

# **Essential Aspects of CCP Resolution Planning**

## **Discussion Note**

16 August 2016

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## **The Financial Stability Board (FSB) is seeking comments on essential aspects of CCP resolution planning**

With mandatory central clearing, central counterparties (CCPs) have become increasingly important for the overall safety and soundness of the financial system. In addition to ensuring the resilience of CCPs, robust recovery and resolution planning for systemically important CCPs should help ensure that greater reliance on central clearing does not result in a new category of entity that is “too big to fail”. The FSB, together with the Basel Committee on Banking Supervision (BCBS), the Committee on Payments and Market Infrastructures (CPMI), and the International Organization of Securities Commissions (IOSCO), agreed on a joint workplan to coordinate their actions to enhance resilience, recovery and resolvability of CCPs.<sup>1</sup> Under this workplan, the FSB agreed to “*consider the need for, and develop as appropriate, standards or guidance for CCP resolution planning, resolution strategies and resolution tools, including cross-border coordination and recognition of resolution actions, which should build on the Key Attributes. Such standards or guidance would aim to ensure that any CCP can be successfully resolved without resort to a government “bailout”, and without resulting in contagion to other parts of the financial system.*” In his February 2016 letter to the G20 Finance Ministers and Central Bank Governors, the FSB Chair made a commitment to publish high-level guidance on resolution issues relating to CCPs by the time of the G20 Hangzhou Summit.<sup>2</sup>

The FSB *Key Attributes of Effective Resolution Regimes for Financial Institutions (Key Attributes)* and implementation guidance on financial market infrastructure (FMI) resolution in II-Annex 1 to the *Key Attributes* (the “FMI Annex”)<sup>3</sup> set out a framework for FMI resolution which sits alongside the standards on resilience and recovery established in CPMI-IOSCO’s Principles for Financial Market Infrastructures (the “PFMI”) and its additional guidance.<sup>4</sup> The *Key Attributes* and FMI Annex set out the objectives of FMI resolution and a range of powers and tools that should be made available to resolution authorities to resolve a failing FMI. They also state that authorities should develop resolution strategies and plans, and conduct resolvability assessments. For CCPs that are systemically important in more than one jurisdiction, resolution planning and resolvability assessments should be conducted by the home resolution authority and coordinated within cross-border Crisis Management Groups (CMGs) or equivalent arrangements.

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<sup>1</sup> 2015 CCP Workplan, April 2015 ([www.fsb.org/2015/09/2015-ccp-workplan/](http://www.fsb.org/2015/09/2015-ccp-workplan/)).

<sup>2</sup> FSB Chair’s Letter to G20 Ministers and Governors on Financial Reforms – Progress on the Work Plan for the Hangzhou Summit, February 2015 ([www.fsb.org/2016/02/chairs-letter-to-the-g20-finance-ministers-and-central-bank-governors/](http://www.fsb.org/2016/02/chairs-letter-to-the-g20-finance-ministers-and-central-bank-governors/)).

<sup>3</sup> Financial Stability Board, *Key Attributes of Effective Resolution Regimes for Financial Institutions*, October 2014 ([www.fsb.org/2014/10/r\\_141015/](http://www.fsb.org/2014/10/r_141015/)).

<sup>4</sup> CPSS-IOSCO *Principles for Financial Market Infrastructures*, April 2012 (the PFMI) ([www.bis.org/cpmi/publ/d101.htm](http://www.bis.org/cpmi/publ/d101.htm)) and CPMI-IOSCO, *Recovery of Financial Market Infrastructures*, October 2014 (the Recovery Report) ([www.bis.org/cpmi/publ/d121.htm](http://www.bis.org/cpmi/publ/d121.htm)).

However, while the *Key Attributes* and existing guidance describe a number of tools that should be available to authorities, they do not discuss how those tools could be used or combined to develop strategies for the effective resolution of CCPs. In some areas, further guidance may be appropriate to assist jurisdictions with implementing effective resolution regimes and to assist resolution authorities with developing credible resolution strategies and plans.

This discussion note is seeking comments on aspects of CCP resolution that are considered core to the design of effective resolution strategies, covering:

1. Objectives of CCP resolution
2. Resolution strategies
3. Timing of entry into resolution
4. Adequacy of financial resources in resolution
5. Tools to return to a matched book
6. Allocation of losses in resolution
7. Non-default losses
8. Application of the “no creditor worse off” (NCWO) safeguard
9. Equity exchange in resolution
10. Cross-border cooperation
11. Cross-border effectiveness of resolution actions

Based on the feedback received the FSB will develop proposals for more granular guidance by early 2017. In developing this guidance, the resolution work will continue to be coordinated closely with other elements of the CCP workplan. This includes resilience and recovery, on which the CPMI and IOSCO have published a consultative report on *Resilience and recovery of central counterparties: Further guidance on the PFMI*;<sup>5</sup> and the work of the joint ad hoc study group on interdependencies between CCPs and major clearing members. A progress update on the CCP workplan has also been published.<sup>6</sup>

### Questions

The FSB invites comments on this discussion note and the questions set out below. Responses should be sent to [fsb@fsb.org](mailto:fsb@fsb.org) by **Monday 17 October 2016**. Responses will be published on the FSB’s website unless respondents expressly request otherwise.

**Q1.** Does this discussion note identify the relevant aspects of CCP resolution that are core to the design of effective resolution strategies? What other aspects, if any should authorities address?

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<sup>5</sup> *Resilience and recovery of central counterparties (CCPs): Further guidance on the PFMI - consultative report*, August 2015 (<http://www.bis.org/cpmi/publ/d149.htm>)

<sup>6</sup> *Progress report on the CCP workplan*, August 2016 ([www.fsb.org/2016/08/progress-report-on-the-ccp-workplan-2](http://www.fsb.org/2016/08/progress-report-on-the-ccp-workplan-2))

### ***Incentive effects of resolution strategies***

**Q2.** What is the impact on incentives of the different aspects of resolution outlined in this note for CCP stakeholders to support recovery and resolution processes and participate in central clearing in general? Are there other potential effects that have not been considered?

### ***Timing of entry into resolution***

**Q3.** What are the appropriate factors for determining timing of entry into resolution? How might a presumptive timing of entry (or range of timing), if any, be defined in light of the criteria set out in the FMI Annex to the *Key Attributes*? If defined, should the presumptive timing of entry be communicated to the CCP and its participants?

### ***Adequacy of financial resources in resolution***

**Q4.** Should CCPs be required to hold any additional pre-funded resources for resolution, or otherwise adopt measures to ensure that there are sufficient resources committed or reserved for resolution? If yes, what form should they take and how should they be funded?

