

# Guidance – Financial Stability Standards for Central Counterparties: Comparison to CPSS-IOSCO *Principles for Financial Market Infrastructures*

## Introduction

This document provides a comparison between the guidance to the new *Financial Stability Standards for Central Counterparties* (CCP Standards), and the *Principles for Financial Market Infrastructures* (the Principles) issued by the Committee for Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO).<sup>1</sup> It is intended to assist readers of the guidance to the new CCP Standards in understanding where the Reserve Bank has added to and amended the text of the Principles and associated explanatory notes, by providing a broad indication of variations and changes between the two primary documents.

*Disclaimer: An automated process was used in generating the comparison of the guidance to the new CCP Standards against the Principles and associated explanatory notes. While the Reserve Bank has taken due care in compiling this document, it is possible that the comparison contains errors, omissions and inaccuracies introduced through use of the automated process. This document should therefore be used as an aid only. Readers should refer directly to the text of the guidance to the new CCP Standards and the Principles in order to fully understand the requirements of and differences between the two.*

## PrincipleStandard 1: Legal basis

~~An FMI~~A central counterparty should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

### ~~Explanatory note~~Guidance

3.1.1.—A robust legal basis for ~~an FMI's~~a central counterparty's activities in all relevant jurisdictions is critical to ~~an FMI's~~a central counterparty's overall soundness. The legal basis defines, or provides the foundation for relevant parties to define, the rights and obligations of the ~~FMI~~central counterparty, its participants, and other relevant parties, such as its participants' customers, custodians, ~~money~~settlement ~~banks~~agents, and service providers. Most risk ~~management~~ mechanisms are based on assumptions about the manner and time at which these rights and obligations arise through the ~~FMI~~central counterparty. Therefore, if risk management is to be sound and effective, the enforceability of rights and obligations relating to ~~an FMI~~a central counterparty and its risk management should be established with a high degree of certainty. If the legal basis for ~~an FMI's~~a central counterparty's activities and operations is inadequate, uncertain, or opaque, then the ~~FMI~~central counterparty, its participants, and their customers may face unintended, uncertain, or unmanageable credit or liquidity risks, which may also create or amplify systemic risks.

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<sup>1</sup> The guidance to the CCP Standards is available at: <http://www.rba.gov.au/payments-system/clearing-settlement/standards/201212-new-fss-ris/index.html>. CPSS-IOSCO (2012), *Principles for Financial Market Infrastructures*, CPSS Publications No 101, Bank for International Settlements, April, is available at: <http://www.bis.org/publ/cpss101.htm>.

- 1.1. A central counterparty should be a legal entity which is separate from other entities that may expose it to risks unrelated to those arising from its function as a central counterparty.
- 1.1.1. In general, a central counterparty should not provide services that have a distinct risk profile from, and potentially pose material additional risks to, its activity of operating the central counterparty. This may require that the central counterparty provide any such services in a legally and financially separate entity, or take other equivalent action. Where a central counterparty performs, or wishes to perform, functions that, while having a distinct risk profile, are complementary or necessarily ancillary to its activity as a central counterparty, it should consult the Reserve Bank and demonstrate that any potential risks posed to its activity as a central counterparty are appropriately and effectively managed.
- 1.1.2. The identification of the central counterparty as a separate legal entity is of particular importance in circumstances in which an entity related to the central counterparty is experiencing operational or financial difficulties, including external administration. Related activities that may expose the central counterparty to additional financial risks unrelated to those arising from its function as a central counterparty include banking-like activities or investment management.
- 1.1.3. The legal separation of the central counterparty may also provide protection to those other activities should the central counterparty itself experience operational or financial difficulties. This Standard does not assume or suggest, however, that legal separation will remove all risks that may arise as a result of operational or financial difficulties faced by a central counterparty or a related entity.
- 1.2. The legal basis should provide a high degree of certainty for each material aspect of ~~an FMI's~~ central counterparty's activities in all relevant jurisdictions.

## Legal basis

- 1.2.1. ~~3.1.2.~~—The legal basis should provide a high degree of certainty for each material aspect of ~~an FMI's~~ central counterparty's activities in all relevant jurisdictions.<sup>23</sup> The legal basis consists of the legal framework and the ~~FMI's~~ central counterparty's rules, procedures, and contracts. The legal framework includes general laws and regulations that govern, among other things, property, contracts, insolvency, corporations, securities, banking, secured interests, and liability. In some cases, the legal framework that governs competition and consumer and investor protection may also be relevant. Laws and regulations specific to ~~an FMI's~~ central counterparty's activities include those governing: its ~~authorization and its~~ authorisation, regulation, supervision, and oversight; rights and interests in financial instruments; settlement finality; ~~close out; novation;~~ netting; ~~immobilisation and dematerialisation of securities;~~ arrangements for ~~delivery versus payment (DvP), payment versus payment (PvP) or delivery versus delivery (DvD);~~ collateral arrangements (including margin arrangements); default procedures; and the resolution of ~~an FMI's~~ central counterparty. ~~An FMIA central counterparty~~ should establish rules, procedures, and contracts that are clear, understandable, and consistent with the legal framework and provide a high degree of legal certainty. ~~An FMIA central counterparty~~ also should consider whether the rights and obligations of the ~~FMI's~~ central counterparty, its participants, and, as appropriate, other parties, as set forth in its rules, procedures, and contracts, are consistent with relevant industry standards and market protocols.

<sup>2</sup>—The materiality of an aspect of an FMI's activity has to be determined in light of this report's objectives: enhancing safety and efficiency and underlying principles. Therefore, an aspect of an FMI's activities is or becomes material if it can be a source of a material risk, especially, but not limited to, credit, liquidity, general business, custody, investment, or operational risks. In addition, parts of the activity that have a significant effect on the FMI's efficiency may also qualify as material aspects of the activity covered by the principle on legal basis.

<sup>3</sup> An aspect of a central counterparty's activities is or becomes material if it can be a source of a material risk, especially, but not limited to, credit, liquidity, general business, custody, investment or operational risk.

3.1.4. — A TR's rules, procedures, and contracts should be clear about the legal status of the transaction records that it stores. Most TRs store transaction data that do not represent legally enforceable trade records. For some TRs, however, participants may agree that the TR's electronic transaction record provides the official economic details of a legally binding contract, which enables trade details to be used for the calculation of payment obligations and other events that may occur during the life of the transaction. A TR should identify and mitigate any legal risks associated with any such ancillary services that it may provide. Further, the legal basis should also determine the rules and procedures for providing access and disclosing data to participants, relevant authorities, and the public to meet their respective information needs, as well as data protection and confidentiality issues (see also Principle 24 on disclosure of market data by TRs).

## Rights and interests

1.2.2. 3.1.5. — The legal basis should clearly define the rights and interests of an FMI's central counterparty, its participants, and, where relevant, its participants' customers in the financial instruments, such as cash and securities, or other relevant assets held in custody, directly or indirectly, by the FMI's central counterparty. It is not sufficient for key rights and obligations to be implied. The legal basis should fully protect both a participant's assets held in custody by the FMI's central counterparty and, where appropriate, a participant's customer's assets held by or through the FMI's central counterparty, from the insolvency of relevant parties and other relevant risks. It should also protect these assets when held at a custodian or linked FMI. In particular, consistent with Principle 11 on CSDs and Principle 14 CCP Standard 13 on segregation and portability, the legal basis should protect the assets and positions of a participant's customers in a CSD and CCP. In addition, the legal basis should provide certainty, where applicable, with respect to an FMI's interests; a central counterparty's interests in, and rights to use and dispose of, collateral; an FMI's a central counterparty's authority to transfer ownership rights or property interests; and an FMI's a central counterparty's rights to make and receive payments, in all cases, notwithstanding the bankruptcy or insolvency of its participants, participants' customers, or a custodian bank.<sup>4</sup> Also, the FMI's central counterparty should structure its operations so that its claims against collateral provided to it by a participant should have priority over all other claims, and the claims of the participant to that same collateral should have priority over the claims of third-party creditors. For TRs, the legal basis also should specifically define the rights and interests of participants and other relevant stakeholders with respect to the data stored in the TR's systems.

## Mitigating legal risk

1.2.3. 3.1.12. — In general, there is no substitute for a sound legal basis and full legal certainty supported by applicable legislation in all jurisdictions relevant to a central counterparty's activities. However, in some practical situations, however, such as might arise where a central counterparty offers services outside its home jurisdiction, or where participants are located in another jurisdiction to that of the central counterparty, it may not be possible, notwithstanding an independent legal opinion, to be confident of full legal certainty may not be achievable. In this case, the authorities may need to take steps to address the legal framework. Pending this resolution, an FMI for all aspects of a central counterparty's operations. In this case, a central counterparty should investigate steps to mitigate its legal risk through the selective use of

4 Collateral arrangements may involve either a pledge or a title transfer, including transfer of full ownership. If an FMI's a central counterparty accepts a pledge, it should have a high degree of certainty that the pledge has been validly created in the relevant jurisdiction and validly perfected, if necessary. If an FMI's a central counterparty relies on a title transfer, including transfer of full ownership, it should have a high degree of certainty that the transfer is validly created in the relevant jurisdiction and will be enforced as agreed and not recharacterised, for example, as an invalid or unperfected pledge or some other unintended category of transaction. An FMI's a central counterparty should also have a high degree of certainty that the transfer itself is not voidable as an unlawful preference under insolvency law. See also Principle CCP Standard 5 on collateral, Principle CCP Standard 6 on margin, and Principle 13 CCP Standard 2 on participant default rules and procedures.

alternative risk management tools that do not suffer from the legal uncertainty identified. These could include, in appropriate circumstances ~~and if legally enforceable~~, participant requirements, exposure limits, collateral requirements, and prefunded default arrangements. ~~The use of such tools may limit an FMI's exposure if its activities are found to be not supported by relevant laws and regulations.~~ If such controls are insufficient or not feasible, ~~an FMI's central counterparty~~ could, ~~as appropriate~~, apply activity limits ~~and, in extreme circumstances~~, restrict access, or not perform the problematic activity until the legal situation is addressed.

1.3. An FMI's central counterparty should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.

1.3.1. The operating rules and procedures of a central counterparty play a key role in enabling participants to understand the risks they incur. The rules need to be clear, comprehensive and up to date to facilitate understanding by participants and prospective participants of the risks they can face through participation in the system. Explanatory material written in plain language can aid understanding of the central counterparty's design and processes, thus improving understanding of risks that may arise through participation.

