Financial resources to support CCP resolution and the treatment of CCP equity in resolution

Discussion paper for public consultation

15 November 2018

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Financial resources for CCP resolution and the treatment of equity in resolution

Call for public comments

Centrally clearing standardised over-the-counter (OTC) derivatives is a pillar of the G20 Leaders' commitment to reform OTC derivatives markets in response to the global financial crisis. CCPs' criticality to the overall safety and soundness of the financial system means that authorities must take steps to ensure that CCPs do not themselves become a source of systemic risk and that any CCP can be successfully resolved without resort to a government "bailout."

The Financial Stability Board (FSB), the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) have cooperated closely in developing their respective sets of standards and guidance for CCP recovery and resolution paying particular attention to several points of interaction between CCP recovery and resolution in order to ensure consistency between their respective policies.[1]

The FSB *Key Attributes of Effective Resolution Regimes for Financial Institutions* ('Key Attributes')[2] and implementation guidance on financial market infrastructure (FMI) resolution in Appendix II-Annex 1 to the Key Attributes ('FMI Annex') set out a framework for FMI resolution including for central counterparties (CCPs). The FSB *Guidance on Central Counterparty Resolution and Resolution Planning*[3] ('FSB Guidance') provides guidance on implementing the Key Attributes and the FMI Annex for CCPs.[4] The FSB's resolution standards and guidance sit alongside the standards on

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1 See *Chairs' Report on the Implementation of the Joint Workplan for Strengthening the Resilience, Recovery and Resolvability of Central Counterparties*, July 2017 (http://www.fsb.org/2017/07/chairs-report-on-the-implementation-of-the-joint-workplan-for-strengthening-the-resilience-recovery-and-resolvability-of-central-counterparties/).

2 FSB, *Key Attributes of Effective Resolution Regimes for Financial Institutions*, October 2014 (www.fsb.org/2014/10/r_141015/).

3 FSB, *Guidance on central Counterparty Resolution and Resolution Planning*, July 2017 (www.fsb.org/2017/07/guidance-on-central-counterparty-resolution-and-resolution-planning-2/).

4 This CCP-specific resolution framework is complemented by FSB *Guidance on Continuity of Access to Financial Market Infrastructures for a Firm in Resolution*, July 2017 (www.fsb.org/2017/07/guidance-on-continuity-of-access-to-financial-market-infrastructures-fmis-for-a-firm-in-resolution-2/).

resilience and recovery established in CPMI-IOSCO's *Principles for Financial Market Infrastructures* ('PFMI') and its additional guidance.[5]

In 2017, the FSB made a commitment to continue further work on financial resources to support CCP resolution and on the treatment of CCP equity in resolution, and to determine by end-2018 whether there is need for any additional guidance.

The FSB has determined that further appropriate guidance should be developed in an evidence-based way including by drawing on the practical experience gained from resolution planning by relevant authorities and Crisis Management Groups (CMGs) or, where CMGs have not yet been established, home resolution and/or supervisory authorities.

To inform this process, the FSB has, in consultation with the CPMI and IOSCO, developed this discussion paper that sets out considerations that may be relevant for authorities and CMGs with regard to evaluating whether existing financial resources and tools are adequate to implement the resolution strategy for individual CCPs (Section I.); and considerations that could guide authorities in developing possible approaches to the treatment of CCP equity in resolution (Section II.).

The discussion paper should not be viewed as proposed guidance; rather the responses to the public consultation along with the experience of authorities in evaluating financial resources for resolution taking into account the discussion paper and continued analysis by the FSB should help inform the development of further guidance by end 2020. Any FSB guidance that results from this iterative process will be subject to further public consultation.

The FSB is inviting comments on this discussion paper and the questions set out below. Responses should be sent to fsb@fsb.org by 1 February 2019. Responses will be published on the FSB's website unless respondents expressly request otherwise.

Financial resources for CCP resolution

1. Do you agree with the suggested five-step process to evaluate the financial resources and tools for resolution? What other elements, if any, should be considered?
2. The discussion paper outlines a number of CCP and product specific factors that authorities should consider when assessing the adequacy of resources and tools in resolution. Are these factors appropriate or are there other factors that should be considered?

[5] CPSS-IOSCO, *Principles for Financial Market Infrastructures*, April 2012 (www.bis.org/cpmi/publ/d101.htm and www.iosco.org/library/pubdocs/pdf/IOSCOPD377-PFMI.pdf) and CPMI-IOSCO, *Recovery of financial market infrastructures*, October 2014, revised July 2017 (www.bis.org/cpmi/publ/d162.htm and www.iosco.org/library/pubdocs/pdf/IOSCOPD569.pdf), *Resilience of central counterparties (CCPs): Further guidance on the PFMI*, July 2017 (www.bis.org/cpmi/publ/d163.htm and www.iosco.org/library/pubdocs/pdf/IOSCOPD568.pdf).

3. Should the assessment of financial resources for CCP resolution take into account (a) different CCP ownership structures; (b) different CCP organisational structures; or (c) the products cleared by the CCP? If so, how?

4. Step 1: The discussion paper outlines a number of high-level default and non-default loss scenarios that might lead to resolution. Does this cover a sufficiently broad range of scenarios? What other relevant scenarios, if any, should authorities consider in resolution planning?

5. Step 2: Are the considerations for conducting an evaluation of existing tools and resources appropriate and comprehensive? If not, what other considerations should be included?

6. Step 3: Are the considerations for analysing the hypothetical resolution costs (covering total losses and operational costs) appropriate?

7. Step 4: Is there merit in relevant authorities and CMGs conducting quantitative analyses for the purpose of identifying and sizing potential additional tools or resources for resolution purposes? If so, what quantitative analysis should relevant authorities and CMGs conduct and how could they obtain the necessary data?

8. Step 5: Are the considerations regarding potential means to address funding gaps (including of any proposals to reserve resources for use in resolution) appropriate? Do they adequately address the issues of availability, costs and benefits, impact on and interaction with recovery and business as usual? If not, how should they be framed?

Treatment of CCP equity in resolution

9. Do you agree that the key issues to CCP equity bearing loss in resolution have been accurately identified? Are there other key issues regarding equity bearing loss? What are they and how should they be addressed?

10. Should the treatment of CCP equity in resolution take into account different ownership structures? If so, how?

11. What are your views on the possible mechanisms for adjusting the exposure of CCP equity in bearing loss in resolution set out in Section A? What other possible mechanisms, if any, should be explored?

12. Section B outlines different options for the point in time or in the waterfall for imposing losses on equity. What are your views on these options? Are there any other possible options?

13. What are your views on the potential constraints and challenges described in Section C? Are there other challenges or constraints to equity bearing loss? What are they and how should they be addressed?

14. Section D outlines a number of policy considerations for the treatment of CCP equity in resolution. Are they appropriate and comprehensive? Would you suggest any additional policy considerations?
15. Does the treatment of CCP equity in resolution appear clear under existing arrangements in your jurisdiction or in relation to CCPs you are familiar with?
16. How could authorities reconcile the expectations that equity bears loss in resolution with the 'no creditor worse off than liquidation' safeguard?
17. What, if anything, should change with respect to the treatment of CCP equity in resolution either to clarify existing arrangements or to potentially adjust the exposure of equity bearing loss in resolution (for example, setting out any additional measures to have equity bear loss in resolution in CCP rulebooks)?

Contents

Introduction

In July 2017, the FSB adopted *Guidance on Central Counterparty Resolution and Resolution Planning* ('FSB Guidance') to assist authorities in their resolution planning for CCPs. The FSB Guidance complements the *Key Attributes of Effective Resolution Regimes for Financial Institutions* ('Key Attributes') and the FMI-Annex to the Key Attributes ('FMI Annex').