**Q5.** How should the appropriate quantum of any additional CCP resources be determined? In sizing the appropriate quantum, what factors and considerations should be taken into account? Do your answers vary for default and non-default losses?

**Q6.** Should resolution funds external to the CCP be relied upon? If so, how should such funding arrangements be structured so as to minimise the risk of moral hazard, including for CCPs with significant cross-border participation? Where these are pre-funded, how should the target size be determined and which entities should be required to contribute?

### ***Tools to return to a matched book***

**Q7.** What factors should the resolution authority consider in choosing and exercising tools to return the CCP to a matched book? Is one (or more) of the tools for restoring a matched book preferable over others and if so, why?

**Q8.** Should any tools for restoring a matched book only be exercisable by resolution authorities? If so, which tools and subject to what conditions?

### ***Allocation of losses in resolution***

**Q9.** What are in your view effective tools for allocating default and non-default losses and what are the pros and cons of these tools? Should initial margin haircutting be considered as a tool for the allocation of losses in resolution? Is one or more of the tools preferable over others? What are your views on the use of tools to restore a matched book as a means of loss allocation?

**Q10.** Which, if any, loss allocation tools should be reserved for use by the resolution authority (rather than for application by a CCP in recovery)?

**Q11.** How much flexibility regarding the allocation of losses is needed to enable resolution authorities to minimise risks to financial stability? For example, to what extent should a resolution authority be permitted to deviate from the principle of pari passu treatment of creditors within the same class, notably different clearing members in resolution? What would be the implications of a resolution strategy based primarily or solely on a fixed order of loss allocation in resolution set out in CCP rules vs. a resolution strategy that confers discretion to the resolution authority to allocate losses in resolution differently to CCP rules?

**Q12.** What are your views on the potential benefits or drawbacks of requiring CCPs to set out in their rules for both default and non-default losses:

- (i) The preferred approach of the resolution authority to allocating losses;
- (ii) An option for, or ways in which, the resolution authorities might vary the timing or order of application of the loss allocation tools set out in the rules?

***Non-default losses***

**Q13.** How should non-default losses be allocated in resolution, and should allocation of non-default losses be written into the rules of the CCP?

**Q14.** Aside from loss allocation, are there other aspects in which resolution in non-default scenarios should differ from member default scenarios?

***Application of the “no creditor worse off” (NCWO) safeguard***

**Q15.** What is the appropriate NCWO counterfactual for a resolution scenario involving default losses? Is it the allocation of losses according to the CCP’s rules and tear-up of all the contracts in the affected clearing service(s) or liquidation in insolvency at the time of entry into resolution, or another counterfactual? What assumptions, for example as to timing and pricing or the re-establishment of the CCP’s matched book, will need to be made to determine the losses under the counterfactual?

**Q16.** What is the appropriate NCWO counterfactual for a resolution scenario involving non- default losses? Is it the liquidation of the CCP under the applicable insolvency regime, assuming the prior application of any relevant loss allocation arrangements for non-default losses that exist under the CCP’s rules or another counterfactual?

**Q17.** How should the counterfactual be determined in cases that involve both default losses and non-default losses?

***Equity exchange in resolution***

**Q18.** Should CCP owners’ equity be written down fully beyond the committed layer of capital irrespective of whether caused by default or non-default events?

**Q19.** Should new equity or other instruments of ownership be awarded to those clearing participants and other creditors who absorb losses in resolution?

***Cross-border cooperation***

**Q20.** What are your views on the suggested standing composition of CMGs? Should resolution authorities consider inviting additional authorities to the CMG on an ad-hoc basis where this may be appropriate?

**Q21.** What should be the nature of engagement with authorities in jurisdictions where the CCP is considered systemically important, for the purpose of resolution planning and during resolution implementation?

**Q22.** Should CCP resolution authorities be required to disclose basic information about their resolution strategies to enhance transparency and cross-border enforceability? If so, what types of information could be meaningfully disclosed without restricting the resolution authority's room for manoeuvre?

***Cross-border effectiveness of resolution actions***

**Q23.** Does this section of the note identify the relevant CCP-specific aspects of cross-border effectiveness of resolution actions? Which other aspects, if any, should also be considered?

**Q24.** What should be the role, if any, of the suspension of clearing mandates in a CCP resolution and how should this be executed in a cross-border context?





**Contents**

**Page**

- 1. Objectives of CCP resolution..... 11
- 2. Resolution strategies ..... 11
- 3. Timing of entry into resolution ..... 13
- 4. Adequacy of financial resources in resolution ..... 15
- 5. Tools to return to a matched book..... 17
- 6. Allocation of losses in resolution ..... 18
- 7. Non-default losses ..... 20
- 8. Application of the “no creditor worse off” (NCWO) safeguard ..... 22
- 9. Equity exchange in resolution ..... 23
- 10. Cross-border cooperation ..... 24
- 11. Cross-border effectiveness of resolution actions ..... 26



## 1. Objectives of CCP resolution

### *Key Attribute 2.3; FMI Annex 1.1, 3.1*

- 1.1 An effective CCP resolution should have as its objectives the pursuit of financial stability and the continuity of critical functions<sup>7</sup> of the CCP in all jurisdictions where it provides systemically important services without exposing taxpayers to risk of loss. This is achieved either by restoring the ability of the CCP to continue to perform those functions as a going concern or ensuring continued performance of those functions by another entity or arrangement coupled with the orderly wind-down of the CCP in resolution.<sup>8</sup> As part of this, CCP resolution should seek to restore market and public confidence while minimising contagion to the CCP's participants,<sup>9</sup> affiliates, or other FMIs. CCP resolution will also need to avoid disruptions in the links with other FMIs where such disruptions would have a material negative effect on financial stability, and maintain participant access to securities or cash collateral held by the CCP.<sup>10</sup>
- 1.2 This requires at a minimum the ability to:
  - (i) Return the CCP to a matched book (where losses arise from member default);
  - (ii) Fully allocate any outstanding losses;
  - (iii) Ensure the replenishment of the financial resources of the CCP to a level sufficient to maintain regulatory approval within an appropriate timeframe; and
  - (iv) Support the continued and timely operation of critical functions.
- 1.3 Resolution authorities should also be able to wind down those functions not judged to be critical for financial stability.