1.3.2. The rules and procedures should describe the roles of participants and the central counterparty and the procedures that will be followed in various circumstances (for example, which parties are to be notified of specific events and the timetables for decision-making and notification). They should make clear the degree of discretion parties are able to exercise in taking decisions that can have a direct effect on the operation of the system. There should be clear processes for changing rules and procedures. The degree of discretion the central counterparty can exercise to make unilateral changes to the rules or procedures, and any period of notice it must give to participants, should be clear.

1.4. An FMI's central counterparty should be able to articulate the legal basis for its activities to the Reserve Bank and other relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.

1.4.1. 3.1.3 ~~An FMI should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers in a clear and understandable way.~~ One recommended approach to articulating the legal basis for each material aspect of ~~an FMI's~~ a central counterparty's activities is to obtain well-reasoned and independent legal opinions or analyses. ~~A legal opinion or analysis should, to the extent practicable, confirm the enforceability of the FMI's rules and procedures and must provide reasoned support for its conclusions.~~ An FMI's central counterparty should consider, subject to any restrictions, sharing these legal opinions and analyses with its participants in an effort to promote confidence among participants and transparency in the system. In addition, ~~an FMI's central counterparty~~ should seek to ensure that its activities are consistent with the legal basis in all relevant jurisdictions. These jurisdictions could include: ~~(a)~~ those where a central counterparty is conducting business (including through linked FMIs); ~~(b)~~ those where its participants are incorporated, located, or otherwise conducting business for the purposes of participation; ~~(c)~~ those where collateral is located or held; and ~~(d)~~ those indicated in relevant contracts.

1.5. An FMI's central counterparty should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the ~~FMI's central counterparty~~ under such rules and procedures will not be voided, reversed, or subject to stays, including in the event that the central counterparty enters into external administration or that one or more of its participants defaults or is suspended.

## Settlement finality

1.5.1. 3.1.6. There should be a clear legal basis regarding when the timing of final settlement finality occurs in an FMI of a central counterparty's obligations in order to define when key financial

risks are transferred in the system, including the point at which transactions are irrevocable. Settlement finality is an important building block for risk management systems (see also [Principle CCP Standard 8 on settlement finality](#)). ~~An FMI a central counterparty~~ should consider, in particular, the actions that would need to be taken in the event of a participant's insolvency. A key question is whether transactions of an insolvent participant would be honoured as final, or could be considered void or voidable by liquidators and relevant authorities. In some countries, for example, so-called 'zero-hour rules' in insolvency law can have the effect of reversing a payment, notwithstanding that appears to have it has successfully been settled inprocessed by a payment system.<sup>5</sup> Because this possibility can lead to credit and liquidity risks, a central counterparty should ensure that the finality of settlement is not affected by the operation of zero-hour rules that undermine settlement finality should be eliminated. An FMI in any relevant jurisdiction. A central counterparty should ensure that settlement obligations are subject to the protections of the Payment Systems and Netting Act 1998 (if operating in Australia), or equivalent legislation in other jurisdictions. A central counterparty also should consider the legal basis for the external settlement mechanisms it uses, such as funds transfer or securities transfer systems. The laws of the relevant jurisdictions should support the provisions of the ~~FMI's central counterparty's~~ legal agreements with its participants and money settlement banks agents relating to finality.

## Netting arrangements

1.5.2. ~~3.1.7.~~—If ~~an FMI a central counterparty~~ has a netting arrangement, the enforceability of the netting arrangement should have a sound and transparent legal basis.<sup>6</sup> In general, netting offsets obligations between or among participants in the netting arrangement, thereby reducing the number and value of payments or deliveries needed to settle a set of transactions. Netting can reduce potential losses in the event of a participant default and may reduce the probability of a default.<sup>7</sup> Netting arrangements should be designed to be explicitly recognised and supported under the law and enforceable against ~~an FMI and an FMI's failed participants in bankruptcy a central counterparty and a central counterparty's failed participants in bankruptcy. In particular, if the central counterparty has arrangements involving the netting of transactions, then it should seek the benefit of the Payment Systems and Netting Act (if operating in Australia), or equivalent legislation in another jurisdiction.~~ Without such legal underpinnings, net obligations may be challenged in judicial or administrative insolvency proceedings. If these challenges ~~are were~~ successful, the ~~FMI central counterparty~~ and its participants could ~~be liable for face gross exposures and settlement amounts that could drastically increase obligations because gross obligations, which in some circumstances~~ could be many multiples of net obligations.

## Assumption of risk

1.5.3. ~~3.1.8.~~—Novation, open offer, ~~and/or~~ other similar legal devices ~~that enable an FMI to act as utilised by a CCP central counterparty~~ should be founded on a sound legal basis.<sup>8</sup> The nature and scope of the legal device adopted, as well as the point in the clearing process at which the central counterparty assumes risk, must be legally certain and well understood by all

5—In the context of payment systems, "zero-hour rules" make all transactions by a bankrupt participant void from the start ("zero hour") of the day of the bankruptcy (or similar event). In an RTGS system, for example, the effect could be to reverse payments that have apparently already been settled and were thought to be final. In a DNS system, such a rule could cause the netting of all transactions to be unwound. This could entail a recalculation of all net positions and could cause significant changes to participants' balances.

6—There are several types of netting arrangements used in the market that may be relevant to an FMI. Some types of arrangements net payments or other contractual obligations resulting from market trades (or both) on an ongoing basis, while others close out payments or obligations when an event such as insolvency occurs. There are a number of legal structures for these types of netting arrangements.

7—An FMI may bilaterally net its obligations with each participant, facilitate the bilateral netting of obligations between participants, or provide for the multilateral netting of obligations.

8—In some countries, for example, assumption of obligation may be used instead of arrangements to replace the original contract between the buyer and seller with the two new contracts.

participants. In novation (and substitution), the original contract between the buyer and seller is discharged and two new contracts are created: one between the CCPcentral counterparty and the buyer, and the other between the CCPcentral counterparty and the seller. The CCPcentral counterparty thereby assumes the original parties' contractual obligations to each other. In an open-offer system, the CCPcentral counterparty extends an open offer to act as a counterparty to market participants and thereby is interposed between participants at the time a trade is executed. If all pre-agreed conditions are met in an open offer system, there is never a contractual relationship between the buyer and seller. Where supported by the legal framework, novation, open offer, and other similar legal devices give market participants legal certainty that a CCPcentral counterparty is supporting the transaction.

## Enforceability

1.5.4. 3.1.9.—The rules, procedures, and contracts related to an FMI'sa central counterparty's operation should be enforceable in all relevant jurisdictions. In particular, the legal basis should support the enforceability of the participant default rules and procedures that an FMIa central counterparty useswould use to handle a defaulting or insolvent participant, especially any transfers and close-outs of a direct or indirect participant's assets or positions (see also Principle 13CCP Standard 12 on participant default rules and procedures). An FMIA central counterparty should have a high degree of certainty that such actions taken under such rules and procedures will not be voided, reversed, or subject to stays, including with respect to the resolution regimes applicable to its participants.<sup>9</sup> Ambiguity about the enforceability of procedures could delay and possibly prevent an FMIa central counterparty from taking actions to fulfil its obligations to non-defaulting participants or to minimise its potential losses. Insolvency law should support isolating risk and retaining and using collateral and cash payments previously paid into an FMI, notwithstanding a participant default or the commencement of an insolvency proceeding against a participant. The central counterparty should obtain a written and reasoned independent legal opinion as to the enforceability of the central counterparty's arrangements under the laws of each relevant jurisdiction.

1.5.5. 3.1.10.—An FMIA central counterparty should also establish rules, procedures, and contracts related to its operations that arewould be enforceable when the FMI is implementingin the event that the central counterparty had to implement its plans for recovery or orderly wind-down, and in the event of external administration. Where relevant, theythese should adequately address issues and associated risks resulting from (a)foreign and cross-border participation and interoperability of FMIs and (b) foreign participants in the case of an FMI which is being wound down. There should be a high degree of certainty that any actions taken by the FMIcentral counterparty under such rules and procedures willwould not be voided, reversed, or subject to stays. Ambiguity about the enforceability of procedures that facilitate the implementation of the FMI'scentral counterparty's plans for recovery or orderly wind-down, or the resolution of the FMIcentral counterparty, could delay and possibly prevent the FMIcentral counterparty or the Reserve Bank and other relevant authorities from taking appropriate actions and hence increase the risk of a disruption to its critical services or a disorderly wind-down of the FMIcentral counterparty. In the case that an FMI is being wound down or resolved, the legal basis should support decisions or actions concerning termination, close-out netting, the transfer of cash and securities positions of an FMI, or the transfer of all or parts of the rights and obligations provided in a link arrangement to a new entity.

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<sup>9</sup> However, rights triggered only because of entry into resolution or the exercise of resolution powers may be subject to stays in some jurisdictions.

## Default or suspension of participants

1.5.6. The rules applying in the event of the default or suspension of a participant should be set out in advance: this enhances the certainty of obligations placed on participants and thus minimises the opportunity for surviving participants to challenge their liability; in a default situation, there are likely to be strong incentives to undertake behaviour to minimise any contribution, and this could amplify systemic risks (see CCP Standard 12 on participant default rules and procedures).

## External administration

1.5.7. Where a participant or the central counterparty is in external administration or is otherwise facing difficulties, there is scope for instability in the broader financial system. A high degree of certainty in the legal framework concerning such events can help to limit the capacity for such instability.

1.6. An FMI central counterparty conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflicts of laws across jurisdictions. A central counterparty should provide the Reserve Bank with a legal opinion that demonstrates the enforceability of its rules and addresses relevant conflicts of law across the jurisdictions in which it operates. This should be reviewed on a periodic basis or when material changes occur that may have an impact on the opinion, and updated where appropriate.

## Conflict of laws issuesConflicts of law

1.6.1. 3.1.11—Legal risk due to ~~conflict of laws~~conflicts of law may arise if an FMI central counterparty is, or reasonably may become, subject to the laws of various other jurisdictions (for example, when it accepts participants established in those jurisdictions, when assets are held in multiple jurisdictions, or when business is conducted in multiple jurisdictions). In such cases, an FMI central counterparty should identify and analyse potential ~~conflict conflicts of laws issues~~law and develop rules and procedures to mitigate ~~this risk associated risks~~ (see paragraph 1.6.2 on obtaining a legal opinion). For example, the rules governing itsa central counterparty's activities should clearly indicate the law that is intended to apply to each aspect of an FMI'sits operations. The FMIcentral counterparty and its participants should be aware of applicable constraints on their abilities to choose the law that will govern the FMI'scentral counterparty's activities when there is a difference in the substantive laws ofthe relevant jurisdictions. For example, such constraints may exist because of jurisdictions' differing laws on insolvency and irrevocability. A jurisdiction ordinarily does not permit contractual choices of law that would circumvent that jurisdiction's fundamental public policy. Thus, when uncertainty exists regarding the enforceability of an FMI's choice of law in relevant jurisdictions, the FMI should obtain reasoned and independent legal opinions and analysis in order to address properly such uncertainty.