The FSB Guidance states that the FSB will "continue further work on financial resources to support CCP resolution to determine, based on further analysis and experience gained in resolution planning, by end 2018, whether there is need for any additional guidance [and] consider the need for, and develop as appropriate, further guidance on the treatment of CCP equity in resolution."

This discussion paper seeks public comment to inform this ongoing work.

Part I sets out some considerations that could guide relevant authorities and CMGs in assessing the nature and quality of financial resources needed to absorb losses and other costs and achieve orderly resolution.

Part II considers the treatment of CCP equity in resolution.

I. Assessing the adequacy of financial resources to support resolution

The CPMI-IOSCO *Principles for Financial Market Infrastructures* ('PFMI') establish standards for prefunded financial resources, including the size, role and availability of CCP equity to absorb losses. The PFMI also establish standards for loss allocation arrangements for CCPs, designed to ensure that CCPs are able to address any uncovered losses or liquidity shortfalls related to participant defaults. Those standards, and accompanying CPMI-IOSCO Recovery Guidance, include comprehensive loss allocation arrangements for default losses and some non-default losses related to custody and investment risks so that the CCP can continue to operate in a safe and sound manner.

Consistent with the PFMI, CCPs that are involved in activities with a more complex risk profile or that are systemically important in multiple jurisdictions should hold prefunded resources that, at a minimum, would be sufficient to cover losses from the default of the two participants and their affiliates creating the largest combined exposure in extreme but plausible market conditions. All other CCPs should maintain additional financial resources that, at a minimum, would be sufficient to cover losses from the default of one participant and its affiliates creating the largest combined exposure in extreme but plausible market conditions.[6] The PFMI state that CCPs should have explicit rules and procedures to address fully any credit losses they may face as a result of any individual or combined default among their participants.[7] They also establish standards for CCPs to hold sufficient liquid net assets funded by equity to implement a recovery or orderly wind-down following the materialisation of potential losses arising from all other sources of general business risk.

For CCPs that are determined to be systemically important in their home jurisdiction, the home resolution authority should develop, in cooperation with the CCP's oversight or supervisory authorities (where distinct from the resolution authority), a resolution plan that ensures continuity of the critical functions carried out by the CCP.[8] For CCPs that are considered systemically important in more than one jurisdiction, in addition, Crisis Management Groups (CMGs) should be established to coordinate resolution planning and resolvability assessments across relevant jurisdictions. Resolution authorities and CMGs should coordinate closely with the relevant supervisory and oversight authorities and (where they exist) supervisory colleges for CCPs, who may perform or have performed related assessments in the context of recovery planning.

As part of planning and development of potential resolution strategies including any preferred resolution strategy or strategies, authorities should undertake an assessment of the adequacy of financial resources consistent with the expectations set out in the FSB Guidance. The FSB Guidance lists a number of aspects that authorities and CMGs should consider in their assessment of the adequacy of financial resources for resolution (see Box 1).

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6 PFMI Principle 4, Key Consideration 4; see also Resilience Guidance 4.2.1-4.2.3.

7 PFMI Principle 4 Key Consideration 7.

8 FMI Annex Section 11; FSB Guidance Section 7.

Box 1: Excerpts from the FSB Guidance

Appropriately prudent assumptions about the financial resources that may be required to achieve the resolution objectives (Section 6): "As part of resolution planning, the resolution authority should make appropriately prudent assumptions about the financial resources that may be required to achieve the resolution objectives and the resources that it expects to remain available under the CCP's rules and arrangements at the time of entry into resolution to: (i) address uncovered losses; (ii) replenish resources in line with regulatory requirements within an appropriate timeframe; (iii) meet costs associated with maintaining and operating the critical functions of the CCP until exit from resolution, including the costs for critical dependencies such as service-level agreements, third-party service providers, or other key dependencies; and (iv) meet temporary liquidity needs."

Regular assessments as part of resolution planning (Section 6.1): "As part of resolution planning, the resolution authority should assess regularly what financial resources and tools can reasonably be expected to be available to it under the resolution regime and the CCP's rules and arrangements at the time of entry into resolution, and whether those resources would be sufficient to achieve the resolution objectives in the case of both default and non-default losses."

Assessments of resources for default loss scenarios (Section 6.2): "For default losses, the resolution authority should consider the following aspects in its assessment: (i) the risk characteristics, complexity and pricing uncertainties of the products cleared, and the related potential inaccuracy in initial and variation margin calculations; (ii) the size, structure and liquidity of the underlying market in stressed conditions; (iii) the number of clearing member defaults that would be covered by available prefunded and committed resources under extreme but plausible conditions; (iv) the availability, and potential impact on affected participants, of tools such as partial tear up and variation margin gains haircutting; and (v) the credibility of unfunded arrangements in meeting the CCP's potential needs."

Assessments of resources for all types of loss (Section 6.3): "[F]or all types of loss, the resolution authority should assess the substitutability of the CCP in the markets it serves, the credibility of any additional arrangements, such as insurance agreements or parental guarantees, that may be available to address uncovered credit losses."

Resolvability assessments and addressing impediments to resolvability (Section 8): "The oversight, supervisory or resolution authorities for CCPs should [...] be able to require the CCP to arrange for additional financial resources if that would be deemed necessary to achieve effective resolution. […] As part of the resolvability assessments, resolution authorities should, in coordination with the CCP's oversight or supervisory authorities, carry out periodic crisis management exercises and assess the adequacy of financial resources and of any funding arrangements and accordingly adopt measures to improve the resolvability of the CCP and adjust the resolution plans, where necessary."

This discussion paper outlines a suggested five-step process that could be used by relevant authorities to assess the adequacy of financial resources. The process, which is consistent with the expectations set out in the FSB Guidance, would involve:

- First, an identification and analysis of hypothetical default and non-default loss scenarios that may lead to resolution (A.);
- Second, a qualitative and quantitative assessment of existing resources and tools available in light of these scenarios when applied in resolution (B.);
- Third, an analysis of potential resolution costs (C.);
- Fourth, comparison of existing tools and resources to full resolution costs and identification of any gaps (D.); and
- Fifth, a consideration of the availability, costs and benefits of different means of addressing any gaps identified in Step 4 (E.).

There are a range of factors and circumstances arising from the nature and specific features of a particular CCP and the products it clears that may affect the design of a resolution strategy and resolution plan. Authorities would need to take these into account in carrying out the five-step assessment process. For example:

- **Profile of participants including non-member clients/end users of a CCP.** Tools that allocate losses to a CCP's participants (whether clearing members or clients/end users) may, depending on the size and distribution of losses and particular use of a tool, adversely affect financial stability and result in reputational damage to the CCP (and in some cases, the market(s) cleared). Given the likely elevated price volatility in the event of member failure (including bigger variation margin flows), the impact will be difficult to predict. In addition, the fact that many CCPs or authorities may not know the identity and distribution of end user clients, potential impacts of the use of such loss and position allocation tools would likely be even more difficult to predict than for tools that allocate losses only to clearing members.
- **Type of CCP (e.g. cash equity CCP, derivatives CCP).** The product types cleared by a CCP affect its operations and may also affect recovery and resolution options. For example, cash equity CCPs generally clear trades executed on exchanges or other trading platforms. Also, these products generally have shorter settlement cycles and involve the exchange of a financial instrument for cash, rather than the exchange of payments inherent in most derivatives transactions. As a result, ongoing variation margin is typically exchanged for derivatives products, but not exchanged for cash equities, though some cash equity CCPs may call collateral/mark-to-market margin in certain circumstances. In the event of a member default, a derivatives CCP may conduct an auction of the defaulting member's open positions in order to return to a matched book. A cash equity CCP generally would attempt to liquidate equities received in settlement or held as collateral/margin from the defaulter and obtain additional financial resources from that liquidation. Because there are typically no variation margin gains or losses for cash equity products, gains-based haircutting is not applicable to these types of CCPs. Such CCPs may allocate any remaining losses

to clearing members primarily via assessment calls, or may have other rules based arrangements for dealing with a shortfall.