## 2. Resolution strategies

### *Key Attribute 11.6; FMI Annex 11.4-11.6*

#### *Resolution scenarios*

- 2.1 Resolution strategies should address a range of scenarios including:
  - (i) Default events where significant losses arise from failure by participants to honour obligations to the CCP, depletion of pre-funded financial resources and the possible

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<sup>7</sup> This note uses the term “critical functions” to refer to the activities of CCPs that are systemically important, i.e. functions that are vital for the real economy or for financial stability in a jurisdiction due to the size or market share of the CCP, its external and internal interconnectedness, complexity and cross-border activities. The availability of substitutes for the CCP in providing the function is also relevant to the analysis. This is consistent with the definition of critical functions in the FSB’s *Recovery and Resolution Planning for Systemically Important Financial Institutions: Guidance on Identification of Critical Functions and Critical Shared Services*, July 2013 ([www.fsb.org/2013/07/r\\_130716a/](http://www.fsb.org/2013/07/r_130716a/)).

<sup>8</sup> FMI Annex 1.1.

<sup>9</sup> Throughout this note, “participants” refers to both direct users (clearing members) and indirect users (clients) of the CCP.

<sup>10</sup> FMI Annex 1.1.

ineffectiveness of default management processes and recovery plans, or financial stability concerns arising from implementation of such plans;

- (ii) Non-default events where losses arise for reasons of business, custody, investment, legal or operational failures, such as losses on the CCP's investments, failure of a settlement bank or custodian (e.g. due to fraud, mismanagement of records); and
- (iii) A combination of both.

#### *Elements to consider when developing the resolution strategy*

- 2.2 CCP resolution strategies and plans need to take into account the unique features of CCPs that distinguish them from other financial institutions, as well as the particular markets they serve. These unique features may mean that certain resolution strategies or tools that normally apply to other types of financial institutions have limited application for CCPs.
- 2.3 Authorities should consider what resolution powers are necessary to ensure the continuity of the critical functions of the CCP in resolution, which could include temporary control (including a statutory manager or equivalent), ownership or the creation of a bridge CCP.
- 2.4 Resolution plans should be tailored to the specific risks and systemic implications that a particular type of CCP may be exposed to or create. Resolution authorities may judge that there is no single strategy that is suitable for all scenarios. In practice, a combination of approaches might be deemed necessary depending on the scenario or to accommodate the structure and business model of the CCP and the legal regimes under which it operates.
- 2.5 When developing the resolution strategy or strategies and supporting operational plans, authorities should also have regard to the following in addition to other points noted in Key Attributes 11.6 and I-Annex 4, and FMI Annex 4.1 and 11.6:
  - (i) The particular legal framework within which the relevant authorities are operating;
  - (ii) The credibility of the resolution strategy, including the arrangements and quantum of resources that are likely to be available at entry into resolution and the credibility and feasibility of using those resources to fully bear losses in resolution;
  - (iii) Effects on the incentives for participants to engage cooperatively in both recovery and resolution measures, and costs of and incentives for prudent risk management in "business as usual" clearing ex ante;
  - (iv) Effects on incentives for owners and operators to properly manage the CCP; and
  - (v) The extent of the CCP's cross-border activities and foreign participation in the CCP.

#### *Incentives effects of CCP resolution strategies*

- 2.6 In developing resolution strategies, a resolution authority should have regard to effects on incentives. Since there are a range of stakeholders with varying incentives, including owners, managers and direct and indirect participants, the effects of the resolution strategy on those different stakeholders may also vary. A resolution strategy should not undermine the incentives of the CCP, its participants and other relevant stakeholders to support recovery. Equally, the existence of credible resolution strategies should motivate stakeholders to take actions to avoid resolution which may be costly for shareholders. Such incentives might arise from multiple elements of the resolution strategy. The policy

choices in relation to these considerations will also have an impact on the incentives for the various stakeholders of a CCP.

- 2.7 Resolution authorities should be mindful of the impacts including costs of different resolution strategy choices while still achieving the primary objectives of resolution. Ex ante costs associated with resolution can include financial resources required to support resolution (and related opportunity costs) as well as legal or operational changes that may be required to make a CCP more resolvable.

### **3. Timing of entry into resolution**

#### ***Key Attribute 3.1; FMI Annex 4.3***

##### *Conditions for entry into resolution*

- 3.1 The PFMI state that a CCP's arrangements should be comprehensive in their ability to allocate default losses and other shortfalls.<sup>11</sup> A CCP's recovery plan should be designed to effectively address any uncovered credit losses and liquidity shortfalls. However, it is possible that the CCP is unable or unwilling to execute its plan as intended; or the CCP's use of particular recovery tools could compromise financial stability; or it may become clear that confidence in the CCP is failing and participants are not incentivised to participate fully in recovery.
- 3.2 Resolution authorities should have the power and practical arrangements under their statutory frameworks to place a CCP into resolution promptly, when: the recovery plan and any rules and procedures for loss allocation have failed to return the CCP to viability or have not been implemented in a timeframe sufficient to allow the CCP to meet applicable legal or regulatory requirements; or where recovery measures, in the judgment of the relevant authorities, are not reasonably likely to return the CCP to viability or would otherwise be likely to compromise financial stability, even if the recovery plan may not yet have been fully implemented or exhausted. In order to enable resolution authorities to act promptly, supervisory and resolution authorities need to cooperate and keep each other appropriately informed.
- 3.3 Sufficient resources, whether pre-funded or not, should as far as possible remain available at the point of entry into resolution to absorb losses and to replenish the CCP's (or its successor's) financial resources.<sup>12</sup>
- 3.4 The resolution authority, in consultation with other relevant authorities, would have the authority and discretion to determine whether the conditions for resolution are met.<sup>13</sup> In applying its judgment, a resolution authority would need to evaluate several factors such as the potential impact on financial stability, current market conditions, degree to which

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<sup>11</sup> Key Consideration 7 of Principle 4 of the PFMI.

<sup>12</sup> FMI Annex 4.4 notes that resolution authorities may need to intervene before the full waterfall is exhausted.

<sup>13</sup> In some jurisdictions, the resolution authority is one of several relevant authorities who would make a determination as to whether the CCP should be resolved. For purposes of this note, "resolution authority" includes any other relevant decision-making bodies.

the CCP has implemented its recovery plan, scope of losses, impact on market confidence, available resources and applicable legal requirements.