## Legal opinion

1.6.2. A central counterparty operating in multiple jurisdictions should obtain a well-reasoned, independent legal opinion(s) covering potential conflicts of law, as well as the enforceability of its rules and its ability to satisfy its regulatory obligations in all relevant jurisdictions. Any opinion relevant to the central counterparty's operations in Australia should be shared with the Reserve Bank. At least every two years, the legal opinion obtained under this Standard should be reviewed, updated where appropriate, and where relevant provided to the Reserve Bank. Between periodic reviews, the legal opinion should be reviewed whenever there is a material change to the central counterparty's operational, governance or risk management arrangements or to the legal or regulatory framework governing its activities that may impact on the opinion. Further to such a review, the opinion should be updated where appropriate and provided to the Reserve Bank. Material changes triggering a review of the legal opinion may

include changes to: the nature and composition of the central counterparty's membership; its internal organisation or structure; product offerings; or applicable laws or regulations.

## **PrincipleStandard 2: Governance**

An FMIA central counterparty should have governance arrangements that are clear and transparent, promote the safety ~~and efficiency~~ of the ~~FMI~~central counterparty, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

### **Explanatory noteGuidance**

~~3.2.1.~~—Governance is the set of relationships between ~~an FMI's~~a central counterparty's owners, board of directors (or equivalent), management, and other relevant parties, including participants, the Reserve Bank and other relevant authorities, and other stakeholders (such as participants' customers, other interdependent FMIs, and the broader market). Governance provides the processes through which an organisation sets its objectives, determines the means for achieving those objectives, and monitors performance against those objectives. Good governance provides the proper incentives for ~~an FMI's~~a central counterparty's board and management to pursue objectives that are in the interests of its stakeholders and that support relevant public interest considerations.

~~2.1.~~ An FMIA central counterparty should have objectives that place a high priority on the safety ~~and efficiency~~ of the ~~FMI~~central counterparty and explicitly support ~~financial stability~~the stability of the financial system and other relevant public interest considerations.

~~2.1.1.~~ ~~3.2.2.~~—Given the importance of ~~FMIs~~central counterparties and the fact that their decisions can have widespread impact, affecting multiple financial institutions, markets, and jurisdictions, it is essential for each ~~FMI~~central counterparty to place a high priority on the safety ~~and efficiency~~ of its operations and explicitly support financial stability and other relevant public interests. ~~Supporting the public interest is a broad concept that includes, for example, fostering fair and efficient markets. This is consistent with a central counterparty's obligations under section 821A(aa) of the Corporations Act 2001, which states that a CS facility must, to the extent that it is reasonably practicable to do so, not only comply with standards determined by the Reserve Bank under section 827D, but also do all other things necessary to reduce systemic risk. For example,~~As a further example, in certain over-the-counter (OTC) derivatives markets, industry standards and market protocols have been developed to increase certainty, transparency, and stability ~~in the market~~. If a ~~CCP~~central counterparty in such markets were to diverge from these practices, it could, in some cases, undermine the market's efforts to develop common processes to help reduce uncertainty. ~~An FMI's~~A central counterparty's governance arrangements should also include appropriate consideration of the interests of participants, participants' customers, the Reserve Bank and other relevant authorities, and other stakeholders. ~~A TR, for example, should have objectives, policies, and procedures that support the effective and appropriate disclosure of market data to relevant authorities and the public (see Principle 24). For all types of FMIs,~~Governance arrangements should provide for fair and open access, insofar as this would not be inconsistent with the maintenance of acceptable risk control standards (see Principle 18 CCP Standard 17 on access and participation requirements), ~~and for or the~~ effective implementation of recovery or wind-down plans, or resolution.

~~2.2.~~ An FMIA central counterparty should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, the Reserve Bank and other relevant authorities, participants, and, at a more general level, the public.

~~2.2.1.~~ ~~3.2.3.~~—Governance arrangements, which define the structure under which the board and management operate, should be clearly and thoroughly documented. These arrangements should include certain key components such as the ~~(a);~~ role and composition of the board and any board committees, ~~(b);~~ senior management structure, ~~(c);~~ reporting lines between management and the board, ~~(d);~~ ownership structure, ~~(e);~~ internal governance policy, ~~(f);~~ design

of risk management and internal controls;~~(g)~~; procedures for the appointment of board members and senior management;~~i~~; and ~~(h)~~ processes for ensuring performance accountability. Governance arrangements should provide clear and direct lines of responsibility and accountability, particularly between management and the board, and ensure sufficient independence for key functions such as risk management, internal control~~i~~; and audit. These arrangements should be disclosed to owners, the Reserve Bank and other relevant authorities, participants, and, at a more general level, the public.

~~2.2.2.~~ ~~3.2.4.~~—No single set of governance arrangements is appropriate for all FMI~~central counterparties~~ and all market jurisdictions. Arrangements may differ significantly because of national law, ownership structure~~i~~; or organisational form.~~For example, national law may require an FMI to maintain a two-tier board system in which the supervisory board (all non-executive directors) is separated from the management board (all executive directors). Further, an FMI. Indeed, a central counterparty~~ may be owned by its participants or by another organisation, may be operated as a for-profit or not-for-profit enterprise, or may be organised as a bank or non-bank entity. While specific arrangements vary, this principle~~Standard~~ is intended to be generally applicable to all ownership and organisational structures.

~~2.2.3.~~ ~~3.2.5.~~—Depending on its ownership structure and organisational form, ~~an FMI~~a central counterparty may need to focus particular attention on certain aspects of its governance arrangements. ~~An FMI that is part of a larger organisation, for example, should place particular emphasis on the clarity of its governance arrangements, including in relation to any conflicts of interests and outsourcing issues that may arise because of the parent or other affiliated organisation's structure. The FMI's governance arrangements should also be adequate to ensure that decisions of affiliated organisations are not detrimental to the FMI.<sup>10</sup> An FMI~~For instance, a central counterparty that is, or is part of, a for-profit entity may need to place particular emphasis on managing any conflicts between income generation and safety. And a central counterparty that is part of a larger organisation or corporate group should consider any conflicts of interest or other issues that may arise from its relationship to its parent or to other affiliated entities (see CCP Standard 2.9).<sup>11</sup> For example, a TR should ensure that it effectively identifies and manages conflicts of interests that may arise between its public role as a centralised data repository and its own commercial interests, particularly if it offers services other than recordkeeping. Where relevant, any cross-border issues should also be appropriately identified, assessed~~i~~; and dealt with in the central counterparty's governance arrangements, both at the FMI~~central counterparty~~ level and at the level(s) of its parent entity(ies). ~~An FMI's~~A central counterparty's ownership structure and organisational form may also need to be considered in the preparation and implementation of ~~the FMI's~~its recovery or wind-down plans or in assessments of ~~the FMI's~~its resolvability.

~~3.2.6.~~—~~An FMI may also need to focus particular attention on certain aspects of its risk management arrangements as a result of its ownership structure or organisational form. If an FMI provides services that present a distinct risk profile from, and potentially pose significant additional risks to, its payment, clearing, settlement, or recording function, the FMI needs to manage those additional risks adequately. This may include separating the additional services that the FMI provides from its payment, clearing, settlement, and recording function legally, or taking equivalent action.~~

~~3.2.7.~~—~~Central bank operated systems may need to tailor the application of this principle in light of the central bank's own governance requirements and specific policy mandates. If a central bank is an operator of an FMI, as well as the overseer of private sector FMIs, it needs to consider how to best address any possible or perceived conflicts of interest that may arise between those functions. Except when explicitly required by law, regulation, or policy mandates, a central bank should avoid using its oversight authority to disadvantage private sector FMIs relative to an FMI the central bank owns or operates. This can be~~

<sup>10</sup> If an FMI is wholly owned or controlled by another entity, authorities should also review the governance arrangements of that entity to see that they do not have adverse effects on the FMI's observance of this principle.

<sup>11</sup> If a central counterparty is wholly owned or controlled by another entity, the Reserve Bank will also consider the governance arrangements of that entity in assessing the central counterparty's observance of this Standard.

~~facilitated by separating the operator and oversight functions into different organisational units within the central bank that are managed by different personnel. Where there is competition with private sector systems, a central bank should also be careful to protect confidential information about external systems collected in its role as overseer and avoid its misuse.~~

2.3. ~~The roles and responsibilities of an FMI's~~a central counterparty's board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address, and manage member conflicts of interest. The board should regularly review both its overall performance and the performance of its individual board members ~~regularly~~.

2.3.1. ~~3.2.8.~~A central counterparty's board has multiple roles and responsibilities that should be clearly specified. These roles and responsibilities should include ~~(a);~~ establishing clear strategic aims for the entity; ~~(b)~~ ensuring effective monitoring of senior management (including selecting its senior managers, setting their objectives, evaluating their performance, and, where appropriate, removing them); ~~(c)~~ establishing appropriate compensation policies (which should be consistent with best practices and based on long-term achievements, in particular, the safety and efficiency of the FMI); ~~(d)~~central counterparty – see paragraph 2.5.2; establishing and overseeing the risk management function and material risk decisions; ~~(e)~~ overseeing internal control functions (including ensuring independence and adequate resources); ~~(f)~~ ensuring compliance with all supervisory and oversight requirements; ~~(g)~~ ensuring consideration of financial stability and other relevant public interests; and ~~(h)~~ providing accountability to the owners, participants, and other relevant stakeholders.<sup>12</sup> (see CCP Standard 2.8). The means by which the board discharges these responsibilities may vary according to the central counterparty's organisational form. Where a central counterparty forms part of a corporate group, some of the roles and responsibilities of the board may be carried out on a group-wide basis, for instance by the board of the central counterparty's parent company. However, the central counterparty must be able to demonstrate that any such alternative governance arrangements are effective. In particular, the central counterparty should be able to demonstrate that such arrangements uphold its capacity to meet its regulatory and other obligations, and in no way compromise or subordinate the central counterparty's interests to the interests of the group (see CCP Standard 2.9).

2.3.2. ~~3.2.9.~~ Policies and procedures related to the functioning of the board should be clear and documented. These policies include the responsibilities and functioning of board committees. A board would normally be expected to have, among others, a risk committee, an audit committee, and a compensation committee, or equivalents: (including equivalent committees operating on a group-wide basis). All such committees should have clearly assigned responsibilities and procedures.<sup>13</sup> Board policies and procedures should include processes to identify, address, and manage potential conflicts of interest of board members. Conflicts of interest include, for example, circumstances in which a board member has material competing business interests with the ~~FMI~~central counterparty. Further, policies and procedures should also include regular reviews of the board's performance and the performance of each individual member, as well as, potentially, periodic independent assessments of performance.