- **Multi-service CCPs.** Issues regarding timeliness and/or reliability of recovery tools for one service line could spill over and affect other service lines due to, for example, common membership, a default fund supporting multiple service lines or cross-margining where this is permitted. In addition, if there were concentration of collateral, liquidation of collateral caused by problems in one service line could depress collateral values in the market and lead to additional margin calls in other services lines, putting further financial stress on clearing members and other market participants.
- **CCP services involving physical settlement.** In the case where a CCP undertakes to guarantee physical settlement (e.g. commodities), the CCP's recovery options may be more constrained than for other products because there may be fewer clearing members who have the necessary regulatory approvals and ability to manage positions in physically deliverable contracts. This could mean a smaller pool of potential buyers to restore a matched book.
- **CCPs with interoperability arrangements.** There could be increased contagion risk among linked FMIs. For example, depending on the terms of the interoperability arrangement, a CCP may need to participate in or be affected by the recovery process of a linked FMI.

A. Step 1: Identifying hypothetical default and non-default loss resolution scenarios

An analysis of hypothetical scenarios in which recovery may not succeed should cover both **default loss scenarios** (1.) and **non-default loss scenarios** (2.). A key underlying assumption for the scenario analysis is that resolution would occur if a CCP's functions are determined to be systemically important and that recovery of critical functions or an orderly wind-down (that is, the effective termination of a CCP's functions) could not be achieved, and/or that execution of recovery or wind-down would likely compromise financial stability. The circumstances leading to a CCP resolution are likely to be beyond the extreme but plausible market conditions for which a CCP should hold sufficient prefunded financial resources. These circumstances should nevertheless be considered as part of resolution planning.

1. Hypothetical default loss scenarios

CCPs should have in place comprehensive loss allocation arrangements consistent with the PFMI and the expectations set out in the CPMI-IOSCO Recovery Guidance. However, the existence of these standards does not remove the possibility that these arrangements could fail, leading to resolution. In particular, the following non-exhaustive hypothetical default loss scenarios may be relevant:

(i) **The CCP has not established resources and tools called for by existing CPMI-IOSCO standards.** Notwithstanding the standards of the PFMI,[9] it is possible that a CCP has not established loss allocation arrangements that fully address any uncovered credit losses or liquidity shortfalls and, therefore, recovery resources and tools are insufficient to absorb losses and replenish financial resources to minimum regulatory requirements. This design and regulatory compliance issue should be addressed ex ante during business as usual as part of supervision and oversight.

(ii) **The CCP's loss allocation arrangements set out in the recovery plan do not operate as intended, so that the resources are not in fact available or the tools are not able to be used at the time of recovery.** This could be, for example, because the CCP's loss allocation arrangements are found to be legally unenforceable (despite the standards of PFMI 1 (legal risk)) or are subject to operational or governance mechanisms that prevent or slow their use making them ineffective in the specific circumstances.

(iii) **Multiple clearing members do not meet their obligations under the CCP's recovery actions.** Some clearing members may stop honouring variation margin payments on an ongoing basis or may not meet cash calls, for loss allocation and/or replenishment of financial resources, provided for in the CCP's rules. While comprehensive recovery arrangements would permit the CCP to address these circumstances, such as putting non-performing members into default, their execution may present a threat to financial stability and/or indicate a loss of market confidence.

The CCP's rules and arrangements should provide strong incentives for clearing members to perform on their obligations as well as setting out how losses should be allocated in case of non-performance, such as through the CCP's right to call a default on non-performing members and use the defaulting member's resources to meet obligations. But if that group of non-performing clearing members is sufficiently large or if the failure to meet obligations leads to or represents a loss in confidence in the CCP by the broader market participants, the CCP may be unable to continue operations.[10]

Supervisory authorities for clearing members (in the case of clearing members that are regulated entities) have a role in ensuring that clearing members are at all times able

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[9] Implementation of the PFMI is monitored regularly by CPMI-IOSCO. For example, see CPMI-IOSCO, *Implementation monitoring of PFMI: Fifth update to Level 1 assessment report*, July 2018 (www.bis.org/cpmi/publ/d179.htm and www.iosco.org/library/pubdocs/pdf/IOSCOPD605.pdf) and CPMI-IOSCO, *Implementation monitoring of PFMI: follow-up Level 3 assessment of CCPs' recovery planning, coverage of financial resources and liquidity stress testing*, May 2018 (www.bis.org/cpmi/publ/d177.htm and www.iosco.org/library/pubdocs/pdf/IOSCOPD601.pdf).

[10] While the PFMI call for an FMI to "establish rules and procedures that address fully any credit losses it may face," the standard with respect to replenishment is different: The FMI's "rules and procedures should also indicate the FMI's process to replenish any financial resources that the FMI may employ during a stress event, so that the FMI can continue to operate in a safe and sound manner." The PFMI do not call for comprehensive arrangements for guaranteeing replenishment of resources needed to continue operations.

to measure, manage and control their exposures to CCPs and can meet their obligations towards the CCP. In addition, Principle 23 of the PFMI and the CPMI-IOSCO Recovery Guidance state that CCPs should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the CCP, and tools should be transparent and designed to help CCP participants to measure, manage and control their potential losses and liquidity shortfalls and their exposures to CCPs.

(iv) **The CCP's recovery plan is consistent with the PFMI but the relevant authorities[11] determine that resolution should be initiated before some of the arrangements or tools under the CCP's recovery plan are applied, because their application could threaten financial stability and/or the continuity of critical functions in the prevailing market conditions.** For example, there may be concerns if the continuation of the recovery actions risks increasing the likelihood of needing to place additional clearing members into default or haircut positions to an extent that could compromise financial stability through negative contagion effects.

2. Hypothetical non-default loss scenarios

For non-default losses, the PFMI state that CCPs should hold financial resources against general business and operational risks. Under the PFMI, a CCP should hold sufficient liquid net assets funded by equity to implement its recovery or orderly wind-down plan. The amount of liquid net assets should be determined by the general business risk profile and the length of time required to achieve a recovery or orderly wind-down of critical services. Specifically, they state such liquid net assets should be equal to, at a minimum, six months of current operating expenses.[12] The PFMI and the CPMI-IOSCO Recovery Guidance also address comprehensive loss allocation for custody and investment losses, but not for other non-default losses. Accordingly, CCP equity would need to absorb any unallocated loss arising from the materialisation of general business risk. See below for examples of different types of non-default risk that could lead to losses.

- **Investment risks.** Losses on investments of initial margin or default fund assets caused by e.g. the failure of an investment counterparty where such losses are not fully allocated to members individually by contract or generally by CCP rules. Also, losses could occur from the investment of a CCP's own capital (both, 'skin-in-the-game' (SITG) and other equity).
- **Failure of a custodian bank, settlement platform, payment bank or concentration bank.** This could result in a lack of timely access for the CCP to its assets, inability to transform margin or investments held as securities into cash, or loss of deposit balances

11 Relevant authorities may include resolution authorities, supervisory and oversight authorities, other CMG members and other authorities with broader financial stability responsibilities.