*Timing of entry into resolution – presumption vs. constrained flexibility*

- 3.5 Any resolution strategy will need to build in certain assumptions, but also to retain some flexibility within the constraints of the applicable legal framework to respond appropriately to the prevailing circumstances. Authorities should also consider whether a presumptive point in time for assessing the conditions for entry into resolution can or should be determined and, if so, whether such a presumptive point should be disclosed in advance including to the CCP and its participants. For example, this could be at a certain stage in the default management process, such as after the failure of an auction to return the CCP to a matched book; or at a certain point in the waterfall,<sup>14</sup> such as after the exhaustion (or likely exhaustion) of the default fund or a specified proportion of unfunded loss allocation arrangements. Authorities could set out boundaries before which resolution would not be triggered, and after which resolution would most likely be triggered. Whilst any presumptive timing of entry would not be binding on the resolution authority, and are not automatic points of entry into resolution, disclosure would help to provide more certainty to the CCP and its participants in what may be fast moving and uncertain circumstances.
- 3.6 However it is likely to be difficult to make an exact presumption in advance about the timing of entry into resolution, given the need for authorities to use their judgement to determine when to commence resolution based on the particular facts and circumstances at the time that the CCP is in distress. Such judgement would still need to be within the bounds of, for example, criteria and governance arrangements set by applicable legal framework.
- 3.7 Less ex ante presumption in determining the timing of entry into resolution recognises that there may be different triggers for this, e.g. recovery may “fail” at any point in the waterfall; or there may be confidence or financial stability issues at any point in the waterfall.
- 3.8 Both a presumption in advance and constrained flexibility about the timing of entry into resolution may also entail challenges in determining with a sufficient degree of confidence and within a very limited time whether the conditions for entry into resolution are met, and the amount of financial resources that are available for resolution (including those available in recovery). There is also a risk that resolution pre-empts potentially successful recovery actions if the resolution authority intervenes too early.

*Impact on incentives for recovery*

- 3.9 The impact of disclosing a presumptive timing on incentives of members and CCP owners and operators to support recovery – or, conversely, on private parties’ ability to manipulate the situation – must be carefully considered. The effect on incentives of the different options may not be clear-cut and partly depend on the extent to which

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<sup>14</sup> A “waterfall” refers to the financial resources available to absorb losses including a defaulter’s initial margin, the defaulter’s contribution to a pre-funded default arrangement, a specified portion of the CCP’s own funds, and other participants’ contributions to a pre-funded default arrangement. After this, unfunded resources such as assessment rights and proceeds of gains based haircutting may also be available.

stakeholders are able to predict that they might benefit from resolution as compared with recovery.

- 3.10 Ex ante transparency around the likely timing of resolution and the expectation it creates will have a bearing on incentives for recovery. This will depend upon the impact of a CCP resolution on participants and whether they wish the CCP to avoid resolution or to enter it. In the latter case, less transparency may make it more difficult for participants who want to precipitate entry into resolution by refraining from participating fully in default management processes (for example, because they estimate that the outcome for them would be preferable to continued application of recovery measures by the CCP). But it may also increase uncertainty.
- 3.11 A presumptive decision point provides more predictability for participants that may have a positive, stabilising effect in an environment of market uncertainty and provide greater incentives for participants and owners to take meaningful recovery action to avoid resolution. On the other hand, the presumptive approach might also undermine the CCP's ability to effectively implement its recovery plan.

#### **4. Adequacy of financial resources in resolution**

##### *Key Attributes 6.2-6.4; FMI Annex 4.11, 7.1-7.2*

- 4.1 A resolution authority should evaluate as part of its planning what financial resources it would require to support an effective resolution strategy for:
  - (i) Addressing uncovered losses;
  - (ii) Replenishing resources in line with regulatory requirements within an appropriate timeframe; and
  - (iii) Meeting costs associated with maintaining and operating the critical functions of the CCP until the CCP exits from resolution.
- 4.2 That evaluation should consider what financial resources the resolution authority would need and expect to be available under the CCP's rules and arrangements at the point of entry into resolution. It cannot be excluded that additional resources (whether pre-funded or not) may be needed in resolution for these purposes.

##### *Quantum of resources required*

- 4.3 Authorities should make appropriately prudent assumptions about the quantum of resources that will be required following the resolution, taking into account existing regulatory requirements for loss absorbency (including the default fund and initial margin) and regulatory capital requirements needed to ensure the CCP's critical functions can continue to operate with full risk controls in place and to meet their liquidity needs.
- 4.4 Consideration must also be given to the impact of accessing these resources in a resolution scenario. A CCP resolution precipitated by member defaults is likely to take place in an environment of financial instability with the failed resolution of a number of significant clearing participants leading to their default in multiple CCPs. Contingent commitments in the CCP's own rules may be vulnerable to the risk that participants are unwilling or

unable to meet obligations in a stressed environment (“performance risk”) or that drawing on these resources further adds to financial instability.

- 4.5 Another aspect is the speed with which the CCP’s resources will need to be replenished. Ensuring that the CCP has sufficient resources in place to meet regulatory or licensing requirements would help to bolster market confidence in the CCP. This would ideally occur by the next business day following entry into resolution. Alternatively, if immediate replenishment of resources by clearing members is not possible, the CCP’s resources may be replenished by relying on temporary funds from (pre-funded or ex post financed) resolution funds, subject to adequate recovery mechanisms.
- 4.6 Given the possible impact of payment commitments and replenishment obligations on members in times of extreme systemic stress, authorities need to consider the trade-offs associated with calibrating financial resources across both pre-funded and ex post funding arrangements and ensure that a sound balance is struck.

*Additional resolution resources or reliance on resources within the CCP waterfall*

- 4.7 One way of guarding against these performance and financial stability risks would be to set aside additional pre-funded resources for use in resolution beyond those already stipulated in the regulatory requirements for CCPs. These could be resources provided by participants, resources provided by the CCP’s owners, debt instruments issued to third party investors, industry resolution funds, or other sources. With additional pre-funded resources, the probability increases that the resolution authority can successfully draw on an immediate pool of liquid resources, enhancing the credibility of the resolution strategy and reducing the risks to public funds.
- 4.8 However, a resolution strategy involving additional pre-funded resolution resources would need to address a number of issues, in particular regarding proportionality. Determining the appropriate amount of resources needed in resolution is inherently challenging as the resources are intended for use in circumstances that are, in accordance with the PFMI, beyond those that are considered extreme but plausible under the CCP’s risk models.
- 4.9 Pre-funded resolution resources also necessarily come with an opportunity cost, for example to owners in reduced profits, participants in the general cost of clearing or industry via levies. Moreover, unless such resources may be invested or deposited in a risk-free location (such as a central bank), those additional resources are subject to investment and/or depository risk, even if the CCP suffers no participant loss. A balance has to be struck between the need to have sufficient and credible resources to carry out a resolution and the impact on central clearing created by the costs of those resources. Pre-funded resources would also have different market discipline and incentive effects depending on whether they were provided by the CCP’s own participants or investors with less access to monitor the CCP’s risks.
- 4.10 The resolution authority could also take steps when developing its strategy to ensure that the existing resources within the CCP’s arrangements are available to bear losses in resolution. As described above, that could involve planning for the possibility of intervention before the end of the waterfall at a time when resources are still available (including any resources reserved for resolution), as long as the conditions for entry into



resolution are met. It may also involve taking other measures designed to reduce liquidity or solvency stress on clearing participants and so reduce performance risk. They might be measures taken ex ante to address procyclicality (e.g. through capital or liquidity provisioning) or at the point of resolution (e.g. reducing initial margin requirements where in excess of regulatory minima).

