OFR Financial Research Advisory Committee

CCP Resolution Working Group: Managing the Recovery and Resolution of a Central Counterparty

OFR FRAC CCP Working Group

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OFR FRAC CCP Working Group Charges and Response Framework

1. **There is tension over whether to attempt the recovery of a Central Counterparty (CCP) that has been weakened by the failure of some clearing members, or to liquidate or recapitalize the CCP through a failure-resolution procedure. What are some key metrics and decision aides that can be used to make this pivotal choice?**
   - *Consistent with ongoing regulatory efforts, emphasis should be to enhance CCPs' resilience in order to reduce the likelihood and impact of a recovery or resolution event.*
   - *The decision for a Resolution Authority (RA) to liquidate or recapitalize a CCP must be considered in the context of the CCP's systemic importance, taking account of the critical services it provides for the broader financial system, the degree of substitutability, and the impact on financial stability and the functioning of markets. Continuity of operations for systemically important CCPs is critical, given evidence of a lack of short-run portability or substitutability across all products.*
   - *Financial Stability Board (FSB) guidance sets out a series of indicators that may inform a determination of whether to place a CCP into resolution.*

   Slides 4 to 11

2. **A CCP facing failure will probably do so under extremely stressful conditions, most likely precipitated by the failure of one or more systemically important clearing members. Those clearing members would probably also have failed to meet their payment obligations to other major financial firms, including other CCPs. Are there key objectives that U.S. regulators should keep in mind beyond what has been proposed by the Financial Stability Board?**
   - *The resolution tools set out in the FSB guidance should be considered in the context of their potential impact on financial stability. Some tools that could be used in the event of a member default should be subject to pre-defined limitations (see Table 4) in order to limit procyclical effects. Other tools (see Table 5) pose even greater risks to financial stability. Working Group members have serious concerns about these implications and recommend against their use.*
   - *In addition to default losses, it is important to focus on losses resulting from operational, custody, settlement and investment risks (non-default losses) and the associated likelihood, impact and tools to address these risks, as these losses also could trigger CCP failure.*

   Slides 9 and 10

OFR FRAC CCP Working Group Charges and Response Framework

3. **Title II of the Dodd-Frank Act gives the Federal Deposit Insurance Corporation (FDIC) the responsibility to resolve a failed systemically important U.S. CCP. What are the advantages and disadvantages of the various resolution mechanisms from which the FDIC may choose? Are there resolution mechanisms that might be more suitable under certain conditions but require rule changes?**
   - *The FDIC has significant powers and flexibility in its role as receiver, including: transfer of the assets and liabilities from the failed institution to a bridge corporation; transfer select assets and liabilities to that corporation; and merge the failed institution into a new or existing corporation. These powers are not exclusive, and an appropriate resolution process may entail using multiple powers in complementary ways.*
   - *The process of determining the appropriate actions for the Resolution Authority (e.g., FDIC) should be considered in the context of domestic and international planning efforts. These efforts have been led internationally by bodies such as the FSB, and include systemic regulators like the FRB, BoE and ECB, as well as domestic regulators overseeing FMIs and responsible for the function of derivatives markets, such as the CFTC and ESMA*.

   Slide 12

4. **If a non-U.S. CCP were to fail, and that failure were to be seen as a financial stability concern, what levers should U.S. regulators use to support the resolution process?**
   - *Beginning in 2017, regulators established Crisis Management Groups (CMGs) for those CCPs that have been identified as systemically important in more than one jurisdiction. While CMGs have been established for the two U.S. CCPs that have been identified as systemically important in more than one jurisdiction, as of this writing, CMGs have not yet been set up for all such CCPs and there is still much work to be done to put in place cooperation agreements in instances where the CMGs are in place.*

   Slide 13

Context: Growth of central clearing has led to increasing systemic importance of CCPs