2.4. The board should ~~contain~~comprise suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board member(s).

2.4.1. ~~3.2.10.~~ Governance policies related to board composition, appointment, and term should also be clear and documented. The board should be composed of suitable members with an appropriate mix of skills (including strategic and relevant technical skills), experience, competence and knowledge of the entity (including an understanding of the ~~FMI's~~central

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<sup>12</sup> See Financial Stability Forum, FSF principles for sound compensation practices, April 2009, for additional guidance in establishing appropriate compensation policies.

<sup>13</sup> Such committees would normally be composed mainly of, and, if possible, led by, non-executive or independent directors (see also paragraph 3.2.10) CCP Standard 2.4).

counterparty's interconnectedness with other parts of the financial system). The nature and degree of the skills, experience and expertise required of board members will depend on the size, scope and nature of the business conducted by the central counterparty. Members should also have a clear understanding of their roles in corporate governance, be able to devote sufficient time to their roles, ensure that their skills remain up-to-date, and have appropriate incentives to fulfil their roles. Members should be able to exercise objective and independent judgment. A central counterparty should be able to demonstrate that its board composition provides a sufficient degree of independence from the views of management. This typically requires the inclusion of non-executive board members, including independent board members, ~~as appropriate.~~<sup>14</sup> ~~Definitions of an independent board member vary and often are determined by local laws and regulations, but,~~<sup>15</sup> The key characteristic of independence is the ability to exercise objective, independent judgment after fair consideration of all relevant information and views and without undue influence from executives or from inappropriate external parties or interests.<sup>16</sup> The precise definition of independence used by ~~an FMI~~ a central counterparty should be specified and publicly disclosed. A central counterparty should also specify and should exclude parties with significant publicly disclose any relevant interests of its board members, as well as any arrangements that it has in place to manage any potential conflicts arising from these interests. Such interests may include relevant business relationships with the FMI or commercial interests, cross-directorships, ~~or controlling~~ shareholdings, ~~as well as employees of the organisation or employee relationships.~~ Further, ~~an FMI~~ a central counterparty should publicly disclose which board members it regards as independent. ~~An FMI~~ The appropriate number of independent non-executive directors on a central counterparty's board will depend on the size, scope and nature of the business conducted by the central counterparty. A central counterparty may also need to consider setting a limit on the duration of board members' terms.

- 2.5.** The roles and responsibilities of management should be clearly specified. ~~An FMI's~~ A central counterparty's management should have the appropriate experience, ~~a mix of skills,~~ and ~~the~~ integrity necessary to effectively discharge ~~their~~ its responsibilities for the operation and risk management of the ~~FMI~~ central counterparty. Compensation arrangements should be structured in such a way as to promote the soundness and effectiveness of risk management.

## Roles and responsibilities of management

- 2.5.1.** **3.2.11.** ~~An FMI~~ A central counterparty should have clear and direct reporting lines between its management and board in order to promote accountability, and the roles and responsibilities of management should be clearly specified. ~~An FMI's~~ A central counterparty's management should have the appropriate experience, ~~a mix of skills,~~ and ~~the~~ integrity necessary to discharge ~~their~~ its responsibilities for the operation and risk management of the ~~FMI~~ central counterparty. Under board direction, (or equivalent alternative governance arrangements), management should ensure that the ~~FMI's~~ central counterparty's activities are consistent with the objectives, strategy, and risk tolerance of the ~~FMI~~ central counterparty, as determined by the board. (or equivalent). Management should ensure that internal controls and related procedures are appropriately designed and executed in order to promote the ~~FMI's~~ central counterparty's objectives, and that these procedures include a sufficient level of management oversight. Internal controls and related procedures should be subject to regular review and testing by well-trained and staffed risk ~~management and internal~~ audit functions. Additionally, senior

<sup>14</sup> Having non-executive members included on a board, for example, may (depending on local corporate law) help in balancing considerations of safety and efficiency with competitiveness and, where applicable, profitability.

<sup>15</sup> Having non-executive members included on a board, for example, may help in balancing considerations of safety with competitiveness and, where applicable, profitability.

<sup>16</sup> An FMI organised in a jurisdiction with national laws on board structure or composition that do not facilitate the use of independent members should use alternative means to enhance its board's ability to exercise independent judgment, such as advisory or supervisory boards with appropriate members.

management should be actively involved in the risk-control process and should ensure that ~~significant~~appropriate resources are devoted to ~~it~~the central counterparty's risk-management framework.

### Compensation

2.5.2. ~~A central counterparty should structure compensation arrangements for management to provide incentives for sound and effective risk management. The central counterparty should consider offering incentives that reward management for effective risk management and the longer-term financial soundness of the facility. Fundamentally, the central counterparty should avoid compensation arrangements that create incentives for management to pursue greater profitability by relaxing risk controls.~~

2.6. The board should establish a clear, documented risk-management framework that includes the ~~FMI's~~central counterparty's risk-tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision-making in crises and emergencies. Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources, and access to the board, including through the maintenance of a separate and independent internal audit function.

### Risk-management governance

2.6.1. ~~3.2.12.~~—Because the board is ultimately responsible for managing ~~an FMI's~~a central counterparty's risks, it should establish a clear, documented risk-management framework that includes the ~~FMI's~~central counterparty's risk-tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision-making in crises and emergencies. The board should regularly monitor the ~~FMI's~~central counterparty's risk profile to ensure that it is consistent with the ~~FMI's~~central counterparty's business strategy and risk-tolerance policy. In addition, the board should ensure that the ~~FMI~~central counterparty has an effective system of controls and oversight, including adequate governance and project management processes, over the models used to quantify, aggregate, and manage the ~~FMI's~~central counterparty's risks. Board approval should be required for material decisions that would have a significant impact on the risk profile of the entity, such as the limits for total credit exposure and large individual credit exposures. Other material decisions that may require board approval include the introduction of new products, implementation of new links, use of new crisis-management frameworks, adoption of processes and templates for reporting significant risk exposures, and adoption of processes for considering adherence to relevant market protocols. In ~~the~~ OTC derivatives markets, ~~CCPs~~central counterparties are expected to adhere to practices or arrangements that have become established market conventions or to act in a manner that does not conflict with such terms, unless the ~~CCP~~central counterparty has reasonable grounds not to do so and that does not conflict with the market's wider interest. In this regard, where a ~~CCP~~central counterparty supports a market and is expected to fully adhere to market-wide protocols and related decisions, the ~~CCP~~central counterparty should be involved in the development and establishment of such standards. It is critical that market governance processes fully reflect the role of the ~~CCP~~central counterparty in the market. The arrangements adopted by a ~~CCP~~central counterparty should be transparent to its participants and ~~regulators, the Reserve Bank and other relevant authorities.~~

2.6.2. ~~3.2.13.~~—The board, and governance arrangements, more generally, should support the use of clear and comprehensive rules and key procedures, including detailed and effective participant-default rules and procedures (see Principle 13 CCP Standard 12). ~~The board~~Governance arrangements should ~~have ensure that~~ procedures are in place to support ~~it~~the board's capacity to act appropriately and immediately if any risks arise that threaten the ~~FMI's~~central counterparty's viability as a going concern. The governance arrangements should also provide

for effective decision-making in a crisis and support any procedures and rules designed to facilitate the recovery or orderly wind-down of the ~~FMI~~central counterparty.

~~2.6.3.~~ ~~3.2.14.~~—In addition, the governance of the risk -management function is particularly important. It is essential that ~~an FMI's~~a central counterparty's risk -management personnel have sufficient independence, authority, resources, and access to the board to ensure that the operations of the ~~FMI~~central counterparty are consistent with the risk -management framework set by the board. The reporting lines for risk management should be clear and separate from those for other operations of the ~~FMI~~central counterparty, and there should be an additional direct reporting line to a non-executive director on the board via a chief risk officer (or equivalent). To help the board discharge its risk-related responsibilities, ~~an FMI should consider the case for a central counterparty should have a~~ risk committee, responsible for advising the board on the ~~FMI's~~central counterparty's overall current and future risk tolerance and strategy. ~~A CCP, however, should have such a risk committee, or its equivalent. An FMI's~~ A central counterparty's risk committee should be chaired by a sufficiently knowledgeable individual who is typically independent of the ~~FMI's~~central counterparty's executive management and should typically be composed of a majority of members who are non-executive members. The committee should have a clear and public mandate and operating procedures and, where appropriate, have access to external expert advice.

~~3.2.15.~~—Where an FMI, in accordance with applicable law, maintains a two-tier board system, the roles and responsibilities of the board and senior management will be allocated to the supervisory board and the management board, as appropriate. The reporting lines of the risk and other committees need to reflect this allocation, as well as the legal responsibilities of the management and supervisory boards. Therefore a direct reporting line for the risk management function may involve members of the management board. In addition, the establishment of a risk committee has to take into account the legally founded responsibility of the management board for managing the risks of the FMI.

## Model validation

~~2.6.4.~~ ~~3.2.16.~~—The board should ensure that there is adequate governance surrounding the adoption and use of models, such as for credit, collateral, margining, and liquidity risk -management systems. ~~An FMIA central counterparty~~ should validate, on an ongoing basis, the models and their methodologies used to quantify, aggregate, and manage the ~~FMI's~~central counterparty's risks. The validation process should be independent of the development, implementation, and operation of the models and their methodologies, and ~~the validation process~~ should be subjected to an independent review of its adequacy and effectiveness. Validation should include ~~(a);~~ an evaluation of the conceptual soundness of (including developmental evidence supporting) the models, ~~(b);~~ an ongoing monitoring process that includes verification of processes and benchmarking; ~~and (c)~~ an analysis of outcomes that includes backtesting.

~~2.7.~~ A central counterparty's operations, risk management processes, internal control mechanisms and accounts should be subject to internal audit and, where appropriate, periodic external independent expert review. Internal audits should be performed, at a minimum, on an annual basis. The outcome of internal audits and external reviews should be notified to the Reserve Bank and other relevant authorities.