- 4.11 Pre-funded or ex post funded resolution funds could provide a backstop provided that, in the case of ex post funding, any amounts borrowed from public funds are recovered from the defaulter's estate, shareholders, creditors (including CCP participants) or the financial system more widely. Any provision by the authorities of temporary funding, including ex-post recovery mechanisms, must take into account issues of implementation and moral hazard (e.g. assessing contributions from FMI participants and industry in a stressed market environment).

## **5. Tools to return to a matched book**

### ***Key Attribute 3.2(iii); FMI Annex 4.9, 4.12***

- 5.1 Returning the CCP to a matched book within available financial resources and arrangements is a necessary component of an effective resolution strategy in the case of member default(s). The Recovery Report and FMI Annex<sup>15</sup> set out a number of tools for achieving this. In addition to tools whereby participants are bound by the outcome such as the forced allocation or tear-up (full or partial) of contracts, a return to a matched book may also be achieved by “voluntary” measures such as auctions or direct sales of positions. Matched book tools found in individual CCP recovery plans may vary based on attributes of the cleared product set and other characteristics of the CCP.
- 5.2 Depending on precisely how they are used, tools to return to a matched book could have different consequences for CCP participants and for financial stability more broadly. A full tear-up of contracts is unlikely to be consistent with the objectives of continuity of critical clearing services and minimising contagion or instability. Even tools that do not require full tear-up may have financial stability implications that could be difficult to identify, measure and manage and therefore demand close consideration. The use of a tool such as partial tear-up may have implications for participants beyond replacement of contracts, including on netting sets.
- 5.3 Participants' perception of tools may differ depending on whether they are exercised by the CCP or by authorities in resolution. For example, partial tear-up entails discretion as to its scope, to be carried out either by a CCP in recovery (in accordance with appropriate ex ante rules, and at market prices) or by authorities in resolution if it is accompanied by appropriate safeguards, including a clear interpretation of the no creditor worse off (NCWO) principle (see section 8 below).
- 5.4 Furthermore, decisions as to the price at which contracts are allocated or torn up will determine whether such tools are also used to allocate losses. One policy choice for authorities will be whether the costs here are borne directly by the affected participants

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<sup>15</sup> Recovery Report section 4.5 and FMI Annex section 4.

or counterparties; or whether those costs (potentially including replacement costs) should be shared across a broader set of participants. Hence it may be helpful to set out the principles and safeguards for how certain tools to restore a matched book would be used in resolution, e.g. whether a partial tear-up should be conducted immediately after positions have been revalued to current market prices (a “mark-to-market”) and the basis on which to determine the subset of contracts within a service to be terminated; or under forced allocation of contracts, how it will be determined which contracts are allocated to which participants and at what price.

- 5.5 The “threat” of the use of tools typically seen as unfavourable by participants may in itself provide sufficient incentive to support recovery. However, since the tools raise potential financial stability concerns, they might not be considered credible by participants, and this may rather dampen their incentives to support default management processes.
- 5.6 In assessing which tools should be used to re-establish a matched book, the resolution authority should also consider a number of other factors, including:
- (i) Where contracts are torn up, the potential cost of replacing those contracts and the effect on the risk management of the CCP’s participants;
  - (ii) A pricing (valuation) methodology that instils confidence that terminated or allocated contracts will be assigned a fair value;
  - (iii) Whether and how the cost and allocation will differ from what is set out in the CCP’s recovery arrangements, how any differences might affect incentives to support recovery, whether those differences might have specific effects on financial stability and give rise to compensation claims from participants that suffer greater losses in resolution than would have been the case in a liquidation under the CCP’s rules and/ or applicable insolvency law;
  - (iv) The impact upon relevant safeguards for netting and collateral arrangements; and
  - (v) The broader impact on financial stability.

## **6. Allocation of losses in resolution**

### ***Key Attribute 3.5; FMI Annex 4.9-4.11***

- 6.1 CCPs set out within their rules and arrangements the methods by, and order in, which losses are allocated to their participants following member default (i.e. the waterfall). Increasingly, CCPs also have rules and arrangements for allocating non-default losses (see section 7 below).
- 6.2 As part of resolution planning, authorities should consider how losses will be allocated in resolution. Authorities may wish to have a resolution strategy that is based on a specific order of losses, which may or (subject to NCWO) may not be based on the CCP’s own rules. But even with a predetermined order of losses, resolution authorities may also wish to retain some defined flexibility within the constraints of the NCWO safeguard to deviate from that order in the execution of a resolution, because they consider that an alternative would be better able to achieve the resolution objectives and to support financial stability overall in the particular circumstances.

- 6.3 Alternatively, the resolution authority may choose to have a strategy that is based on not disclosing a fixed or presumptive order in advance, and a power instead to make a choice based on the circumstances at the time of resolution.
- 6.4 Authorities need to determine to what extent the resolution strategy should be based on a fixed order of loss allocation (e.g. the order established in the rules of the CCP), and consider the consequences of allocating losses differently in resolution.