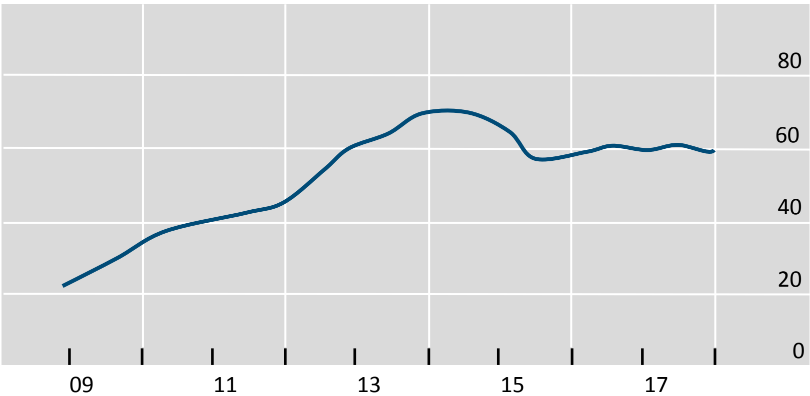
Post-crisis reforms have led to an increase in the systemic importance of CCPs

- Following the financial crisis, the G20 leaders agreed to significant reforms in the derivatives market, with the goal of increasing the transparency and resilience of the financial system including:
  - mandatory clearing of certain derivatives contracts;
  - exchange of margin for uncleared derivatives; and
  - higher capital requirements for uncleared derivatives.
- Globally, clearing levels of interest rate derivatives (IRD) and index credit default swaps (CDS) grew from around 24% and 5%, respectively, in 2009 to approximately 60% and 38% by Q1 2018 (see Figure 1), leading to an increase of the systemic importance of these CCPs.
- The resilience, recoverability and resolvability of CCPs have been a focus in the industry and among policymakers both in the United States and across the globe. Milestones include the development of the CPMI-IOSCO Principles for Financial Market Infrastructure (PFMIs) and the FSB's Guidance on CCP Resolution and Resolution Planning. At the same time, work on CCP recovery and resolution is far from complete and remains a top priority for regulators and market participants alike.
- The Working Group believes that the recovery and resolution of a CCP should be guided first and foremost by the goal of ensuring continuity of critical operations. The increased concentration of clearing activity, driven by regulatory reform, has made CCPs systemically important. Given the roles that CCPs now play, short-run substitutes are not viable.

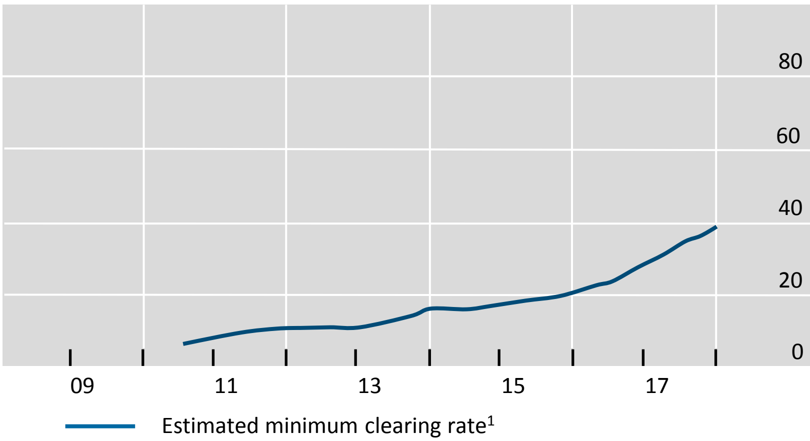
Figure 1. Volumes of cleared interest rate and credit derivatives have grown significantly post-crisis

Cleared notional amount outstanding as a percentage of notional amounts outstanding against all counterparties

Interest rate derivatives



Credit default swaps



Source: FSB Incentives to centrally clear over-the-counter (OTC) derivatives, LCH.Clearnet Group; BIS derivatives statistics

[1]The proportion of trades that are cleared, estimated as (CCP/2)/(1-(CCP/2)), where 'CCP' represents the share of notional amounts outstanding that dealers report against CCPs. The CCP's share is halved to adjust for the potential double counting of interdealer trades novated to CCPs.