~~2.7.1.~~ ~~3.2.17.~~— ~~The board is responsible~~Governance arrangements should establish and provide for ~~establishing and overseeing~~appropriate oversight of internal controls and audit. ~~An FMIA central counterparty~~ should have sound internal control policies and procedures to help manage its risks. For example, as part of a variety of risk controls, ~~the board~~governance arrangements should ensure that there are adequate internal controls to protect against the misuse of confidential information. ~~An FMIA central counterparty~~ should also have an effective internal audit function, with sufficient resources and independence from management to provide, among other activities, a rigorous and independent assessment of the effectiveness of ~~an FMI's~~a central counterparty's risk -management and control processes (see also Principle CCP

Standard 3 on the framework for the comprehensive management of risks). ~~The board will~~Governance arrangements should typically establish an audit committee to oversee the internal audit function. In addition to reporting to senior management, the audit function should have regular access to the board (or equivalent) through an additional reporting line.

2.7.2. A central counterparty should engage independent and appropriately qualified external experts to review aspects of its operations, risk management processes, internal control mechanisms and accounts periodically and as required. The adequacy of and adherence to control mechanisms may also be assessed through regular independent compliance programs. In particular, external reviews may be required if internal audit processes or other internal controls identify potential areas of weakness that require additional external scrutiny and analysis. The outcomes of periodic or ad hoc external reviews should be provided to the Reserve Bank and other relevant authorities on a timely basis, and the central counterparty should advise the Reserve Bank or other relevant authorities as to how it plans to address any areas of weakness identified.

2.8. The board~~Governance arrangements~~ should ensure that the ~~FMI's~~central counterparty's design, rules, overall strategy, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Governance arrangements should provide for consultation and stakeholder engagement through appropriate forums on operational arrangements, risk controls and default management rules and procedures. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.

2.8.1. 3.2.18.—An FMI's~~A central counterparty's board~~governance arrangements should ~~consider~~take into account all relevant stakeholders' interests, including those of its direct and indirect participants, in making major decisions, including those relating to the system's design, rules, and overall business strategy. ~~An FMI's~~A central counterparty with cross-border operations, in particular, should ensure that the full range of views across the jurisdictions in which it operates is appropriately considered in the decision-making process. Mechanisms for involving stakeholders in ~~the board's~~ decision-making processes ~~es~~ may include stakeholder representation on the board (including direct and indirect participants), user committees, and public consultation processes. ~~As opinions among interested parties are likely to differ, the FMI~~Where appropriate, a central counterparty should consider establishing targeted stakeholder forums that provide opportunities for focused consultation with specific segments of the participant base, or other stakeholders, that have common interests. This might be particularly important where stakeholders vary significantly in size, location or other characteristics. These forums may provide opportunity for stakeholder input on matters such as the central counterparty's operational arrangements, risk controls and default management rules and procedures. As opinions among interested parties are likely to differ, the central counterparty should have clear processes for identifying and appropriately managing the diversity of stakeholder views and any conflicts of interest between stakeholders and the ~~FMI's~~central counterparty. Without prejudice to local requirements on confidentiality and disclosure, the ~~FMI's~~central counterparty should clearly and promptly inform its owners, participants, other users, and, where appropriate, the broader public, of the outcome of major decisions, and consider providing summary explanations for decisions to enhance transparency where it would not endanger candid board debate or commercial confidentiality.

2.9. A central counterparty that is part of a group of companies should ensure that measures are in place such that decisions taken in accordance with its obligations as a central counterparty cannot be compromised by the group structure or by board members also being members of the board of other entities in the same group. In particular, such a central counterparty should consider specific procedures for preventing and managing conflicts of interest, including with respect to intragroup outsourcing arrangements.

2.9.1. Where a central counterparty is part of a wider corporate group, there may be the potential for conflicts to arise between the obligations and interests of the central counterparty and those of other entities in the group (including related functions performed within the same legal entity –

see CCP Standard 1.1), or the group as a whole. For example, where a central counterparty utilises staff or other resources that are employed or owned by other group entities, there may be circumstances in which it is in the interests of the group to withhold the provision of those resources – for instance, if it appears likely that the central counterparty may enter external administration. Conflicts could also arise between the risk management objectives of a central counterparty and the business interests of other group entities. A central counterparty should therefore ensure that potential conflicts will not prevent it from appropriately managing its risks and fulfilling its regulatory and other obligations. This may include consideration of whether adequate arrangements exist to manage potential conflicts arising from board composition – that is, where directors of other group entities are members of the central counterparty's board – or any intragroup outsourcing arrangements (including the sharing of staff or other resources) that exist between the central counterparty and other group entities. The central counterparty should be able to demonstrate to the Reserve Bank and other relevant authorities that its arrangements to manage potential conflicts are adequate, including through the provision of relevant documented governance policies and procedures.

### **PrincipleStandard 3: Framework for the comprehensive management of risks**

An FMIA central counterparty should have a sound risk -management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

#### **Explanatory noteGuidance**

3.3.1. —An FMIA central counterparty should take an integrated and comprehensive view of its risks, including the risks it bears from and poses to its participants and their customers, as well as the risks it bears from and poses to other entities, such as other FMIs, money settlement banksagents, liquidity providers, and service providers (for example, matching and portfolio compression service providers). An FMIA central counterparty should consider how various risks relate to, and interact with, each other. The FMIcentral counterparty should have a sound risk -management framework (including policies, procedures, and systems) that enable it to identify, measure, monitor, and manage effectively the range of risks that arise in or are borne by the FMI. An FMI'scentral counterparty. A central counterparty's framework should include the identification and management of interdependencies. An FMIA central counterparty should also provide appropriate incentives and the relevant information for its participants and other entities to manage and contain their risks vis-à-vis the FMIcentral counterparty. As discussedset out in PrincipleCCP Standard 2 on governance, the board of directors plays a critical role in establishing and maintaining a sound risk -management framework.

3.1. An FMIA central counterparty should have risk -management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the FMIcentral counterparty. Risk-management frameworksThis risk management framework should be subject to periodic review.

#### **Identification of risks**

3.1.1. 3.3.2. —To establish a sound risk -management framework, an FMIA central counterparty should first identify the range of risks that arise within the FMIcentral counterparty and the risks it directly bears from or poses to its participants, its participants' customers, and other entities. It should identify those risks that could materially affect its ability to perform or to provide services as expected. Typically these include legal, credit, liquidity, and operational risks. An FMIA central counterparty should also consider other relevant and material risks, such as market (or price), concentration, and general business risks, as well as risks that do not appear to be significant in isolation, but when combined with other risks become material. The consequences of these risks may have significant reputational effects on the FMIcentral counterparty and may undermine an FMI'sthe central counterparty's financial soundness as well as the stability of the broader financial markets. In identifying risks, an FMI central counterparty should take a broad

perspective and identify the risks that it bears from other entities, such as other FMIs, money settlement banks, agents, liquidity providers, service providers, and any entities that could be materially affected by the FMI's central counterparty's inability to provide services. ~~For example, the relationship between an SSS and an LVPS to achieve DvP settlement can create system-based interdependencies.~~

### Comprehensive risk policies, procedures, and controls

~~3.1.2.~~ ~~3.3.3.~~—An FMI's A central counterparty's board and senior management are ultimately responsible for managing the FMI's central counterparty's risks (see Principle CCP Standard 2 on governance). The board should determine an appropriate level of aggregate risk tolerance and capacity for the FMI's central counterparty. The board and senior management should establish policies, procedures, and controls that are consistent with the FMI's central counterparty's risk tolerance and capacity. The FMI's central counterparty's policies, procedures, and controls serve as the basis for identifying, measuring, monitoring, and managing the FMI's central counterparty's risks and should cover routine and non-routine events, including the potential inability of a participant, or the FMI's central counterparty itself, to meet its obligations. An FMI's A central counterparty's policies, procedures, and controls should address all relevant risks, including legal, credit, liquidity, general business, and operational risks. These policies, procedures, and controls should be part of a coherent and consistent framework that is reviewed and updated periodically, and shared with the Reserve Bank and other relevant authorities.

### Information and control systems

~~3.1.3.~~ ~~3.3.4.~~—In addition, an FMI's A central counterparty should employ robust information and risk - control systems to provide the FMI's central counterparty with the capacity to obtain timely information necessary to apply risk -management policies and procedures. In particular, these systems should allow for the accurate and timely measurement and aggregation of risk exposures across the FMI's central counterparty, the management of individual risk exposures and the interdependencies between them, and the assessment of the impact of various economic and financial shocks that could affect the FMI's central counterparty. Information systems should also enable the FMI's central counterparty to monitor its credit and liquidity exposures, overall credit and liquidity limits, and the relationship between these exposures and limits.<sup>17</sup>

~~3.1.4.~~ ~~3.3.5.~~—Where appropriate, an FMI's A central counterparty should also provide its participants and its participants' customers with the relevant information to manage and contain their credit and liquidity risks. An FMI's A central counterparty may consider it beneficial to provide its participants and its participants' customers with information necessary to monitor their credit and liquidity exposures, overall credit and liquidity limits, and the relationship between these exposures and limits. ~~For example, Where the FMI's central counterparty permits participants' customers to create exposures in the FMI's central counterparty that are borne by the participants, the FMI's central counterparty should provide participants with the capacity to limit such risks and the central counterparty should ensure that any large exposures are appropriately monitored and managed.~~

<sup>17</sup> These information systems should permit, where practicable, the provision of real time information to enable participants to manage risks. If an FMI does not provide real time information, it should provide clear, full, updated information to participants throughout the day (as frequently as possible) and consider appropriate enhancements to its systems.

<sup>18</sup> A central counterparty should ensure that its information systems have the capacity to provide this information on a timely basis.

## Internal controls

**3.1.5.** ~~3.3.9.~~—An FMI's central counterparty also should have comprehensive internal processes to help the board and senior management monitor and assess the adequacy and effectiveness of an FMI's central counterparty's risk management policies, procedures, systems, and controls. While business line management serves as the first 'line of defence', the adequacy of and adherence to control mechanisms should be assessed regularly through independent compliance programmes and independent ~~audit~~ external reviews.<sup>19</sup> A robust internal audit function can provide an independent assessment of the effectiveness of an FMI's central counterparty's risk management and control processes. An emphasis on the adequacy of controls by senior management and the board as well as internal audit can also help counterbalance a business management culture that may favour business interests over establishing and adhering to appropriate controls. In addition, proactive engagement of audit and internal control functions when changes are under consideration can also be beneficial. Specifically, FMIs' central counterparties that involve their internal audit function in pre-implementation reviews will often reduce their need to expend additional resources to retrofit processes and systems with critical controls that had been overlooked during initial design phases and construction efforts.

**3.2.** A central counterparty should ensure that financial and other obligations imposed on participants under its risk management framework are proportional to the scale and nature of individual participants' activities.