*Presumptive vs. constrained flexible order of loss allocation in resolution*

- 6.5 There are some benefits to the resolution strategy being based on a presumptive or predetermined order of loss allocation set out in the CCP's rules. It provides a level of certainty to both direct and indirect participants concerning their exposures and obligations to the CCP, so that such obligations and exposures are measurable, manageable and controllable by the participants, to the greatest extent possible. It will enable the participants to better manage the attendant risks and price those risks into contracts.
- 6.6 It could also help reinforce incentives for members to participate in the CCP's default management and recovery processes prior to entry into resolution. (Any strategies should avoid creating incentives for participants to avoid supporting recovery in favour of resolution because they think they will be better off.) And it would also help to minimise or avoid the risk of successful compensation claims under the NCWO safeguard given that the counterfactual of what would have occurred absent resolution as specified in the FMI Annex is based on the assumption that the loss allocation arrangements in the rules of the CCP have been applied in full.
- 6.7 However, there could be circumstances where changing the order of loss allocation tools from the order prescribed in the CCP's rules could have better outcomes for financial stability, especially if the decision to place the CCP into resolution was based on the resolution authority's judgment that continued use of CCP's loss allocation tools would have destabilising effects. Given that the circumstances of a CCP resolution are likely to be extreme and previously deemed implausible by the CCP, the ability to change the prescribed order of losses in the CCP's rules gives the resolution authority greater flexibility to take the action that it considers best to preserve financial stability in the specific circumstances and avoid allocating losses in a way that risks exacerbating general market stress or provides a channel for contagion. Hence the resolution authority may not wish to limit itself only to a fixed order of loss allocation but to retain some degree of flexibility in the order in which the loss allocation tools in the rules (or available under statute) are applied. The extent of that flexibility could be established within certain constraints or bounds.
- 6.8 These considerations give rise to a number of possible options:
- (i) At one extreme, a fixed order of losses could be set out in advance, for example in statute, regulations, and/ or the rules of the CCP, with no legal power whatsoever for the resolution authority to depart even where they consider a "better" option for financial stability may be available. This would provide the highest level of certainty to participants, but probably also contains the highest latent risk to public funds being exposed, whether through (NCWO) compensation claims or because a

complete lack of flexibility may lead to circumstances where the authorities ‘bail-out’ rather than resolve a CCP.

- (ii) At the other extreme, there would be explicit provisions in statute, regulations and/or CCP’s rules asserting that the resolution authority can choose among all available tools (from options set out in statute and/or the rules) it considers necessary for achieving the resolution objectives and also to apply them in any order it considers necessary. Resolution authorities may undertake planning regarding loss allocation, but without giving any ex ante public indications about what those plans and preferred tools might be and how losses would be allocated across direct and indirect participants.

6.9 Neither of these extremes is likely to be the preferred policy choice. There are a range of practical and balanced possibilities in between these. For example, the authorities could develop and publish a set of criteria and indicators to guide their decision as to which loss allocation measures will be used in resolution, together with appropriate governance mechanisms, but not offer any presumption as to the order in which they will be used. Another possibility is for a predetermined order to be established in advance, together with an explicit power for the authority to depart from that predetermined order under specified conditions or in accordance with guiding criteria. Alternatively, there may not be any explicit provisions regarding departure from a fixed order, but flexibility may be constrained by a legal right to compensation (as required by the *Key Attributes*) for those who are made worse off by resolution actions than under the non-resolution counterfactual (also see section 8 on NCWO).

6.10 Regardless of the approach taken, it is important that the parameters or bounds of any discretion conferred on the resolution authority are made clear in advance to establish the range of actions the authorities might take and to enable CCP participants and other creditors to assess better their potential exposures from resolution actions. Such clarity can be enhanced for example by including the approach taken in the rules of the CCP to provide transparency, if not always predictability, to the CCP’s participants.

6.11 Strategies for loss allocation will also have other common features. For example, irrespective of whether or not a strategy is premised on following a fixed order of losses in the rules, authorities would still retain flexibility as regards other aspects of the resolution including the scope, timing and price of any tear-up or other tool to return to a matched book, the use of statutory stays and moratoria, and other stabilising actions such as transfers.

6.12 Regardless of the approach taken, decisions and incentives of CCP stakeholders will be affected by the existence of any additional resources (whether pre-funded or not) available for resolution that would not be available to the CCP in recovery.

## **7. Non-default losses**

7.1 The focus of this note so far has been on CCP stress arising from member defaults. The post-crisis measures to end too-big-to-fail, including resolution frameworks for global systemically important banks (G-SIBs) and resolution planning should help reduce the likelihood that clearing members default on their obligations to CCPs. However, CCPs

can be exposed to losses arising from causes other than member defaults: for example, losses could arise from custody, settlement and investment risk; financial impacts of operational risks such as cyber-attacks; or potential litigation. The FSB will carry out further analysis in this area ahead of the development of proposals for more granular guidance, but some initial considerations are set out below.

- 7.2 Consistent with the PFMI, CCPs hold capital against the risks of non-default losses and should also have loss allocation arrangements as part of a recovery plan.<sup>16</sup> A resolution strategy should address circumstances where such capital, and other arrangements pursuant to the CCP's rules or with third parties, are insufficient to cover outstanding losses and to replenish the financial resources of the CCP.

#### *Entry into resolution*

- 7.3 It should be possible for a CCP that suffers non-default losses to enter into resolution before it is balance-sheet insolvent and before all equity has been wiped out, where the conditions for entry into resolution have been met.<sup>17</sup> An assessment of whether the CCP meets these conditions will depend upon the ability to quantify the actual or expected losses to which the CCP is subject and an assessment of the likelihood that other actions available to the CCP would restore a breach, or likely breach, of the minimum regulatory requirements necessary for the CCP to continue to be authorised.

#### *Loss allocation in resolution*

- 7.4 Where the losses exhaust the CCP's capital and exceed any available loss allocation arrangements leading to insolvency, outstanding losses would also fall on the CCP's creditors. By far the largest likely source of creditor claims will be those participants across all its clearing services that are owed sums by the CCP at the point of insolvency (whether from unpaid variation margin gains or liquidated open positions) and participants that have posted initial margin collateral with the CCP in a way that is not bankruptcy remote under the applicable national insolvency law. Unless some of these liabilities are legally subordinated or subject to set-off or netting, they would rank equally and therefore absorb losses *pari passu*.
- 7.5 Where statutory bail-in tools are available, these could be applied in resolution to write-down these liabilities *pari passu* (following the full write-down of the CCP's equity) in order to cover losses and to convert part of the liability into equity in order to recapitalise the CCP. Imposing losses on all creditors in this way could be considered an equitable way of replicating the insolvency counterfactual set out in the NCWO safeguard and would present the resolution authority with a pool of financial resource from which to draw on.
- 7.6 Resolution authorities may determine that imposing losses on certain types of creditors could undermine the resolution objectives by making it harder for the CCP to continue as a viable entity. For example, it may be more difficult for a CCP to carry on its critical operations if providers of key services to the CCP are required to suffer losses.

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<sup>16</sup> Recovery Report section 4.6.

<sup>17</sup> Key Attribute 3.1.