12 PFMI, Principle 15.

held with a failed bank and leaving the CCP as an unsecured creditor. This could cause liquidity or solvency issues, depending on the nature or consequences of the failure and the time taken to regain access to the assets.[13]

- **Operational risk events.** Financial losses could result from a range of operational failures, such as human error (e.g. incorrect booking of investment trades), IT failures (e.g. corrupted transaction data due to system bugs or malicious insiders or outsiders), fraud, or a cyber-attack leading to theft of assets.
- **Legal risks.** Adverse legal action or judgement leading to losses or significant uncertainty for the CCP, or other unanticipated legal risk crystallising. This could lead to, for example, the CCP being unable to enforce its rulebook, or take actions in jurisdictions other than its country of incorporation.
- **Non-performance of vendors or service providers.** These could cause liquidity or operational problems that might generate losses for a CCP depending on the service provided, for example if the CCP relies on a service provider for IT support for its risk models.

Consistent with the PFMI, CCPs should address these risks in business as usual, for example by limiting credit and liquidity risks in the investment of assets, using central bank deposit or liquidity facilities, using custody and settlement services provided by a (PFMI-compliant) central securities depository, or obtaining insurance against certain types of non-default losses.

However, a CCP's recovery plan may not be sufficient to cover fully potential non-default losses and resolution may be called for. Possible but non-exhaustive scenarios in which resolution may be called for are:

(i) **The CCP does not meet existing CPMI-IOSCO standards, or does not have sufficient financial resources to cover non-default losses.** The loss is larger than the amount of capital and contingent resources (e.g. insurance, parental guarantees) available to the CCP to cover it or, where the rulebook also provides that losses are borne by the CCP's clearing members, the aggregate amount is insufficient to cover the loss and/or to replenish capital back to the minimum levels necessary to continue operating. Where related to a design and/or regulatory compliance issue, the situation should be addressed ex ante during business as usual as part of supervision and oversight.

(ii) **The CCP's loss allocation arrangements, where they exist, address (specific) non-default losses in a comprehensive manner but do not operate as intended, so that the resources are unavailable or cannot be replenished or the tools are not able to be used at the time of recovery.** For example, this could be because the CCP's loss allocation arrangements are found to be legally unenforceable or are subject to

[13] Some CCPs allocate certain custodial losses to clearing members; this would mitigate the credit risk but not the liquidity risk associated with this scenario.

operational or governance mechanisms that make them ineffective in the specific circumstances. Insurance coverage may be in place but not available when needed.

(iii) **The CCP's clearing members and/or shareholders do not meet their obligations or do not support the CCP's recovery actions.** Clearing members may not meet any applicable loss allocation or replenishment obligations (where they exist). The CCP's rules and arrangements should provide strong incentives for clearing members to perform their obligations as well as setting out how losses should be allocated in case of non-performance, such as through the CCP's right to call a default on non-performing members and use that member's resources to meet obligations.

Shareholders (or the CCP's parent, where applicable) may not cover CCP non-default losses (including where there is a contractual commitment, parental guarantee, etc. to provide financial resources) which are not allocated elsewhere and/or are unwilling to recapitalise the CCP.

(iv) **The CCP's recovery or wind-down arrangements are consistent with the PFMI but the relevant authorities determine that resolution should be initiated before some of the arrangements or plans are applied, because their application could threaten financial stability and/or the continuity of critical functions in the prevailing market conditions.** For example, wind-down may not be an option for a CCP that provides critical services for which substitutes are not readily available.

B. <u>Step 2: Evaluating existing tools and resources for resolution</u>

An evaluation of existing recovery and resolution tools and resources, against potential resolution strategies, could include consideration of:

(i) design issues such as legal constraints, operational caps and limitations of resolution authority powers;

(ii) execution risks, such as the risk that a resource or tool cannot be implemented or enforced in the way intended, or cannot be applied in a timely manner. This can include consideration of the steps that need to be taken to ensure that clearing participants (and their supervisors) understand and are prepared to bear the implications of the use of all the tools in the CCP's rulebook and the resolution framework;

(iii) financial stability implications of using available resources and tools;

(iv) 'no creditor worse off than in liquidation' (NCWOL) implications and the potential for compensation claims;

(v) the potential impact on stakeholder (including clearing member) incentives to support recovery or resolution; and

(vi) the feasibility and credibility[14] of achieving the resolution objective of maintaining continuity of critical functions as laid out below for default loss scenarios (1.) and non-default loss scenarios (2.).

The evaluation should involve both qualitative and quantitative analyses. However, any quantitative analysis by authorities to assess and size available resources for resolution purposes should be combined with an assessment, in coordination with the CCP's supervisor, of whether individual CCPs have fully implemented the tools and resources called for by existing resilience and recovery standards.[15] Going forward, quantitative analyses of available financial resources could be informed by supervisory stress-testing for extreme market scenarios.

1. Default loss scenarios

For default loss scenarios, key areas for consideration in the qualitative and quantitative assessment of a CCP's resources and tools (in addition to those described in section 6 of the FSB Guidance) could include the following:

Cash calls

- understanding how cash calls work under the CCP's rules, including when and how they can be used, and the governance processes around the use of cash calls;
- constraints on their use in accordance with the CCP rules, e.g. caps on size of calls and numbers of calls per default or across multiple defaults within a prescribed period;
- performance risk, e.g. members failing to meet calls (and mitigants against non-performance), risks to timely performance due to governance requirements, rights to legal review or challenge etc.;
- potential financial stability impacts, including the likelihood and impact of concurrent cash calls by multiple CCPs that could be affected by the same, or simultaneous, event(s).

Variation margin gains haircutting (VMGH)

- understanding how VMGH works under the CCP's rules, including when and how VMGH can be used, and the governance processes around the use of VMGH;
- constraints on its use in accordance with the CCP's rules e.g. how VMGH is calculated over sequential settlement cycles, applicable caps or limits on the time period and number of cycles in which a CCP may perform VMGH, etc.;

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14 A financial institution is "resolvable" if it is feasible and credible for the resolution authorities to resolve it in a way that protects systemically important functions without severe systemic disruption and without exposing taxpayers to loss. For resolution to be feasible, the authorities should have the necessary legal powers - and the practical capacity to apply them - to ensure the continuity of functions critical to the economy. For resolution to be credible, the application of those resolution tools should not itself give rise to unacceptably adverse broader consequences for the financial system and the real economy. See FSB Key Attributes, Annex I-3: Resolvability Assessments.

15 To the extent a CCP has not fully implemented the tools and resources called for by existing standards, the relevant supervisory/oversight authorities should address the situation during business as usual as a high priority.

- potential market and financial stability impacts e.g. particular impact on participants including members or clients with directional positions; size of daily VM gains and losses in ‘normal’ vs ‘extreme’ (and beyond ‘extreme but plausible’) market conditions.

Full tear up, partial tear up or other position allocation/matched book tools

- understanding how tools to return the CCP to a matched book work under the CCP’s rules (such as auctions or tear up of contracts), including when and how those tools would be used and the governance processes around the use of such tools;
- constraints on the use of matched book tools in accordance with the CCP’s rules, including the timing, scope, price of tear up;
- understanding the potential impact of the use of these tools on continuity of critical functions, on netting sets, and on linked FMIs.

CCP equity

- understanding the availability of predefined and prefunded financial resources provided by the CCP to absorb losses as part of the default waterfall (SITG), and when it can be used;
- understanding the availability of any additional loss absorbing equity beyond SITG (including from the CCP’s parent), the amount of such additional loss absorbing equity, and how it can be used to cover losses;
- where relevant, whether the parent (or other affiliated entity) or shareholders have a legal commitment e.g. a contractual agreement to provide, or would be likely to voluntarily contribute, further resources to cover losses or replenish equity (including SITG) and the amount of any such potential resources.