**3.2.1.** A central counterparty should ensure that it has sufficient risk controls and other arrangements in place to comply with the CCP Standards, and address any other systemic risk implications of its activities. In accordance with a central counterparty's risk management framework, these arrangements may place financial and other obligations on participants, such as margin, contributions to prefunded default arrangements, ex ante agreed arrangements for the provision of liquid resources and allocations of uncovered losses or liquidity shortfalls (see CCP Standard 4 on credit risk, CCP Standard 7 on liquidity risk and CCP Standard 12 on participant default rules and procedures), or minimum operational requirements (see CCP Standard 16 on operational risk). Such obligations should be proportional to the nature and magnitude of the risk that individual participants' activities pose to the safety of the central counterparty. In general, obligations placed on a participant with limited or conservative activities should differ from those placed on a participant with extensive or risky activities. For the purposes of this Standard, financial obligations do not include minimum capital requirements for participants, which are dealt with under CCP Standard 17 on access and participation requirements.

**3.3.** An FMI's central counterparty should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI's central counterparty.

**3.3.1.** ~~3.3.6.~~—An FMI in establishing risk management policies, procedures and systems, a central counterparty should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI's central counterparty. There are several ways in which an FMI's central counterparty may provide incentives. For example, an FMI could apply financial penalties to participants that fail to settle securities in a timely manner or to repay intraday credit by the end of the operating day. Another example is the use of loss-sharing arrangements proportionate to the exposures brought to the FMI's central counterparty. Such approaches' Provision of incentives can help reduce the moral hazard that may arise from formulas in which losses are shared equally among participants or other formulas where losses are not shared proportionally to risk.

**3.4.** An FMI's central counterparty should regularly review the material risks it bears from and poses to other entities (such as other FMIs, money settlement banks, agents, liquidity providers, and service

<sup>19</sup> Internal Audits should be performed by qualified and independent individuals who did not participate in the creation of the control mechanisms. The central counterparty should also subject aspects of its risk management processes to external independent review (see CCP Standard 2 on governance).

providers) as a result of interdependencies, and develop appropriate risk -management tools to address these risks.

**3.4.1. 3.3.7.**—~~An FMIa central counterparty~~ should regularly review the material risks it bears from and poses to other entities (such as other FMIs, money settlement banks~~agents~~, liquidity providers, ~~or and~~ service providers) as a result of interdependencies and develop appropriate risk -management tools to address these risks (see also ~~Principle 20~~CCP Standard 19 on FMI links). In particular, ~~an FMIa central counterparty~~ should have effective risk -management tools to manage all relevant risks, including the legal, credit, liquidity, general business, and operational risks that it bears from and poses to other entities, in order to limit the effects of disruptions from and to such entities as well as disruptions from and to the broader financial markets. These tools should include business continuity arrangements that allow for rapid recovery and resumption of critical operations and services in the event of operational disruptions (see ~~Principle 17~~CCP Standard 16 on operational risk), liquidity risk -management techniques (see ~~Principle~~CCP Standard 7 on liquidity risk), and recovery or orderly wind-down plans should the ~~FMI~~central counterparty become non-viable.<sup>20</sup> Because of the interdependencies between and among systems, ~~an FMIa central counterparty~~ should ensure that its crisis -management arrangements allow for effective coordination among the affected entities, including cases in which its own viability or the viability of an interdependent entity is in question.

**3.5.** ~~An FMIa central counterparty~~ should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. ~~An FMIa central counterparty~~ should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, ~~an FMIa central counterparty~~ should also provide relevant authorities with the information needed for purposes of resolution planning.

**3.5.1. 3.3.8.**—~~An FMIa central counterparty~~ should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. These scenarios should take into account the various independent and related risks to which the ~~FMI~~central counterparty is exposed. Using this analysis (and taking into account any constraints potentially imposed by domestic legislation), the ~~FMI~~central counterparty should prepare appropriate plans for its recovery or orderly wind-down. The ~~plan~~plans should contain, among other elements, a substantive summary of the key recovery or orderly wind-down strategies, the identification of the ~~FMI's~~central counterparty's critical operations and services, and a description of the measures needed to implement the key strategies. ~~An FMIa central counterparty~~ should have the capacity to identify and provide to related entities the information needed to implement ~~the plan~~its plans on a timely basis during stress scenarios. In addition, these plans should be reviewed and updated regularly. Where applicable, ~~an FMIa central counterparty~~ should provide relevant resolution authorities with the information, including strategy and scenario analysis, needed for purposes of resolution planning.

## **PrincipleStandard 4: Credit risk**

*[Key Consideration 3 not relevant to central counterparties]*

~~An FMIa central counterparty~~ should effectively measure, monitor, and manage its credit exposures to participants and those arising from ~~its payment, clearing, and settlement~~ processes. ~~An FMIa central counterparty~~ should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. ~~In addition, a CCP that is involved in activities with a more complex~~

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20 Although TRs are typically not exposed to financial risks from their recordkeeping activities, they may be a part of a network linking various entities that could include CCPs, dealers, custodians, and service providers, and therefore should ensure that they effectively manage and minimise their own risks to reduce the potential for systemic risk to spread to such linked entities.

risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions.

### ~~Explanatory note~~Guidance

**3.4.1.**—Credit risk is broadly defined as the risk that a counterparty will be unable to meet fully its financial obligations when due or at any time in the future. The default of a participant (and its affiliates) has the potential to cause severe ~~disruptions~~disruption to ~~an FMI~~an FMI ~~central counterparty~~, its other participants, and the financial markets more broadly.<sup>21</sup> Therefore, ~~an FMI~~an FMI ~~central counterparty~~ should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its ~~payment, clearing, and settlement~~ processes (see also ~~Principle~~CCP Standard 3 on the framework for the comprehensive management of risks, ~~Principle~~CCP Standard 9 on money settlements, and ~~Principle~~CCP Standard 15 on custody and investment risks). Credit exposures may arise in the form of current exposures, potential future exposures, or both.<sup>22</sup> Current exposure, in this context, is defined as the loss that ~~an FMI (or in some cases, its participants)~~a central counterparty would face immediately if a participant were to default.<sup>23</sup> Potential future exposure is broadly defined as any potential credit exposure that ~~an FMI~~an FMI ~~central counterparty~~ could face at a future point in time.<sup>24</sup> The type and level of credit exposure faced by ~~an FMI~~an FMI ~~central counterparty~~ will vary based on its design and the credit risk of the counterparties concerned.<sup>25</sup>

**4.1.** ~~An FMI~~An FMI ~~central counterparty~~ should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its ~~payment, clearing, and settlement~~ processes. Credit exposures may arise from current exposures, potential future exposures, or both.

### ~~Credit risk in payment systems~~

**3.4.2.**—~~Sources of credit risk. A payment system may face credit risk from its participants, its payment and settlement processes, or both. This credit risk is driven mainly by current exposures from extending intraday credit to participants.<sup>26</sup> For example, a central bank that operates a payment system and provides intraday credit will face current exposures. A payment system can avoid carrying over current exposures to the next day by requiring its participants to refund any credit extensions before the end of the day. Intraday credit can lead to potential future exposures even when the FMI accepts collateral to secure the credit. A payment system would face potential future exposure if the value of collateral posted by a participant to cover intraday credit were to fall below the amount of credit extended to the participant by the FMI, leaving a residual exposure.~~

**3.4.3.**—~~Sources of credit risk in deferred net settlement systems. A payment system that employs a DNS mechanism may face financial exposures arising from its relationship with its participants or its payment~~

<sup>21</sup> An affiliate is defined as a company that controls, is controlled by, or is under common control with the participant. Control of a company is defined as (a) ownership, control, or holding with power to vote 20 percent or more of a class of voting securities of the company; or (b) consolidation of the company for financial reporting purposes.

<sup>22</sup> See also BCBS, The application of Basel II to trading activities and the treatment of double default effects, April 2005, p 4 (joint paper with IOSCO). See also BCBS, International convergence of capital measurement and capital standards, June 2006, annex 4, pp 254-257 (various definitions of transactions and risks; see especially, definitions of “current exposure” and “peak exposure”).

<sup>23</sup> Current exposure is technically defined as the larger of zero or the market value (or replacement cost) of a transaction or portfolio of transactions within a netting set with a counterparty that would be lost upon the default of the counterparty.

<sup>24</sup> Potential future exposure is technically defined as the maximum exposure estimated to occur at a future point in time at a high level of statistical confidence. Potential future exposure arises from potential fluctuations in the market value of a participant’s open positions between the time they are incurred or reset to the current market price and the time they are liquidated or effectively hedged.

<sup>25</sup> In considering ~~its~~any credit exposure to a central bank, on a case-by-case basis ~~an FMI~~an FMI ~~central counterparty~~ may take into account the special characteristics of the central bank.

<sup>26</sup> Many payment systems do not face credit risk from their participants or payment and settlement processes, although they may face significant liquidity risk.

and settlement processes. A DNS payment system may explicitly guarantee settlement, whether the guarantee is provided by the FMI itself or its participants. In such systems, the guarantor of the arrangement would face current exposure if a participant were not to meet its payment or settlement obligations. Even in a DNS system that does not have an explicit guarantee, participants in the payment system may still face settlement risk vis-à-vis each other. Whether this risk involves credit exposures or liquidity exposures, or a combination of both, will depend on the type and scope of obligations, including any contingent obligations, the participants bear. The type of obligations will, in turn, depend on factors such as the payment system's design, rules, and legal framework.

3.4.4.— Measuring and monitoring credit risk. A payment system should frequently and regularly measure and monitor its credit risks, throughout the day using timely information. A payment system should ensure it has access to adequate information, such as appropriate collateral valuations, to allow it to measure and monitor its current exposures and degree of collateral coverage. In a DNS payment system without a settlement guarantee, the FMI should provide the capacity to its participants to measure and monitor their current exposures to each other in the system or adopt rules that require participants to provide relevant exposure information. Current exposure is relatively straightforward to measure and monitor; however, potential future exposure may require modelling or estimation. In order to monitor its risks associated with current exposure, a payment system should monitor market conditions for developments that could affect these risks, such as collateral values. In order to estimate its potential future exposure and associated risk, a payment system should model possible changes in collateral values and market conditions over an appropriate liquidation period. A payment system, where appropriate, needs to monitor the existence of large exposures to its participants and their customers. Additionally, it should monitor any changes in the creditworthiness of its participants.

3.4.5.— Mitigating and managing credit risk. A payment system should mitigate its credit risks to the extent possible. A payment system can, for example, eliminate some of its or its participants' credit risks associated with the settlement process by employing an RTGS mechanism. In addition, a payment system should limit its current exposures by limiting intraday credit extensions and, where relevant, avoid carrying over these exposures to the next day by requiring participants to refund any credit extensions before the end of the day.<sup>27</sup> Such limits should balance the usefulness of credit to facilitate settlement within the system against the payment system's credit exposures.