- 7.7 The allocation of non-default losses may also affect incentives in relation to risk management by allocating losses in proportion to the extent of participants' role in the CCP's risk governance, the scale of the risks they bring to the CCP or the size of participants' positions or initial margin contributions as distinct from their gains on a particular day.
- 7.8 Where there is a clear preference for losses to fall on certain creditors over others to support resolution objectives and align incentives, it would be advantageous and perhaps necessary to ensure that these creditors are subordinated to other creditors by statute or by contract under the rules of the CCP or other relevant agreements so that there is a clear legal basis for their bearing losses first. If not, choosing to deviate from the *pari passu* treatment of creditors could allow for exposures that creditors are unable to measure, manage and control *ex ante*, and expose the resolution authority to compensation claims under NCWO.

## **8. Application of the “no creditor worse off” (NCWO) safeguard**

### ***Key Attributes 5.1-5.2; FMI Annex 6.1***

- 8.1 To assist with interpreting the NCWO safeguard, authorities should clearly set out in advance the relevant counterfactual and the assumptions and valuation principles that should apply in assessing the losses that participants and other creditors would have borne had the authorities not intervened. This is particularly relevant where a resolution authority wishes to depart from the order of loss allocation set out in the CCP's rules.
- 8.2 The counterfactual for the NCWO safeguard needs to reflect the specific characteristics of CCPs. In particular, it should take account of the extent to which an order of loss allocation is prescribed in the CCP's rules, and of the way in which that contractual order of loss allocation would be treated in insolvency. The FMI Annex provides some guidance on the appropriate NCWO counterfactual for CCPs, which recognises the relevance of CCP rules to the assessment of the losses that participants would have borne if the affected clearing service (or services) had been liquidated at that time of entry into resolution.<sup>18</sup>
- 8.3 In the case of a resolution triggered by default losses, this guidance suggests that the counterfactual needs to take account of the defined order of loss allocation under the CCP's own rules. Accordingly, any residual losses would be allocated based on the treatment and valuation of affected contracts under the CCP's rules, which may require the resolution authority to make assumptions about the implementation of those rules. The CCP rules and resolution regimes will need to address the issue of valuation if no market price data is available for a given day.

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<sup>18</sup> FMI Annex 6.1, “For the purposes of determining whether a participant is worse off as a result of resolution measures than in liquidation (application of the NCWO safeguard set out in KA 5.2), the assessment of the losses that would have been incurred and the recoveries that would have been made by FMI participants if the FMI had been subject to liquidation should assume the full application of the FMI's rules and procedures for loss allocation”.

- 8.4 Some CCP arrangements have limited recourse provisions, where losses are contained within an individual clearing service and mostly (other than “skin in the game”<sup>19</sup> contributions) fall on participants rather than equity holders of the CCP; also see section 9 below. Where that is the case, the legal framework should be clear whether these provisions are respected for the purposes of the NCWO counterfactual.
- 8.5 Clarity is also needed as to whether a different counterfactual is appropriate where the resolution is triggered by non-default losses (see section 7 above). For example, where CCP rules do not provide for comprehensive allocation of non-default losses, the appropriate counterfactual may be the liquidation of the CCP under the applicable insolvency regime, assuming the prior application of whatever loss allocation arrangements do exist under the CCP’s rules for the particular type of non-default loss. Should the counterfactual be applied differently depending on whether the losses arise from member default or other reasons, the regime should also provide clarity as to how the NCWO counterfactual is determined where a failure scenario involves both default and non-default losses.
- 8.6 Exposure to NCWO claims is an even more important consideration where the resolution strategy provides flexibility for the resolution authority to depart from the order of losses and recovery tools set out in the CCP’s rules. To assist with understanding of the application of the safeguard and provide as much legal certainty as possible, the relevant counterfactual and the assumptions and valuation principles that should apply in assessing the losses that participants would have borne had the authorities not intervened will need to be clearly set out in advance (to the extent practicable and possible under the relevant legal framework).

## **9. Equity exchange in resolution**

### ***Key Attribute 5.1***

- 9.1 CCPs typically have comprehensive loss allocation arrangements that prevent losses (other than skin in the game) from falling on CCP owners. The result of this is that, at least for default losses, CCP owners are insulated from significant losses. There may also be arrangements for non-default losses.
- 9.2 However, the principle set out in Key Attribute 5.1 that holders of equity should bear first losses in resolution suggests that resolution authorities should have the power to impose losses upon owners, irrespective of the principal cause of failure. In the context of CCP resolution, imposing losses on existing owners would help create appropriate incentives to avoid resolution, including for existing owners to ensure that the CCP has robust risk-management arrangements in place and to encourage owners to contribute funds beyond skin in the game when a CCP’s pre-funded resources are insufficient to cover losses. Change of ownership may also enhance confidence in the CCP post-resolution and, to the extent that ownership is transferred to members, encourage continued use of the CCP by those entities.

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<sup>19</sup> An amount of the CCP’s capital that is allocated to meet losses from member default.

- 9.3 If equity is available in resolution but not in recovery, there is a risk that participants may prefer that resolution authorities intervene earlier instead of allowing recovery measures to take their course. In this respect, an additional contribution of the CCP's own resources to the recovery phase (such as a second skin in the game) could be considered. Also, to the extent that the owners of the CCP also own exchanges or other assets that are integrated (whether financially, operationally or otherwise) with the CCP, separating ownership would have implications both for the CCP and the remainder of the group.
- 9.4 The change of ownership could be achieved through a number of mechanisms, including: awarding equity to clearing participants that have been subject to loss allocation in resolution; or transferring equity to participants or other persons that provide new value to recapitalise the CCP and replenish its financial resources following loss allocation under the CCP's rules. In each case, existing owners' equity would either be wiped out or significantly diluted through the issue of new equity. Change of ownership may also require supervisory approval.
- 9.5 Provision for equity exchange may need to be reflected in the CCP's own rules, shareholder agreements and other relevant documents to ensure that they are both enforceable overseas and minimise the risk of exposing the resolution authority to compensation claims under NCWO.

## 10. Cross-border cooperation

### *Key Attributes 7, 8; FMI Annex 8, 9*

- 10.1 The *Key Attributes* state that resolution authorities should be empowered and strongly encouraged to achieve cooperative solutions with foreign resolution authorities, and provides guidance on the objectives, structures and frameworks (including CMGs) and institution-specific cross-border cooperation agreements (CoAgs) to achieve this.