Context: Global systemically important CCPs registered in the United States

- The Working Group focused on systemically important CCPs (as designated by the FSB and the FSOC) that clear global products (including swaps and foreign exchange), rather than domestic CCPs clearing U.S. securities (e.g., U.S. Treasury repos, U.S. corporate bonds/equities).
  - The FSB has listed 13 CCPs that are systemically important in more than one jurisdiction, six of which are also registered with the CFTC as US Derivatives Clearing Organization (DCOs) and are part of our assessment.
  - FSOC has designated six US CCPs as systemically important financial market utilities (FMUs), two of which are also on the FSB listing and are part of our sample below.
- Given their systemic importance, under stress situations, it would be difficult for any of these CCPs to substitute for another, or for bilateral arrangements to be re-instituted given the concentration of liquidity in the cleared market and G-20 clearing mandates.
- For institutions such as those shown in Table 1, resilience and continuity of critical operations should be the priority, due to their product mix, size and systemic role. In such cases, an orderly unwind is not feasible.

Table 1. Cross-border CCPs identified as systemically important and registered in the United States

Clearinghouse	Jurisdiction	Lead Regulators	FSB: Identified as systemically important in more than one jurisdiction	FSOC: Designated as systemically important in the US	US Registration Status
CME Inc	US	Commodity Futures Trading Commission (CFTC)	✓	✓	CFTC Registered DCO
Eurex Clearing	Germany	Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin)	✓		CFTC Registered DCO
ICE Clear Credit	US	CFTC	✓	✓	CFTC Registered DCO
ICE Clear Europe	UK	Bank of England	✓		CFTC Registered DCO
LCH Ltd	UK	Bank of England	✓		CFTC Registered DCO
LCH.Clearnet SA	France	Autorité des Marchés Financiers (AMF) Autorité de contrôle prudentiel et de resolution (ACPR) Banque de France	✓		CFTC Registered DCO

Sources: FSB Seventh Report on the Implementation of Resolution Reforms, FSOC Financial Market Utility Designations, CFTC Clearing Organizations, EU CCP National Competent Authorities

Enhancing CCP resiliency is critical to reducing the likelihood that recovery or resolution will be necessary

Enhancing CCP Resilience

Enhancing the resilience of systemically important CCPs is fundamental to reducing the likelihood of a clearing member default or CCP non-default event triggering recovery or resolution.

Ensuring Continuity of Operations

Recovery

Deployment of recovery tools by the CCP to allocate losses and return the CCP to matched book

Resolution

Deployment of resolution tools by the Resolution Authority, to allocate losses, return the CCP to a matched book and recapitalize the resolved CCP

Continuity of operations should be the primary goal in the case of a CCP recovery or resolution. This is particularly important given the limited evidence of short-run substitutability of systemically important CCPs.

Considerations to enhance CCP resilience: Collateral and margin standards

- Robust collateral and margin standards applied consistently reduce the likelihood and impact of a CCP entering recovery or resolution in the event of a clearing member default.

Table 2. Suggested best practices for collateral and margin standards to enhance CCP resilience building on CPMI-IOSCO Principles for Financial Market Infrastructures (PFMIs) and Resilience of CCPs: Further Guidance on the PFMI.[1]

Factor	Suggested Best Practices	Relevant PFMIs[1]
Acceptable collateral and haircuts	■ Collateral should be limited to cash and highly rated, highly liquid sovereign securities. ■ Collateral that is not in the settlement currency of the position it is associated with should be subject to an FX haircut. ■ Haircuts should be set so that they will not have to be increased during stress periods. As such, they should be larger than the largest price decline over the liquidation period of the collateral, based on at least 10 years of price history with stress periods.	■ Acceptable collateral ■ 3.5.2 – 3.5.4 ■ 3.5.6 ■ Haircuts ■ 3.2.13; 5.2.48 ■ 3.5.6
Margin period of risk (MPOR)[2]	■ The length of this period should be based on the ability of the CCP to realistically close out portfolios given the products' liquidity in stress conditions and be justified by the CCP using metrics such as Average Daily Volume in the case of listed products. ■ In the absence of documented support for a shorter period, the MPOR should be 2 days or longer.	■ 3.6.7 ■ 5.2.40 – 5.2.50
Concentration and liquidity charges	■ Margin should fully capture the impact on bid/ask spreads of closing out a member portfolio. To do so, concentration risk should be captured at a product level based either on member polls on the cost of closing out positions or through an analysis of product volumes.	■ 3.6.7
Portfolio margining	■ Diversification benefits across unrelated underlyings should not be allowed. ■ Margin offsets across products with related underlying should only be granted if the benefits are highly likely to exist in the economic conditions following a member default, in particular if there are strong economic relationships between products, as well as robust correlations that are well documented.	■ 5.2.53 – 5.2.58
Measures to limit pro-cyclicality	■ CCPs should seek to limit the reactivity of margins to volatility changes (pro-cyclicality), while ensuring they are always sufficient to cover cleared risk. ■ CCPs should consider one of the following two approaches set out in the European Market Infrastructure Regulation (EMIR). ■ include significant stress periods in determining margins so that collateral requirements will neither "chase volatility down" nor spike as quickly as volatility, at least initially; or, ■ apply a refundable buffer (at least 25%) allowing for a graduated increase in margins as a volatilities increase.	■ 5.2.37 – 5.2.47