Replenishment of minimum resources

- arrangements by which the default fund, SITG and other minimum resources required for continued authorisation would be replenished, including the viability and reliability of such arrangements;
- any potential constraints with respect to replenishment of minimum resources (e.g. caps on the amounts, frequency or timing of replenishment).

Statutory powers of the Resolution Authority

- any statutory powers or resources that are available to the resolution authority to allocate losses and, where applicable, fund resolution costs and the means of funding those, e.g. additional cash calls or rounds of VMGH (including quantified amounts);
- conditions governing the use of such powers and the interaction of statutory powers with the rulebook;
- NCWOL implications with respect to the use of such statutory powers.

2. Non-Default loss scenarios

For non-default loss scenarios, key areas for consideration in the qualitative and quantitative assessment of a CCP's tools and resources (in addition to those described in section 6 of the FSB Guidance) could include the following:

Availability and effectiveness of insurance coverage and other third party resources in resolution

- analysis of the types of non-default risks covered under applicable insurance policies or other third-party resources and the likelihood of a CCP's non-default loss resulting from a risk that falls outside such coverage;
- limitations on the use of insurance, e.g. the CCP's ability to absorb deductible and co-insurance amounts, the financial limits of such coverage and the likelihood of losses in excess of such limits, and the CCP's ability to absorb such excess losses;
- performance risk including timing mismatches, i.e. legal or operational processes that could prevent or slow timely access to the resources; when would funds be needed, when would funds from insurance be available, and will the CCP be able to fund the difference?

CCP equity

- the amount of CCP equity, or other resources on the balance sheet of the CCP, available to cover non-default losses of different types, and how it compares to the potential loss amount (or the amount in excess of that able to be allocated to members, where relevant);
- the amount and enforceability of other committed resources in the form of guarantees or other commitments to provide loss absorbing equity or funds for recapitalisation;
- the CCP's shareholders (or other group entities) providing additional loss absorbing equity in excess of that provided for in the rulebook or other arrangements e.g. additional contribution from current or new shareholders. As part of this, possibility that funds may not be provided given uncertainty about the size of losses and the risk that additional losses may crystallise over time e.g. due to ongoing litigation.

Allocation of losses to participants

- the scope and terms of any contractual arrangements for allocating non-default losses to participants (including clearing members);
- financial caps and legal or operational constraints on use of loss allocation to participants for non-default losses in CCP rules, and how any cap compares to possible loss amount;
- performance risk, i.e. members failing to meet calls, and mitigants;
- potential impact on affected participants and the extent to which this could raise financial stability concerns.

Allocation of losses to creditors in resolution

- the extent of the legal powers of the resolution authority to impose losses on creditors of the CCP and, separately, to convert liabilities into equity in order to recapitalise the CCP;
- the insolvency hierarchy of the CCP's creditors and identification of any types of creditor that it may be difficult to apply losses to without risk to the resolution objectives;
- NCWOL considerations and possibility that there may be challenges if losses are not allocated equally to creditors ranking pari passu with others.

Statutory powers of the Resolution Authority

- any statutory powers available to the resolution authority to allocate losses, e.g. equity write down/write off, ability to enforce recapitalisation, additional cash calls on clearing members, collect insurance proceeds, or seek restitution from the CCP's shareholders, affiliates, management or control persons;
- conditions governing use of such powers and the interaction of statutory powers with the rulebook;
- NCWOL implications with respect to the use of such statutory powers.

C. Step 3: Analysing full resolution costs

For the default and non-default scenarios identified in Step 1, authorities and CMGs need to assess the different types of costs that could arise in the resolution of a CCP. These include (i) the amount of losses of the CCP and the costs of replenishing its financial resources and (ii) operational costs that may be incurred by the resolution authority, including its own additional costs (e.g. legal and accounting fees) and costs of maintaining the continuity of critical functions of a CCP.

In addition to the losses of the CCP and the costs of replenishing its financial resources, resolution costs may include the costs of supporting the operational continuity of the CCP's critical functions, possibly for several weeks or months, while authorities implement the resolution strategy and until the CCP can exit from resolution, as well as various operational expenses such as hiring a resolution manager and extraordinary legal or accounting costs. Even following exit from resolution, there may be residual costs faced by authorities, for example associated with potential NCWOL compensation claims.

Considerations for relevant authorities and CMGs when conducting a qualitative and quantitative assessment of resolution costs could include the following:

- the potential size of full resolution costs associated with the potential resolution strategy or strategies and how these should be estimated;
- how these costs might vary depending on (i) the degree to which the CCP's recovery has been implemented and (ii) the chosen resolution strategy;

- over what time frame resolution costs that might be incurred in the short term and longer term would likely need to be met;
- who incurs the costs and who would be expected to bear the different types of cost, and whether and from whom these may be ultimately recoverable.

D. Step 4: Comparing existing tools and resources to resolution costs and identification of any gaps

After evaluating the resolution cost analysis of Step 3, relevant authorities and CMGs need to compare them to existing tools and resources in Step 2 in order to identify any potential shortfalls or gaps. This may include considering whether existing tools and resources are sufficient to cover the type of cost they are intended for; whether resources could be used to cover other types of cost; and whether there are any types of cost that are not covered by existing tools and resources. In doing this, relevant authorities and CMGs may need to consider:

- the availability of existing tools and financial resources and amounts based on the analysis set out in Step 2 considering the point in time (e.g. stage in recovery at which resolution might be triggered) at which the resources would be required to cover the different types of resolution costs;
- the time horizon over which resolution costs would need to be met and over what timeframe the resolution strategy can be financed by the estimated available funding;
- based on the analysis of Step 1, whether there are extreme cases where the nature and/or size of available financial resources would not be appropriate or sufficient;
- what additional resources needs would arise in the identified cases;
- what additional evidence or analysis would be necessary to determine the amount, if any, of additional financial resource needs.

E. Step 5: Considering the availability, costs and benefits of potential means of addressing gaps

To the extent any gaps between existing tools and resources and resolution costs are identified in Step 4, relevant authorities may need to consider as part of resolution planning and in accordance with the legal framework of the jurisdiction of the CCP:

(i) what options exist for addressing any identified gaps (which may include changes to reduce the cost of the resolution strategy, or changes in the resolution strategy itself);

(ii) whether the composition or size of existing tools or resources may need to change;

(iii) whether additional tools or resources may be necessary to support resolution, including the availability, costs and benefits of options and their possible implications on incentives;

(iv) the costs and benefits of each option and their implications for incentives, during business as usual, default management, recovery, and resolution; and any unintended consequences of each option.

Considerations for relevant authorities and CMGs when analysing the adequacy of financial resources or tools, and any implications of requiring additional resources or tools could include the following:

Nature of additional financial resources

- what would be the nature of the additional financial resources or tools needed to implement potential resolution strategies and address any gaps identified;
- what are possible methodologies for sizing any additional resources needs and demonstrating they are appropriate and proportionate;
- would the additional financial resources or tools be reserved for resolution or would they also be available in recovery;
- how would additional financial resources be funded;
- could the resolution strategy be changed instead/as well to address the identified gap.

Cash calls

- how can the possibility of additional cash calls reserved for resolution be made transparent to clearing participants;
- what governance or control arrangements should apply;
- how can additional cash calls be sized so that they remain measureable, manageable, and predictable and how can there be assurance that clearing participants are adequately prepared to meet the cash calls;
- should any additional cash calls apply both for loss absorbency and recapitalisation;
- if the resolution authority has the power to issue cash calls other than in accordance with the rulebook; and what would be the NCWOL implications of this.