3.4.6.— In order to manage the risk from a participant default, a payment system should consider the impact of participant defaults and robust techniques for managing collateral. A payment system should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (equity can be used after deduction of the amount dedicated to cover general business risk) (see Principle 5 on collateral and Principle 15 on general business risk).<sup>28</sup> By requiring collateral to cover the credit exposures, a payment system mitigates, and in some cases eliminates, its current exposure and may provide participants with an incentive to manage credit risks they pose to the payment system or other participants. Further, this collateralisation reduces the need in a DNS payment system to unwind payments should a participant default on its obligations. Collateral or other equivalent financial resources can fluctuate in value, however, so the payment system should establish prudent haircuts to mitigate the resulting potential future exposure.

3.4.7.— A DNS payment system that explicitly guarantees settlement, whether the guarantee is from the FMI itself or from its participants, should maintain sufficient financial resources to cover fully all current and potential future exposures using collateral and other equivalent financial resources. A DNS payment system in which there is no settlement guarantee, but where its participants face credit exposures arising from its payment and settlement processes, should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit

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27 A central bank often avoids using limits on a participant's credit because of its role as a monetary authority and liquidity provider.

28 Equity may only be used up to the amount held in sufficiently liquid net assets. Such use of equity should be strictly limited to avoiding disruptions in settlement when collateral is not available in a timely manner.

exposure in the system.<sup>29</sup> A higher level of coverage should be considered for a payment system that creates large exposures or that could have a significant systemic impact if more than two participants and their affiliates were to default.

#### Credit risk in SSSs

3.4.8. — Sources of credit risk. An SSS may face a number of credit risks from its participants or its settlement processes. An SSS faces counterparty credit risk when it extends intraday or overnight credit to participants. This extension of credit creates current exposures and can lead to potential future exposures, even when the SSS accepts collateral to secure the credit. An SSS would face potential future exposure if the value of collateral posted by a participant to cover this credit might fall below the amount of credit extended to the participant by the SSS, leaving a residual exposure. In addition, an SSS that explicitly guarantees settlement would face current exposures if a participant were not to fund its net debit position or meet its obligations to deliver financial instruments. Further, if an SSS does not use a DvP settlement mechanism, the SSS or its participants face principal risk, which is the risk of loss of securities or payments made to the defaulting participant prior to the detection of the default (see Principle 12 on exchange of value settlement systems).

3.4.9. — Sources of credit risk in deferred net settlement systems. An SSS may settle securities on a gross basis and funds on a net basis (DvP model 2) or settle both securities and funds on a net basis (DvP model 3). Further, an SSS that uses a DvP model 2 or 3 settlement mechanism may explicitly guarantee settlement, whether the guarantee is by the FMI itself or by its participants. In such systems, this guarantee represents an extension of intraday credit from the guarantor. In an SSS that does not provide an explicit settlement guarantee, participants may face settlement risk vis à vis each other if a participant defaults on its obligations. Whether this settlement risk involves credit exposures, liquidity exposures, or a combination of both will depend on the type and scope of the obligations, including any contingent obligations, the participants bear. The type of obligations will, in turn, depend on factors such as the SSS's design, rules, and legal framework.

3.4.10. — Measuring and monitoring credit risk. An SSS should frequently and regularly measure and monitor its credit risks throughout the day using timely information. An SSS should ensure it has access to adequate information, such as appropriate collateral valuations, to allow it to measure and monitor its current exposures and degree of collateral coverage. If credit risk exists between participants, the SSS should provide the capacity to participants to measure and monitor their current exposures to each other in the system or adopt rules that require participants to provide relevant exposure information. Current exposure should be relatively straightforward to measure and monitor; however, potential future exposure may require modelling or estimation. In order to monitor its risks associated with current exposure, an SSS should monitor market conditions for developments that could affect these risks, such as collateral values. In order to estimate its potential future exposure and associated risk, an SSS should model possible changes in collateral values and market conditions over an appropriate liquidation period. An SSS, where appropriate, needs to monitor the existence of large exposures to its participants and their customers. Additionally, it should monitor any changes in the creditworthiness of its participants.

3.4.11. — Mitigating and managing credit risk. An SSS should mitigate its credit risks to the extent possible. An SSS should, for example, eliminate its or its participants' principal risk associated with the settlement process by employing an exchange of value settlement system (see Principle 12 on exchange of value settlement systems). The use of a system that settles securities and funds on a gross, obligation by obligation basis (DvP model 1) would further reduce credit and liquidity exposures among participants and between participants and the SSS. In addition, an SSS should limit its current exposures by limiting intraday credit extensions and, where relevant, overnight credit extensions.<sup>30</sup> Such limits should balance the usefulness of credit to facilitate settlement within the system against the SSS's credit exposures.

3.4.12. — In order to manage the risk from a participant default, an SSS should consider the impact of participant defaults and use robust techniques for managing collateral. An SSS should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence

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<sup>29</sup> If the financial exposure faced by the DNS payment system is a liquidity exposure, then Principle 7 would apply.

<sup>30</sup> A central bank often avoids using limits on a participant's credit because of its role as a monetary authority and liquidity provider.

using collateral and other equivalent financial resources (equity can be used after deduction of the amount dedicated to cover general business risk) (see Principle 5 on collateral and Principle 15 on general business risk).<sup>31</sup> By requiring collateral to cover the credit exposures, an SSS mitigates, and in some cases eliminates, its current exposures and may provide participants with an incentive to manage the credit risks they pose to the SSS or other participants. Further, this collateralisation allows an SSS that employs a DvP model 2 or 3 mechanism to avoid unwinding transactions or to mitigate the effect of an unwind should a participant default on its obligations. Collateral and other equivalent financial resources can fluctuate in value, however, so the SSS needs to establish prudent haircuts to mitigate the resulting potential future exposures.

3.4.13. — An SSS that uses a DvP model 2 or 3 mechanism and explicitly guarantees settlement, whether the guarantee is from the FMI itself or from its participants, should maintain sufficient financial resources to cover fully, with a high degree of confidence, all current and potential future exposures using collateral and other equivalent financial resources. An SSS that uses a DvP model 2 or 3 mechanism and does not explicitly guarantee settlement, but where its participants face credit exposures arising from its payment, clearing, and settlement processes, should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.<sup>32</sup> A higher level of coverage should be considered for an SSS that has large exposures or that could have a significant systemic impact if more than two participants and their affiliates were to default.

4.1.1. 3.4.14. — Sources of credit risk. A CCPA central counterparty typically faces both current and potential future exposures because it typically holds open positions with its participants. Current exposure arises from fluctuations in the market value of open positions between the CCP central counterparty and its participants.<sup>33</sup> Potential future exposure arises from potential fluctuations in the market value of a defaulting participant's open positions until the positions are closed out, fully hedged, or transferred by the CCP central counterparty following an event of default.<sup>34</sup> For example, during the period in which a CCP central counterparty neutralises or closes out a position following the default of a participant, the market value of the position or asset being cleared may change, which could increase the CCP's central counterparty's credit exposure, potentially significantly.<sup>35</sup> A CCP central counterparty can also face potential future exposure due to the potential for collateral (initial margin) to decline significantly in value over the close-out period.

4.2. An FMI central counterparty should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk management tools to control these risks. To assist in this process, a central counterparty should ensure it has the capacity to calculate exposures to participants on a timely basis as required, and to receive and review timely and accurate information on participants' credit standing.

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31 Equity may only be used up to the amount held in sufficiently liquid net assets. Such use of equity should be strictly limited to avoiding disruptions in settlement when collateral is not available in a timely manner.

32 If the financial exposure faced by the DNS SSS is a liquidity exposure, then principle 7 would apply.

33 For example, for a CCP central counterparty that pays and collects variation margin (after marking positions to market and then, upon completion of the variation cycle, resetting the value of positions to zero daily), the current exposure is the difference between the current (that is, at the moment) value of open positions and the value of the positions when the CCP central counterparty last marked them to market for the purpose of collecting variation margin.

34 For positions that are marked to market and settled daily, potential future exposure is typically related to price development in the interval between the last daily mark-to-market and the point the position is closed out. That is, potential future exposure includes uncovered current exposure stemming from the price development from the last mark-to-market to the time of close-out, full hedging, fully hedged or transferred.

35 A CCP central counterparty may close out a defaulting participant's positions by entering the market to buy or sell contracts identical but opposite to the net positions held by the defaulting participant at current market prices (see Principle 13 CCP Standard 12 on participant default rules and procedures). (The CCP central counterparty may alternatively auction the defaulting participant's positions to other participants, whether in whole or in parts). During the liquidation period, market prices on the open positions can change, exposing the CCP central counterparty to additional liquidation costs until the point of close out. To mitigate this risk, a CCP central counterparty may also temporarily hedge the defaulter's positions by entering into positions with values that are negatively correlated with the values of the positions held by the defaulting participant. The CCP's central counterparty's liquidation cost therefore not only includes the uncovered current exposure that would exist at the time of default but also the potential future exposure associated with relevant changes in market prices during the liquidation period.