[1]CPMI-IOSCO Principles for Financial Market Infrastructure and Resilience of central counterparties (CCPs): Further guidance on the PFMI. References with 3 digits correspond to 2012 PFMI and those with 4 digits correspond to the 2017 further guidance.
[2]The MPOR is the expected number of days necessary to close-out defaulted members' portfolios

Considerations to enhance CCP resilience: Supervisory stress testing

- Applying a set of standard supervisory stress scenarios will help to create: a consistent level of resiliency across different regulatory jurisdictions that takes into account cross-border flows and membership; build a basis for regulatory trust; create a framework for information-sharing agreements that would allow regulators to identify cross-border pockets of potentially large, interconnected exposures ahead of a crisis; and help inform the judgments of regulators about how best to ensure the continuity of CCP service in a period of financial strain.
- Clearing members and regulators could benefit from developing and implementing a uniform set of stress tests that evolve over time to enable comparisons across different CCPs clearing the same products/asset classes, with a particular focus on the following:
  - The extent to which a CCP's pre-funded resources would be consumed under such stress scenarios;
  - The ability of a CCP to manage the liquidity implications of member defaults and non-default events;
  - The ability of the network of CCPs to mitigate contagion.
- The CFTC and ESMA have undertaken supervisory stress tests of CCPs within their jurisdictions over the last two years. CPMI-IOSCO has made substantial contributions for CCPs' own stress testing and supervisory stress testing:
  - Guidance on Resilience of CCPs (2017) which sets out guidance for CCPs' own capital/liquidity stress testing;
  - Framework on Supervisory Stress Testing of CCPs (2018) which sets out a framework for supervisors.
- Consistent with CPMI-IOSCO guidance, key considerations for the construction of harmonized supervisory stress testing include:
  - Use of common historical, hypothetical, and theoretical market scenarios across CCPs/regions.
  - Common default scenarios across CCPs (such as default of a fixed number of the largest members and default of members representing a given proportion of cleared risk).
  - Reverse stress testing, i.e. measuring the number of members (ranked by size from largest to smallest) that can default before depleting pre-funded resources.
  - Scenarios aimed at the evaluation of the contagion risk across CCPs within and across supervisory regions through the analysis of the default of large members with multiple memberships.

FSB Guidance: Indicators for entry into resolution

- The Working Group is supportive of the FSB's guidance on indicators to inform a determination of whether to place a CCP into resolution

"Entry into resolution should be possible when a CCP is, or is likely to be, no longer viable or no longer able to meet applicable legal or regulatory requirements on a continuing basis, and has no reasonable prospect of returning to viability within a reasonable timeframe through other actions that could be taken by the CCP (that do not themselves compromise financial stability) …

In determining whether the necessary conditions have been met to place a CCP into resolution, the resolution authority, together or in consultation with other relevant authorities, should take into account the particular circumstances prevailing at the time of the member default(s) or other stress event and a broad range of factors, including the potential impact of the CCP's recovery actions on the markets served and financial system and potential availability of new resources or options in resolution to support critical functions and maintain financial stability."