Bail-in/write down powers

- whether a bail-in power is available to the resolution authority;
- whether bail-in could provide for additional loss absorbing and recapitalisation capacity, and if, so:
    - o whether the resolution authority has the power to write down debt or convert liabilities;
    - o what (if any) liabilities would be available for write-down or bail-in;
    - o what (if any) impediments to the write-down or bail-in of the identified liabilities could arise;
    - o what effects could bail-in have if used for recapitalisation;
    - o what effects bail-in/write-down could have on CCP collateral mix and liquidity.

- would non-bankruptcy remote initial margin be available and would the resolution authority have the power to write it down; and if not would there be potential NCWOL issues.

Interaction with recovery and business as usual impact on the CCP

- how additional financial resource requirements could affect the ongoing business model of the CCP;
- whether additional financial resource requirements could result in increased costs of central clearing (such as through increased charges and fees for clearing members and other users) and be a disincentive to centrally clear;
- whether any additional resources or tools could be available for use only in resolution and under which conditions (e.g. established by law or statute, or foreseen contractually in the rulebook) and, if so,
    - the impact on incentives for recovery;
    - the NCWOL implications of reserving financial resources or tools only for resolution compared to recovery, including the risks of the successful compensation claims on the resolution authority or applying them differently in resolution considering the insolvency regime and the treatment of the rulebook in liquidation;
    - how to mitigate any NCWOL concerns (e.g. whether to reflect the additional tools and resources in the rulebook, if this is an appropriate mitigant);
    - whether the relevant authorities have powers to effect rulebook changes;
- whether the above analysis affects or changes the potential resolution strategy(s), and if so, how; whether certain resolution strategies might be costlier than others to implement.

Other considerations

- to what extent could the identified additional tools for relevant authorities be helpful in re-establishing a matched book;
- to what extent could the identified additional resources and tools address liquidity needs in resolution.

II. Treatment of CCP equity in resolution

One of the objectives of an effective resolution regime consistent with the Key Attributes is to provide mechanisms which make it possible for shareholders and creditors to absorb losses in a manner that respects the hierarchy of claims in liquidation, including that equity should absorb losses first. The FSB adopted sector-specific guidance to the Key Attributes recognising some Key Attributes require further explanation and interpretation to be effectively implemented in a certain sector.[16] The sector-specific guidance for FMIs in II-Annex 1 supplements the Key Attributes – which apply generally to resolution regimes for all systemically significant or critical financial institutions including FMIs – by indicating how particular Key Attributes, or elements of particular Key Attributes, should be interpreted when applying to resolution regimes for FMIs or specific classes of FMI.[17]

A key safeguard for creditors in the Key Attributes that requires some interpretation within the context of CCPs is the 'no creditor worse off than in liquidation' ('NCWOL') safeguard. The NCWOL safeguard confers on creditors a right to compensation where the hierarchy of claims in liquidation and the principle of equal (pari passu) treatment of creditors of the same class are not respected in resolution and, as a result, they do not receive what they would have received in a liquidation of the firm under the applicable insolvency regime.

In the context of CCPs, the assessment of whether participants, equity holders, and creditors have been made worse off than in liquidation should assume the full application of the CCP's rules and arrangements for loss allocation.[18]

For losses from general business risk, the CCP's equity typically bears the losses. For losses from participant default, a CCP should have in place comprehensive loss allocation arrangements consistent with the PFMI so that the CCP can continue to operate in a safe and sound manner and thus avoid liquidation. Typically, these arrangements allocate the majority of the losses to clearing members (and potentially non-member participants). CCPs may also have in place loss allocation arrangements for custody and investment risks, consistent with the CPMI-IOSCO Recovery Guidance.

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16 FSB Key Attributes, Foreword p.2

17 See Key Attributes, Appendix II, Annex 1, Resolution of Financial Market Infrastructures (FMIs) (II-Annex I) (pages 57-58). As stated in II-Annex 1 "This Annex should be read with the Key Attributes, and the guidance on individual KAs should be considered in conjunction with the KA to which it relates. The Annex does not replace the Key Attributes, and there should be no inference that a particular KA or element of a KA does not apply to an FMI simply because there is no supporting provision in this Annex. This Annex should also be read alongside PFMI which require systemically important FMIs to have a comprehensive and effective recovery plan. More specifically, the PFMI require FMIs to establish explicit rules and procedures that address fully any credit losses they may face as a result of any individual or combined default by participants with respect to any of their obligations to the FMI; how potentially uncovered credit losses would be allocated; and how financial resources that the FMI may deploy during a stress event are replenished. The PFMI also require FMIs to establish explicit rules and procedures that enable the FMI to effect same-day, and where appropriate, intra-day and multi-day settlement of payment obligations on time following any individual or combined default among its participants."

18 Key Attributes, FMI Annex paragraph 6.1; FSB Guidance Section 5.

In most loss allocation arrangements for default losses, as well as (where arrangements have been put in place) for losses associated with the investment and custody of participant assets, only a portion of a CCP's equity is exposed to loss under the CCP's rules; this is often referred to as "skin in the game" (SITG). SITG is a pre-defined tranche of a CCP's own funds that is typically positioned before additional losses are mutualised or otherwise allocated and, with regard to default losses, after the defaulting member's resources.[19] Use of SITG to absorb losses reduces the equity of the CCP unless replenished. SITG is not calibrated with a view to constituting a significant amount of loss absorbing resource. Rather, SITG is calibrated to provide confidence in the risk-management incentives of the CCP.[20]

The interaction of full loss allocation arrangements with the NCWOL safeguard may have the effect of shielding CCP equity from losses in resolution by allocating losses elsewhere. Thus if a resolution takes place, this may imply that, depending on the cause of the loss, equity holders should in fact maintain their equity interest in the CCP or else be compensated in accordance with the NCWOL safeguard should equity bear losses in excess of the amounts defined in the recovery arrangements.

A resolution in which shareholders remain in place might raise concerns about whether such resolution achieves an optimal outcome, and could potentially give rise to moral hazard. If, however, equity were to be exposed to loss in a resolution beyond that which would be exposed in liquidation assuming full application of the CCP's loss allocation rules, NCWOL claims may arise.

In developing resolution plans and strategies, relevant authorities therefore need to understand the creditor hierarchy in liquidation taking into account the CCP rules and arrangements; effects and consequences of losses falling on creditors, equity holders and the CCP's participants; and the implication for the development of an effective resolution strategy taking into account the NCWOL safeguard.

The FSB Guidance sets out general principles regarding the allocation of losses in resolution and NCWOL. See Box 2.

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[19] There are some examples of other arrangements, such as the CCP's resources being depleted in parallel with the default fund (pari passu), or of a second ('senior') tranche of CCP resources available after using the default fund but before additional tools such as cash calls are exercised.

[20] For a CCP that is owned by its members, those member/owners may also absorb further losses beyond SITG in their capacity as members.

Box 2: Excerpts from the Key Attributes and FSB Guidance (Section 4)

Key Attribute 1.2: "Financial market infrastructures ("FMIs") should be subject to resolution regimes that apply the objectives and provisions of the Key Attributes in a manner as appropriate to FMIs and their critical role in financial markets. The choice of resolution powers should be guided by the need to maintain continuity of critical FMI functions."

Key Attribute 5.1: "Resolution powers should be exercised in a way that respects the hierarchy of claims while providing flexibility to depart from the general principle of equal (pari passu) treatment of creditors of the same class, with transparency about the reasons for such departures, if necessary to contain the potential systemic impact of a firm's failure or to maximise the value for the benefit of all creditors as a whole. In particular, equity should absorb losses first, and no loss should be imposed on senior debt holders until subordinated debt (including all regulatory capital instruments) has been written-off entirely (whether or not that loss-absorption through write-down is accompanied by conversion to equity)."

