are not effective. At a minimum, we would expect a CCP to enter resolution before the CCP's residual capital is exhausted. To prepare for the possibility of resolution, certain features are necessary to ensure the resolution authority can resolve the CCP in an orderly manner.

Ex-ante resources for recapitalization

In a resolution situation, the resolution authority would need to recapitalize the CCP or wind it down in an orderly manner. In either case, additional resources would be needed to continue operating the CCP.¹⁵ In many cases CCPs are owned and operated by independent, for-profit companies, and to align incentives appropriately and avoid spillover losses, regulators should not depend on clearing members, end users, or taxpayers to provide these resources. Instead, they should require CCPs to have these additional resources at the ready.

In particular, regulators should require CCPs, ex ante either as an independent requirement or as part of resolution planning, to ensure that sufficient resources are readily available in resolution for recapitalization. One option in the case of for-profit CCPs in particular would be for CCPs to issue long-term debt securities to unaffiliated institutional investors. A resolution authority would be able to "bail in" these securities and convert them to equity to ensure continuity of clearing, restore a CCP's access to resources and effect a change in control of the resolved CCP.

Rulebook reviews and cross-border coordination

To effect a resolution with minimal systemic disruption, resolution authorities should regularly review the CCP's rulebook in conjunction with the CCP's primary regulator and systemic risk regulator to ensure a common understanding and coordinated approach to a CCP's risk management, DMP, governance, policies and key procedures. Further, where a CCP's activity spans multiple jurisdictions, the resolution authorities, systemic risk regulators and the CCP's primary supervisors should work with corresponding foreign authorities to test playbooks and simulate resolution and default scenarios through crisis management groups.

Transparency of resolution plans

CCPs and resolution authorities should work together to develop clear, credible and transparent resolution plans. These plans should have sufficient transparency to ensure that clearing members, end users, and other financial market infrastructures can predictably manage their potential liability and exposures to the CCP. To be credible, a CCP's resolution plan must demonstrate how the CCP and its resolution authority will continue operations in resolution, either in the context of an orderly wind-down of the CCP or its recapitalization. In particular, resolution plans need to provide transparency regarding what resources, e.g., long term debt that could be bailed in as described above, will be used to facilitate a resolution and how those resources will be obtained. Resolution plans should ensure that CCP equity would not benefit at the expense of clearing members or end users, but rather would ultimately absorb losses.¹⁶

CCPs and regulators should develop and review resolution plans recognizing that an insolvency liquidation or bankruptcy reorganization is unlikely to be an appropriate approach for resolving systemically important CCPs. Each jurisdiction should develop the appropriate legal framework for resolution of these unique and critical market infrastructures.

15. In addition, if the clearing member ballot failed, a resolution authority could use PTU and/or VMGH. Any use of such measures should be narrowly tailored and subject to a public interest review as described above.

16. Existing owners' equity in the CCP should absorb losses in resolution in line with Key Attribute 5.1 in section 4 of [FSB Guidance on Central Counterparty Resolution and Resolution Planning, July 2017](#)

CONCLUSIONS

Together, these recommendations form a path forward to aligning incentives and enhancing financial stability through even stronger CCPs.¹⁷

Unlike most for-profit shareholders, most CCP owners bear only a small portion of the CCP's losses because the DF and recovery tools available to a CCP serve to externalize a large portion of a CCP's losses to clearing members and end users. As a result, for-profit CCP incentives have the potential to be materially misaligned. Although CCP shareholders take 100% of the returns a CCP earns from clearing revenues, they bear only a small portion of the losses the CCP incurs as a result of a default.

It is therefore imperative that regulators take steps to address this misalignment of incentives, including by requiring CCPs to have in place material SITG throughout the waterfall as well as

sufficient capital for NDLs, additional resources (such as through issuance of long-term debt that could be bailed in) for recapitalization in resolution, consultative governance and more robust disclosures. In addition, regulators should require CCPs to have conservatively sized prefunded resources and well developed risk management procedures that fully comply with the PFMI and their related enhanced guidance. Regulators should also require CCPs to adopt clear and concrete mechanisms and procedures for recovery and resolution that allow the CCP to return to viability or wind down, but limit the spillover of CCP losses to the broader economy.

We look forward to working with CCPs, regulators and policymakers to help implement the recommendations and CCP default waterfall enhancements proposed in this paper.

17. We would emphasize the importance of looking at these recommendations comprehensively. Some of the recommendations, implemented in isolation, may not result in an optimal risk outcome.

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