FSB Guidance on Central Counterparty Resolution and Resolution Planning, July 2017

Table 3. FSB Guidance: Potential indicators that may inform a determination of whether to place a CCP into resolution

Default Losses	Non-Default Losses
The CCP is or will likely be unable to return to a matched book, or can only do so by actions that would require resources in excess of its available prefunded and committed financial resources (such as cash calls in recovery), compromise financial stability or by actions that create significant, unpredictable exposures for the CCP's participants.	**The CCP's capital is or will likely be exhausted or severely depleted below regulatory requirements**, notwithstanding any loss allocation rules and arrangements for the type of loss, and the current owners of the CCP are unwilling or unable to recapitalize the CCP.
The CCP is or is likely to be unable to cover losses, or exhausts or is likely to exhaust its loss allocation tools and arrangements or can only cover losses with actions that would create significant, unpredictable losses for the CCP's participants.	**The CCP can only cover losses with actions that would create significant, unpredictable losses for the CCP's participants.**
The CCP is unable or likely to be unable to replenish its financial resources within a reasonable time frame to a level that can deliver continuity of critical functions and meet regulatory compliance.	**The CCP fails or is expected to fail to comply with other regulatory requirements for authorization on a continuing basis** and such failure or expected failure threatens financial stability, and cannot be addressed by supervisory actions.
The CCP's participants are unwilling or unable to participate fully in recovery.	
The management of the CCP is not implementing in a timely manner the default management processes or recovery actions, creating material risk to the continuity of the critical functions.	

Supporting continuity of operations: Resolution tools to re-establish matched book

- The FSB's Guidance on CCP Resolution and Resolution Planning[1] published in 2017 sets out tools for allocating losses and for returning a CCP to a matched book following a clearing member default, as listed below. Under Dodd-Frank Title II, the Resolution Authority (RA) has the power to enforce a CCP's rights (if any) to exercise these tools under the CCP's rules.
- Given the financial stability implications of resolution tools, the Working Group recommends that some tools be subject to pre-defined limitations and others not be used at all, as explained below.

Table 4. FSB Resolution Tools and Working Group Suggestions to Limit Financial Stability Risks

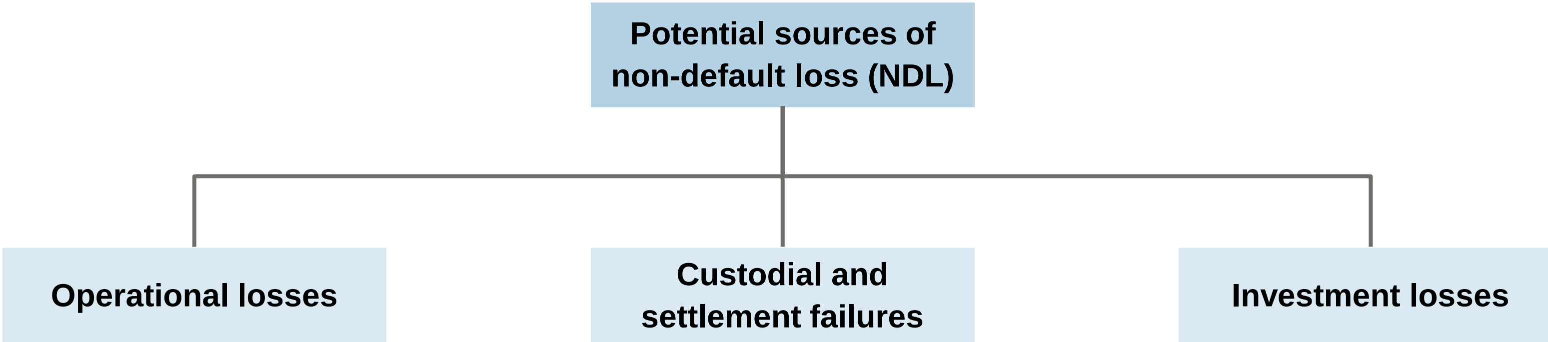
Tools	Key Considerations to Support Financial Stability
Partial Tear-Ups (PTUs)	**Risk:** PTUs could have unpredictable impacts on non-defaulting clearing members (CMs) and their clients that have corresponding, offsetting positions that must also be terminated to restore the CCP's matched book. **Mitigation:** PTUs would only be used if all standard mechanisms for disposing of a defaulter's positions have failed and only after the CCP's waterfall has been exhausted. This tool would best be used by the RA and only in circumstances that are limited in scale or pre-defined.
Resolution cash calls	**Risk:** A cash call by the RA could follow multiple rounds of assessments in recovery. There is performance risk associated with cash calls and the potential for cascading defaults if members fail to meet their contractual obligations. **Mitigation:** Regulators would cap cash calls across the stages of recovery and resolution to mitigate performance risk. CMs would receive claims in exchange for any contributions made in resolution.
Variation margin gains haircutting (VMGH)	**Risk:** The use of VMGH would have an unpredictable impact on CMs and clients based on whether their positions are net in-the-money, rather than on the risk they bring to the clearing system. **Mitigation:** VMGH would only be used as a last resort. Explicit restrictions would limit an RA's use of VMGH so that CMs and clients are not subject to losses indefinitely. As with PTUs, VMGH would best be used by the RA and only in circumstances that are limited in scale or pre-defined.