Key Attribute 5.2: "Creditors should have a right to compensation where they do not receive at a minimum what they would have received in a liquidation of the firm under the applicable insolvency regime ("no creditor worse off than in liquidation" safeguard)."

FMI Annex 4.9: "Subject to the relevant safeguards set out in paragraph 4.11 and in KA 5 (as elaborated in paragraph 6.1) resolution authorities should have powers to:

(i) enforce any existing and outstanding contractual obligations of the FMI's participants to meet cash calls or make further contributions to a guarantee or default fund, or any other rules and procedures of the FMI for loss allocation (including for the repayment of liquidity providers) where they have not been already applied exhaustively by the FMI prior to the entry of the FMI into resolution;

(ii) enforce any existing and outstanding obligations of the FMI's participants pursuant to the rules and procedures of the FMI to accept allocations of the positions of a defaulting participant;

(iii) write down (fully or partially) equity of the FMI;

(iv) write down and/or convert to equity ("bail in") unsecured debt of the FMI in a manner that respects the hierarchy of claims under the applicable insolvency regime;

(v) reduce the value of any gains payable by the FMI to participants (for example, by variation margin hair-cutting);

(vi) terminate ("tear up") or close out contracts."

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 "no creditor worse off 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."

Allocating losses to equity holders in resolution (FSB Guidance Section 4): “Existing owners’ equity in the CCP should absorb losses in resolution, to the extent not already written down upon enforcement of the CCP’s rules and contractual arrangements. The power to write down equity of the CCP in resolution should be set out in the legal framework and, where needed, reflected in the CCP’s rules and arrangements, and its constitutive arrangements (e.g. articles of incorporation).”

Default losses (FSB Guidance Section 4.1): “In resolution, equity should be fully loss absorbing. It should be clear and transparent at which point in resolution any remaining equity would be written down, for example, no later than at the point at which prefunded and committed financial resources such as cash calls in recovery available under the CCP’s rules and arrangements would have been exhausted.”

Non-default losses (FSB Guidance Section 4.2): “In resolution, equity should absorb non-default losses no later than at the point at which any applicable loss allocation arrangements available under the CCP’s rules and arrangements for non-default losses have been exhausted. Moreover, equity should be written down before losses are allocated to creditors in accordance with the creditor hierarchy under the applicable legal framework.”

Concurrent default and non-default losses (FSB Guidance Section 4.3): “If both default and non-default losses occur concurrently, the losses attributable to each distinct cause should be allocated separately, in accordance with the applicable loss allocation rules and arrangements for default losses and non-default losses.”

Alternative approaches to loss allocation (FSB Guidance Section 4.4): “Resolution authorities may consider alternative approaches to allocating losses to existing equity holders and recapitalising the CCP, such as writing down the equity and selling new equity in the CCP. The approach chosen may vary depending on the structure of the CCP (for example, single or multi-service), the value of the clearing service in which the default has taken place relative to the equity of the CCP, and constraints under applicable law.”

No creditor worse off safeguard (FSB Guidance Section 5): “CCP participants (if and to the extent that the resolution authority departs in resolution from the loss allocation under the CCP’s rules and arrangements), equity holders and creditors should have a right to compensation where they do not receive in resolution at a minimum what they would have received if, instead of resolution, the CCP had been liquidated under the applicable insolvency law (“no creditor worse off than in liquidation” (NCWO) safeguard).

For the purposes of determining whether a participant, equity holder or creditor is worse off as a result of resolution measures than in liquidation of the CCP under applicable insolvency law, the assessment of the losses that would have been incurred or the recoveries that would have been made if the CCP had been subject to liquidation should assume the full application of the CCP’s rules and arrangements for loss allocation.

The counterfactual underlying the NCWO safeguard should be clear and transparent for both default and non-default loss scenarios.”

When developing resolution plans, relevant authorities need to have a clear understanding of the treatment of equity under existing recovery arrangements distinguishing between default and non-default loss scenarios. Based on this understanding they may consider:

(i) possible mechanisms for adjusting the exposure of CCP equity in bearing losses in resolution (i.e. when and how much equity is exposed to loss), to the extent that any adjustment is considered appropriate (A.);

(ii) the point in time or in the waterfall for equity bearing losses (B.);

(iii) potential challenges and constraints to CCP equity bearing losses in resolution (C.); and

(iv) any other policy considerations that may affect their assessment of whether the treatment of CCP equity in resolution is appropriate (D.).

The above considerations and potential development of any further guidance would also have to take into account the ownership structure of the CCP.

A. Possible mechanisms for adjusting the treatment of CCP equity in resolution

There is a range of possible mechanisms that a resolution authority may use to adjust the exposure of CCP equity to loss in resolution if it has the relevant legal authority. These include:

(i) Exposure of some or all of the equity of the CCP via modification of the contractual loss allocation arrangements. CCP SITG is usually structured in one or more tranches of equity exposed to loss at different fixed points in the waterfall (including potentially in parallel with the clearing participants' resources). Depending on the standard established in statute/regulations or by the supervisory authority and on the CCP's actual shareholder equity at a given point in time, this approach could in theory expose the full amount of a CCP's equity to loss in resolution in one or more tranches, or else be limited to a smaller amount, for example an amount equal to the CCP's minimum capital requirements. Depletion of CCP equity below the minimum regulatory requirements would result in the need for the CCP to raise capital to remain a going concern. If positioned at specific stages of the waterfall and implemented prior to resolution actually occurring, exposure to loss absorption could potentially occur in recovery as well as resolution.

(ii) Full or partial write down of equity and cancellation of existing shares. The resolution authority could use statutory resolution powers, if available, to write down remaining equity and cancel the existing shares to allocate any remaining losses after ordinary default management and recovery measures have taken place. This may be an explicit/statutory power, or may be a power derived from the exercise of another resolution tool. Such allocation of losses could result in the depletion of CCP equity below the minimum regulatory requirements, which in turn would result in the need for the CCP to raise new capital to maintain its critical functions.

(iii) Transferring critical CCP operations (assets and certain liabilities) to a bridge entity and placing the remnant CCP into liquidation/receivership. The resolution authority could transfer all of the CCP's remaining open positions and related collateral or parts thereof (e.g. a matched book, such as a clearing service) to another CCP or a bridge institution, with the existing CCP being wound down. Transferring any remaining SITG resources to the bridge institution or new CCP may further increase the exposure of equity holders of the remnant CCP to losses.

(iv) Dilution of existing shares as a result of raising new capital through conversion, issuance or transfer of new shares. Existing equity holders may suffer dilution of their ownership and equity value during the resolution as a result of various actions by a resolution authority to raise new capital: for example, a recapitalisation through the issuance of new shares, rights, options or deliverable warrants, the conversion of debt instruments (if any) or other eligible liabilities into equity (bail-in), or the compensation of clearing participants through the issuance of new shares in exchange for bearing losses in excess of their obligations under the CCP's rules and arrangements.

As stated in FSB Guidance section 2.15, the resolution authority should have the power (but not an obligation) to compensate clearing members that contribute financial resources to a resolution in excess of their obligations under the CCP's rules and arrangements, for both default and non-default loss scenarios. Although not specified in the FSB Guidance, this could be done in a number of ways, for example by providing to them appropriate amounts of equity or other instruments of ownership, debt instruments convertible into equity or rights/claims on future profits.

One way to achieve this would be to provide shares as compensation in return for any cash call or VMGH that may be applied in the use of resolution powers (in addition to and beyond the arrangements set out in under the CCP's rules). Converting existing claims on the CCP into equity or providing equity in exchange for new value from members, in order to recapitalise the CCP could avoid the difficulty of finding investors willing to recapitalise the CCP if it was perceived to have little remaining franchise value.