### *Composition of CMGs*

- 10.2 Given the cross-border nature of the participants and activities of the largest CCPs, cross-border cooperation is an important aspect of a CCP resolution. CMGs<sup>20</sup> should be established in a manner consistent with the *Key Attributes* and FMI Annex and are required for all CCPs that are systemically important in more than one jurisdiction.
- 10.3 In determining the composition of the CMG, home authorities should be guided by the materiality of the jurisdictions involved for resolution and resolution planning. In addition to the membership provisions set forth in section 9.2 of the FMI Annex, the CMG should include relevant supervisors and resolution authorities of major clearing members (i.e. members accounting for a significant share of the CCP's default fund); central banks of issue of major currencies cleared (i.e. currencies accounting for a significant share of the CCP's business); supervisors and resolution authorities of FMIs and trading venues operating with the CCP and of related companies within the same corporate group, that would play a significant role in the execution of the CCP's resolution strategies.

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<sup>20</sup> Or other equivalent arrangements based on PFMI Responsibility E.



10.4 In addition to the standing composition of the CMG, resolution authorities should consider inviting additional authorities to the CMG on an ad-hoc basis where this may be appropriate. These could be a broader group of authorities from the categories described above, but could also involve other categories such as authorities with the ability to suspend the mandatory clearing obligation relevant to products cleared by the CCP.

*Cooperation and information sharing with authorities not represented on the CMG*

10.5 Resolution authorities should also establish effective arrangements for both cooperation and information sharing with authorities in jurisdictions which are not material to resolution and thus not represented on the CMG but where the CCP is systemically important, taking as a starting point the FSB guidance on cooperation with non-CMG hosts.<sup>21</sup> Such authorities have a legitimate interest in understanding how resolution plans could impact their jurisdiction and may also have a role in enhancing the effectiveness of resolution such as providing the necessary support and cooperation with resolution measures taken by the home resolution authority. As such, it would benefit the CMG and all stakeholders concerned to engage them in resolution planning, in particular identifying the critical functions of the CCP that should be covered in the resolution plan, conducting resolvability assessments, informing the CMG of the feasibility of envisaged resolution action in the relevant jurisdictions, and recognising and, if relevant, coordinating resolution measures.

10.6 The home resolution authority should also provide relevant information to such authorities during a crisis as appropriate. The frequency of engagement may be on a regular or ad hoc basis (e.g. tied to significant changes to the resolution plan or CCP's operations). The forum for engagement may leverage existing cooperative arrangements between authorities (including Responsibility E type arrangements), or the home resolution authority may consider engaging such authorities through a broader CMG in non-crisis times. Further guidance may be helpful on how the home resolution authority and the CMG should cooperate with such authorities from jurisdictions where the CCP is systemically important.

*CCP-specific cooperation agreements*

10.7 Processes for cooperation and information sharing resolution planning and the resolvability assessment within the CMG should be set out in a CoAg.

10.8 With respect to "in crisis" cooperation, further guidance beyond what is set out in the CoAg may be helpful to clarify the interaction of CMGs and cooperative arrangements in responding to crises affecting CCPs. Cooperation and information sharing arrangements may also need to be established to facilitate engagement with authorities in jurisdictions not represented on the CMG but where the CCP is systemically important.

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<sup>21</sup> FSB, *Guidance on Cooperation and Information Sharing with Host Authorities of Jurisdictions where a G-SIFI has a Systemic Presence that are Not Represented on its CMG*, 3 November 2015 ([www.fsb.org/2015/11/guidance-on-cooperation-and-information-sharing-with-host-authorities-of-jurisdictions-where-a-g-sifi-has-a-systemic-presence-that-are-not-represented-on-its-cmg/](http://www.fsb.org/2015/11/guidance-on-cooperation-and-information-sharing-with-host-authorities-of-jurisdictions-where-a-g-sifi-has-a-systemic-presence-that-are-not-represented-on-its-cmg/)).

### *Regular fire drills*

10.9 A regular exercise or “fire drill” (e.g. every two or three years), where a resolution scenario is tested within the CMG, is recommended to better understand the impact of resolution and make further progress in improving resolvability.

## **11. Cross-border effectiveness of resolution actions**

### *Key Attributes 7; FMI Annex 8, 9*

11.1 A number of specific features of CCPs, such as simpler legal structures compared to other types of financial institutions and the existence of contractual arrangements between CCPs and participants could simplify CCP resolution from a cross-border perspective. Nonetheless authorities will need to address a range of issues as part of their resolution planning work in CMGs to ensure that actions will be effective in a cross-border context. This includes cooperation between or coordination of multiple resolution proceedings in a range of jurisdictions in relation to the CCP, operations and participants domiciled in those jurisdictions as well as an assessment of the anticipated need for CCP supervisory authorities in other jurisdictions to continue or facilitate new licenses, recognition or authorisations.

### *Coordinated suspension of mandatory central clearing*

11.2 One aspect specifically relevant to CCP resolution is whether a coordinated suspension of mandatory central clearing can be a useful tool during resolution to relieve pressures at the CCP under stress and, if so, whether financial institutions could find alternatives bilaterally or at other CCPs. Any such action would require the involvement of and coordination by the resolution authority with the authorities responsible for the potential suspension of mandatory clearing obligations. However, there are a number of policy and operational issues regarding the practical implementation of this, including: whether authorities would be able to agree ex ante or in crisis to conditions under which a suspension would be acceptable; the scope of the authorities that would need to be involved in the decision; the impact on client clearing mandates and capital implications for market participants if transactions cannot be centrally cleared elsewhere. Further consideration will be required on this matter.

### *Cross-border contractual, operational, and organisational arrangements*

11.3 CCPs can have cross-border contractual, operational, and organisational arrangements such as interoperating CCPs and cross-margining practices between CCPs. Notwithstanding prudential requirements, these arrangements could create complexities and possible impediments to resolution. A resolution authority should carefully consider how these arrangements, which can include links with other FMIs, will affect the resolvability of the CCP and the resolution strategy.<sup>22</sup>

11.4 Some CCPs have rules covered by foreign law, or make use of global custodians that manage the collateral posted subject to the laws of another jurisdiction. The resolution authority may also seek to use resolution tools under its strategy that are not reflected in

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<sup>22</sup> For a further discussion on FMI links, see Principle 20 of the PFMI.

the CCP rules or in the collateral arrangements of a CCP. A resolution authority should analyse the enforceability of and any impediments to its execution of resolution actions to ensure the resolution plan will be effective in all relevant jurisdictions. There could be a requirement for CCPs to demonstrate to authorities that their contractual and governance arrangements do not contain obstacles for the effective exercise of powers by resolution authorities in all relevant jurisdictions.