Table 5. FSB Resolution Tools That Working Group Recommends Not be Used Due to Significant Financial Stability Risks

Tools	Key Considerations to Support Financial Stability
Full tear ups (FTUs)	**Risk:** FTUs of positions cleared by systemically important CCPs would be highly destabilizing and lead to significant market volatility as CMs and their clients sought to re-establish positions bilaterally. Anticipation of FTU could trigger a run on the CCP. **Mitigation:** FTU would not be used in recovery or resolution.
Forced allocation	**Risk:** Forced allocation of defaulting CM's positions can result in non-defaulting CMs (and possibly clients) being compelled to bear the risk of trades that they do not have the capability to manage. **Mitigation:** Forced allocation would not be used in recovery or resolution.
Initial margin haircutting (IMH)	**Risk:** Use of IMH would have a pro-cyclical impact and would result in margin being used to absorb losses that it was not meant to cover. **Mitigation:** IMH would not be used in recovery or resolution.

[1] FSB Guidance on Central Counterparty Resolution and Resolution Planning

Supporting continuity of operations: Non-Default Losses



Recommended approach to NDLs: To the extent that CCP owners, rather than clearing members, make the risk management decisions related to these activities, they should be responsible for any resultant NDLs.

Financial stability considerations for non-default losses

- **Ownership and responsibility:** To the extent that CCP owners, rather than clearing members, make the risk management decisions related to these activities, they should be responsible for any resultant NDLs.
  - The mutualization of losses to clearing members should not be the model for addressing NDLs. It could result in a significant misalignment of risk management incentives, an increase of moral hazard, and pro-cyclical effects.
  - If a business model engages the clearing members in risk management decisions, such as selecting custody banks or directing investment, it is appropriate for them to share in losses resulting from these decisions.
- **Assessment and adequacy of resources:** It is important to ensure that there is sufficient quantitative assessment of potential NDLs and adequate CCPs' own-funds financial resources to cover them.
  - In November 2018, the FSB released a discussion paper on adequacy of CCP financial resources for resolution, including for NDLs, to seek feedback from stakeholders in the development of further guidance on this topic. U.S. regulators, clearing members, and end-users are engaged in this dialogue. The output of this work could inform the assessment of U.S. CCPs.
- **Availability of central bank accounts:** In the United States, access to deposit accounts at the FRB is restricted to CCPs which have been designated as systemically important by FSOC. For systemically important non-U.S. CCPs, consideration should be given as to whether to allow them to open central bank deposit accounts.

Resolution of a systemically important CCP under Title II of the Dodd-Frank Act

- The FDIC has significant powers and flexibility in its role as receiver, including: transfer of the assets and liabilities from the failed institution to a bridge corporation; transfer of select assets and liabilities to that corporation; and merger of the failed institution into a new or existing corporation. These powers are not exclusive, and an appropriate resolution process may entail using multiple powers in complementary ways.
- The process of determining the appropriate actions for the FDIC to take, including possible regulatory changes to facilitate resolution, should be considered in the context of domestic and international planning efforts. These efforts have been led internationally by bodies such as the FSB, and include systemic regulators like the FRB, BoE and ECB, as well as domestic regulators overseeing FMUs and responsible for the function of derivatives markets, such as the CFTC and ESMA.
- Some considerations relevant to determining when and how the FDIC should use these powers to resolve a failed CCP include:
  - The capacity to transfer individual assets or liabilities, and to delay such transfers when appropriate, can help maximize the value of assets and minimize the cost of liabilities.
  - Appropriately timing the disposition of assets can also reduce the negative externalities that arise from fire sales.
  - Forming a bridge company and transferring all or some of a CCP’s remaining open positions to that entity, along with related collateral, could facilitate provision of critical services, and maintenance of a matched book.
  - A merger, including a possible merger of the bridge company, could serve as a mechanism for transferring operations back to private hands but would require an appropriate buyer.
- While the FDIC is the resolution authority, it does not have supervisory powers with regard to CCPs. To enhance its ability to use its resolution authority, effective communication and coordination with market and prudential regulators is imperative, as is its role in cross-border crisis management groups (CMGs). FSOC has an important role in promoting this coordination.