However, issuing shares in return for a (resolution) cash call or VMGH could pose some practical challenges. Some CCP participants may be prohibited from holding CCP equity, whether by law or in accordance with their internal procedures. In addition, as VMGH can be passed onto clients and a CCP may not know the identity of those clients, it may be difficult to identify those bearing losses.

Those who do receive equity may not see it as true compensation for losses suffered. Those affected by VMGH may be eligible to receive any recoveries made by the CCP from the estate of a defaulter. Those recoveries can in practice be very significant, but can take months or years to secure through the defaulting member's liquidation processes.

Another alternative way to achieve the objective of imposing losses on equity would be to require CCPs to provide in their rulebooks that resolution VMG haircuts would be repaid by the CCP, and participants who received resolution VMG haircuts over and above those provided for in the CCP's own recovery arrangements would have a claim against the CCP for the amount of such haircuts.

B. <u>The point in time or in the waterfall for imposing losses on equity</u>

The timing (or sequencing) of imposition of losses upon equity beyond SITG is a key consideration because of its potential impact on stakeholder's incentives to support recovery and resolution. Broadly, the following options could be considered individually or in combination. Equity may be exposed to loss at:

- **(i)** **Entry into resolution.** The imposition of losses on equity could coincide with the decision by the resolution authority to trigger resolution having determined that the conditions for entry into resolution set out in statute or regulation had been met.
- **(ii)** **A point following entry into resolution that is determined ad hoc and on a case by case basis at the discretion of the resolution authority.** Once resolution has been triggered, the timing of the imposition of losses on equity and as a result also the order of loss allocation would be at the discretion of the authorities.
- **(iii)** **One or more specific, fixed point(s) in the loss allocation waterfall (including in parallel to the use of other resources in the waterfall).** For default losses and non-default losses that are subject to comprehensive loss allocation arrangements, a write-down of equity could occur at a fixed point or points in the waterfall (e.g. there could be one or more tranches of equity exposed to loss in addition to SITG, at different fixed points in the waterfall). Potential options for positioning within the default waterfall include: (i) after the prefunded resources (i.e. defaulter's initial margin and default fund) but before committed resources are used; (ii) at a later specified stage, such as once (a certain number of) cash calls are exhausted or after a specified number of cycles of VMGH; or (iii) exposing equity to losses at a fixed point but concurrently with the use of other recovery tools such as cash calls.

These options would require further analysis as to the pros and cons, including: incentive effects for stakeholders, particularly clearing members, to support recovery; the need to maintain an appropriate balance between flexibility for the resolution authority and certainty and predictability for participants; implications for the application of the NCWOL safeguard; and assessment of possible options to attenuate or solve the identified NCWOL obstacle.

C. <u>Potential challenges and constraints to CCP equity bearing loss in resolution</u>

Potential challenges and constraints that could prevent losses being imposed upon CCP equity in resolution include the following:

- (i) **NCWOL claims by shareholders.** As noted above, for default losses and some non-default losses CCPs are expected to have comprehensive loss allocation arrangements. These arrangements typically limit the losses borne by the CCP (and thus by its shareholders) to a specified amount. In accordance with the FMI Annex, the NCWOL safeguard should assume the full application of the CCP's rules and procedures for loss allocation. However, depending on the creditor hierarchy as established by the applicable local insolvency law and the CCP's rulebook, shareholders may have a NCWOL compensation claim for any loss imposed on equity in resolution before loss allocation and position allocation tools available under recovery are exhausted. This may represent a risk to public funds. The same risk may not apply to those non-default losses where the CCP's rules and arrangements do not limit the extent to which equity is exposed to loss.

(ii) **Lack of powers to impose losses on equity in resolution.** Resolution authorities may have only limited or no powers to write down equity of a CCP or convert debt to equity (whether in resolution or otherwise). Where write down or conversion powers do exist, they may only exist due to powers provided by resolution regimes for financial institutions and only be available for CCPs that fall within the scope of such resolution regimes, e.g. where the CCP holds a banking licence.

Options for addressing challenges may include changes to legislation or CCP rulebooks or changes to relevant governance documents of the CCP to support subordinating shareholders to other creditors, or to set out the point at which equity absorbs losses in legally enforceable terms. Any such changes should be applied consistent with the Key Attributes.

D. Policy considerations for the treatment of equity in resolution

In determining whether any adjustment to the treatment of equity in loss resolution scenarios (in particular default loss scenarios) would be appropriate, authorities may be guided by a range of policy considerations such as the following:

- **Impact on CCP management incentives to pursue sound risk management.** Some argue that, notwithstanding the safeguards provided by compliance with the PFMI, limited or no exposure of shareholder equity to default loss may mean that CCP management (primarily where a CCP is not mutually owned) have stronger incentives to act in a way that maximises return on equity for shareholders. To the extent that return on equity may be increased by lower levels of risk management or by limiting exposure of equity to losses, this could result in risks to safety and soundness of CCPs or to the financial system more generally. Exposing CCP equity to losses at appropriate stages in loss allocation arrangements could potentially strengthen incentives for sound risk management.

  Others argue that shareholder-owned CCPs are likely to already have strong incentives to pursue effective risk management to avoid the reputational loss – and consequent loss of enterprise value – that would result from a risk management failure. They also argue that, contrary to the situation for banks, it is ultimately the clearing participants rather than the CCP that bring risks to the CCP by entering into the underlying financial transactions that the CCP clears. However, the current market structure of CCPs, supported by factors such as economies of scale, netting sets/liquidity pools, and central clearing mandates, might reduce the flexibility afforded to participants to choose alternative CCPs.

  Related to this, authorities should also consider whether any potential changes to the CCP's arrangements would be consistent with the PFMI and CPMI-IOSCO Recovery Guidance.

- **Impact on clearing member incentives to support recovery and avoid resolution.** Relevant authorities and CMGs will need to consider how local insolvency law, resolution powers of relevant authorities, and a CCP's rulebook interact and ensure that their approach does not have an adverse impact on the incentives for stakeholders, particularly clearing members, to support recovery and attempt to avoid resolution.
- **Impact on clients.** Unlike clearing members and shareholders who may have more means to influence the risk profile of the CCP and its risk management, clients may have less opportunity to do so. To the extent that a CCP relies on tools (such as VMGH) that would be likely to result in the preponderance of losses falling on clients of clearing members, the incentives of CCPs, clearing members and clients may not be fully aligned.
- **Impact on continuity of critical clearing services following resolution.** Where a CCP's critical services are provided by affiliated entities within a corporate group, write-down of equity and subsequent recapitalisation that results in a change of ownership should not disrupt the provision of those services to the CCP. For example, service contracts would need to be in place that include provisions that ensure the continued supply of services to the CCP if its ownership changes (provided that the CCP itself continues to perform on its obligations under the contract). Such aspects would have to be addressed during resolution planning and resolvability assessments.[21]
- **Impact on different business models and legal structures of CCPs.** Some CCPs (including most of those that have been identified as systemically important in more than one jurisdiction) are operationally integrated within an exchange or infrastructure group, and some may rely on business and revenues generated from within the group – for example, a CCP may clear products traded on an affiliated exchange and/or benefit from a parental guarantee. If the imposition of losses on equity and subsequent recapitalisation would result in a change in ownership, this could affect other entities within the group which could include trading platforms, central securities depositories and other CCPs.[22] This aspect should be addressed during resolution planning and the resolvability assessment.

[21] They relate to operational continuity and are also relevant where services are provided not by affiliates but by third parties.

[22] From a practical perspective, if the CCP is fundamental to the operations of the exchange group or its failure could significantly harm the franchise value of the group, one would expect that the parent would provide funds, if it can, rather than lose ownership.