Strengthening cross-border CCP resolution planning

- Beginning in 2017, regulators established Crisis Management Groups (CMGs) for CCPs that have been identified as systemically important in more than one jurisdiction.
- CMGs have been established for the two U.S. CCPs that have been identified as systemically important in more than one jurisdiction as per the most recent FSOC report.
- As of this writing, CMGs have not yet been set up for all such CCPs and there is still much work to be done to put in place cooperation agreements in instances where the CMGs are in place.
- CMGs and MoUs are critical to support cross-border activity underpinned by cross-border CCPs. Therefore the Working Group recommends that CMGs should be established and MoUs agreed where they remain outstanding. The FSOC can be an important constituent in ensuring that CMGs and MOU are established for all systemically important CCPs to support broad financial stability. In addition, playbooks and table top exercises would be valuable in creating familiarity and a presumptive path of actions under a variety of stresses.
- In particular, cooperation agreements can further support resolution planning by delineating clear processes and accountability, including:
  - Ensuring transparency of the process to the CCP and its members
  - Rules for sharing supervisory stress test results among CCPs and members and with the public (which includes their owners)
  - The CMG's powers to determine appropriateness of collateral standards
  - Advancement of cross-border supervisory stress testing to assess the adequacy of pre-funded CCP resources
  - Development of a common crisis playbook for regulators in the European Union, the United States, United Kingdom, and elsewhere
  - Routine tabletop exercises and scenario analyses to ensure effective implementation of the common playbook when a crisis occurs
  - Mechanisms to ensure confidential information can be shared among supervisors and RA on a timely basis
  - Utilization of cross-border coordinated supervisory stress testing to create better understanding of the aggregate amount and quality of committed funding in place across major CCPs

Considerations for future work

- International standard setters, regulators and legislators as well as academics and industry participants have been deeply engaged on issues and risks related to CCP recovery and resolution and much has already been accomplished. Below are a few areas that our working group has identified as warranting ongoing or additional focus going forward:

  - Robust collateral and margin standards to enhance resilience. Appropriate CCP capitalization both as an incentive (skin-in-the-game) for proper setting of collateral and margin rules and as a backstop for losses.
  - Broad implementation of CPMI-IOSCO supervisory stress testing guidance and development of standard, and evolving, set of stress scenarios to be used across jurisdictions. Development and use of quantitative tools for high-frequency monitoring of CCPs and their impact on the financial system.
  - Quantitative work to determine the proper level of CCP capitalization to cover default/non default losses and appropriate levels of CCP skin-in-the-game. Assessment of adequacy of resolution resources for CCP recapitalization.
  - Assessment of the financial stability impact of certain recovery and resolution tools that result in unpredictable and unexpected outcomes for end-users.
  - Where they are not yet in place, CMGs should be established and MoUs agreed. Where the Resolution Authority is different from the Supervisor, a framework for regular, effective communication and coordination will be essential within and across borders. Minimum expected outputs of Crisis Management Groups (CMGs) should be agreed and outcomes monitored.
  - International standard setters should continue to identify mechanisms that could transmit risk across CCPs and assess the ability of CCPs to mitigate contagion across the network.
  - Implement U.S. Treasury White Paper (10/2017) recommendation that the Federal Reserve review risks that may be posed by lack of Federal Reserve deposit account access for certain FMUs with significant shares of U.S. clearing business.
  - Assess feasibility and need for porting of house and client positions to a new CCP under stressed conditions.