- ~~4.2.1. 3.4.15.—Measuring and monitoring credit risk. An FMA central counterparty~~ should frequently and regularly measure and monitor its credit risks throughout the day using timely information. ~~A CCPA central counterparty~~ should ensure that it has access to adequate information to allow it to measure and monitor its current and potential future exposures, including to individual participants. Current exposure is relatively straightforward to measure and monitor when relevant market prices are readily available. Potential future exposure is typically more challenging to measure and monitor and usually requires modelling and estimation of possible future market price developments and other variables and conditions, as well as specifying an appropriate time horizon for the close out of defaulted positions. In order to estimate the potential future exposures that could result from participant defaults, a ~~CCP~~central counterparty should identify risk factors and monitor potential market developments and conditions that could affect the size and likelihood of its losses in the close out of a defaulting participant's positions. A ~~CCP~~central counterparty should regularly monitor the existence of large exposures to its participants and, where appropriate, their customers. A central counterparty's systems should be capable of calculating exposures to participants intraday and at short notice.
- ~~4.2.2.~~ Additionally, ~~it~~a central counterparty should have the capacity to monitor any changes in the creditworthiness of its participants through the systematic review of timely information on financial standing, business activities and profile, and potential interdependencies. The central counterparty should use this capacity to conduct periodic reviews of its participants' credit standing, and to conduct ad hoc reviews where the central counterparty has reason to believe that a participant's credit standing may deteriorate.
- ~~4.2.3. 3.4.16.—Mitigating and managing credit risk. A CCP central counterparty~~ should mitigate its credit risk to the extent possible. For example, to control the build-up of current exposures, a ~~CCP~~central counterparty should require that open positions be marked to market and that each participant pay funds, typically in the form of variation margin, to cover any loss in its positions' net value at least daily; such a requirement limits the accumulation of current exposures and therefore mitigates potential future exposures. In addition, a ~~CCP~~central counterparty should have the authority and operational capacity to make intraday margin calls, both scheduled and unscheduled, from participants. Further, a ~~CCP~~central counterparty may in some cases choose to place limits on credit exposures ~~in some cases~~, even ~~if~~where these are collateralised. Limits on concentrations of positions or additional collateral requirements may also be warranted.
- ~~4.2.4. 3.4.17.—A CCP central counterparty~~ typically uses a sequence of prefunded financial resources, often referred to as a 'waterfall', to manage its losses caused by participant defaults. The waterfall may include a defaulter's initial margin, the defaulter's contribution to a prefunded default arrangement, a specified portion of the ~~CCP's~~central counterparty's own funds, and other participants' contributions to a prefunded default arrangement.<sup>36</sup> A central counterparty should hold a combination of margin and pooled prefunded resources to control credit risks. Initial margin is used to cover a ~~CCP's~~central counterparty's potential future exposures, as well as current exposures not covered by variation margin, to each participant with a high degree of confidence.<sup>37</sup> However, a ~~CCP~~central counterparty generally remains exposed to residual risk (or tail risk) if a participant defaults and market conditions concurrently change more ~~drastically~~ than is anticipated in the margin calculations. In such scenarios, a ~~CCP's~~central counterparty's

<sup>36</sup> Prefunded default arrangements for loss mutualisation and other pooling-of-resources arrangements involve trade-offs that a ~~CCP~~central counterparty should carefully assess and balance. For example, a ~~CCP~~central counterparty may be able to protect itself against defaults in extreme conditions more efficiently using pooled resources, as the costs are shared among participants. The lower cost provides an incentive to increase the available financial resources so that the ~~CCP~~central counterparty is more financially secure. The pooling of resources, however, also increases the interdependencies among participants. The proportion of assets used to absorb a default that is pooled across participants versus the proportion that is ~~segregated~~not, such as margins, should balance the safety and soundness of the ~~CCP~~central counterparty against the increased interdependencies among participants in order to minimise systemic risk.

<sup>37</sup> ~~Other resources may be used in place of initial margin; however, these resources should be prefunded and of equivalent or stronger quality in comparison to prudently designed margin arrangements.~~

losses may exceed the defaulting participant's posted margin. Although it is not feasible to cover all such tail risks, given the unknown scope of potential losses due to price changes, a ~~CCP~~central counterparty should maintain additional pooled prefunded financial resources, ~~such as additional collateral or a prefunded default arrangement,~~ to cover a portion of the tail risk.

4.3. A central counterparty should have the authority to impose activity restrictions or additional credit risk controls on a participant in situations where the central counterparty determines that the participant's credit standing may be in doubt.

4.3.1. If a central counterparty determines that a participant's credit standing may be in doubt, it should have the authority, under its rules and procedures, to impose additional credit risk controls on the participant. These may include placing restrictions on the level or types of activities that the participant can undertake, or calling additional margin or collateral from the participant. In extreme cases, the central counterparty may need to consider suspending the participant (see CCP Standard 12 on participant default rules and procedures and CCP Standard 17 on access and participation requirements).

4.4. A ~~CCP~~central counterparty should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources (see PrincipleCCP Standard 5 on collateral and PrincipleCCP Standard 6 on margin). In addition, a ~~CCP~~central counterparty that is involved in activities with a more complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the ~~CCP~~central counterparty in extreme but plausible market conditions. All other ~~CCPs~~central counterparties should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the ~~CCP~~central counterparty in extreme but plausible market conditions. In all cases, a ~~CCP~~central counterparty should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount of total financial resources it maintains.

4.4.1. 3.4.18—A ~~CCPA~~ central counterparty should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources. As discussed more fully in PrincipleCCP Standard 6 on margin, a ~~CCP~~central counterparty should establish initial margin requirements that are commensurate with the risks of each product and portfolio. Initial margin should be designed to meet an established single-tailed confidence level of at least 99 per cent of the estimated distribution of future exposure.<sup>38</sup> For a ~~CCP~~central counterparty that calculates margin at the portfolio level, this Standard applies to the distribution of future exposure of each portfolio. For a ~~CCP~~central counterparty that calculates margin at more granular levels, such as at the sub-portfolio level or product level, the Standard ~~must~~should be met for the corresponding distributions of future exposure.

4.4.2. 3.4.19.—In addition to fully covering its current and potential future exposures, a ~~CCP~~central counterparty should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios involving extreme but plausible market conditions. Specifically, a ~~CCP~~central counterparty that is involved in activities with a more complex risk profile (such as clearing financial instruments that are characterised by discrete jump-to-default price changes or that are highly correlated with potential participant defaults) or that is systemically important in multiple jurisdictions, should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest

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38 This concept parallels the technical definition of potential future exposure as a risk measure.

aggregate credit exposure for the CCPcentral counterparty in extreme but plausible market conditions. Determinations of whether a CCPcentral counterparty is systemically important in multiple jurisdictions should include consideration of, among other factors, ~~(a)~~ the location of the CCP'scentral counterparty's participants, ~~(b)~~ the aggregate volume and value of transactions that originate in each jurisdiction in which it operates, ~~(c)~~ the proportion of its total volume and value of transactions that originate in each jurisdiction in which it operates, ~~(d)~~ the range of currencies in which the instruments it clears are cleared or settled, ~~(e)~~ any links it has with FMIs located in other jurisdictions, and ~~(f)~~ the extent to which it clears instruments that are subject to mandatory clearing obligations in multiple jurisdictions. All other CCPscentral counterparties should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the CCPcentral counterparty in extreme but plausible market conditions. In all cases, a CCPcentral counterparty should document its supporting rationale for, and should have appropriate governance arrangements relating to (see PrincipleCCP Standard 2 on governance), the amount of total financial resources it maintains.

4.5. A CCPcentral counterparty should, through rigorous stress testing, determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. Stress tests should be performed daily using standard and predetermined parameters and assumptions. ~~A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources.~~ On at least a monthly basis, a CCPcentral counterparty should perform a comprehensive and thorough analysis of stress-testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP'scentral counterparty's required level of default protection in light of current and evolving market conditions. ~~A CCP central counterparty~~ should perform this analysis of stress-testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP'scentral counterparty's participants increases significantly. A full validation of a CCP'scentral counterparty's risk-management model should be performed at least annually.

4.5.1. ~~3.4.20.~~ A CCPA central counterparty should determine the amount and regularly test the sufficiency of its total financial resources ~~through~~available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCPA central counterparty should also conduct reverse stress tests, as appropriate, to test how severe stress conditions would be covered by its total financial resources. Because initial margin is a key component of a CCP'scentral counterparty's total financial resources, a CCPcentral counterparty should also test the adequacy of its initial margin requirements and model, through backtesting and sensitivity analysis, respectively (see PrincipleCCP Standard 6 for further discussion on ~~the~~ testing of ~~the~~ initial margin requirements and model).

~~3.4.21. Stress testing. A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP's required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP's participants increases significantly. A full validation of a CCP's risk management model should be performed at least annually.<sup>57</sup>~~

**4.6.** In conducting stress testing, ~~a CCP~~a central counterparty should consider the effect of a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.

**4.6.1.** ~~3.4.22. In conducting stress testing, a CCP should consider a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods.<sup>39</sup> Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.~~In constructing stress scenarios, extreme but plausible conditions should not be considered a fixed set of conditions, but rather, conditions that evolve. Stress tests should ~~quickly, on a timely basis,~~ incorporate emerging risks and changes in market assumptions (for example, departures from usual patterns of co-movements in prices among the products a ~~CCP~~central counterparty clears).<sup>40</sup> A ~~CCP~~central counterparty proposing to clear new products should consider movements in prices of any relevant related products.

**4.6.2.** ~~3.4.23. Reverse stress tests. A CCPA central counterparty~~ should also conduct, as appropriate, reverse stress tests aimed at identifying the extreme scenarios and market conditions in which its total financial resources would not provide sufficient coverage of tail risk. Reverse stress tests require a ~~CCP~~central counterparty to model hypothetical positions and extreme market conditions that may go beyond what are considered extreme but plausible market conditions in order to help understand margin calculations and the sufficiency of financial resources given the underlying assumptions modelled. Modelling very extreme market conditions can help a ~~CCP~~central counterparty determine the limits of its current model and resources.<sup>39</sup> However, it requires the ~~CCP~~central counterparty to exercise judgement when modelling different markets and products. ~~A CCPA central counterparty~~ should develop hypothetical very extreme scenarios and market conditions tailored to the specific risks of the markets and of the products it serves. Reverse stress testing should be considered a helpful management tool but need not, necessarily, drive the ~~CCP's~~central counterparty's determination of the appropriate level of financial resources.

**4.7.** A ~~CCP~~central counterparty should have clearly documented and effective rules and procedures to report ~~the results of its stress tests~~ stress-test information to appropriate decision-makers ~~at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources, and ensure that additional financial resources are obtained on a timely basis in the event that projected stress-test losses exceed available financial resources. Where projected stress-test losses of a single or only a few participants exceed available financial resources, it may be appropriate to increase non-pooled financial resources; otherwise, where projected stress-test losses are frequent and consistently widely dispersed across participants, clear processes should be in place to augment pooled financial resources.~~

**4.7.1.** In the event that projected stress-test losses exceed available financial resources, a central counterparty should obtain additional financial resources. The central counterparty should therefore ensure that its rules and procedures support timely action to increase financial resources in these circumstances. The nature of the additional financial resources called may depend on the distribution of projected stress-test losses. If projected stress-test losses exceed

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<sup>39</sup> The risk-management methods of some CCPs may integrate the management of risk from participant positions with risks from price developments. If this integrated risk-management approach is well implemented, stress scenarios can take into account appropriate combinations in defaulting positions and price changes.

<sup>40</sup> Dependence among exposures as well as between participants and exposures should be considered. If an ~~FM~~central counterparty calculates exposures on a portfolio basis, then the dependence of the instruments within participants' portfolios needs to be stressed.

available financial resources for only a single, or few participants, then it may be appropriate to call for additional margin or other non-pooled financial resources from those participants. The central counterparty should clearly articulate the circumstances in which it will call for additional margin or non-pooled financial resources from participants, and both the form (that is, cash or eligible non-cash collateral – see CCP Standard 5) and the time frame in which calls must be satisfied. The central counterparty should periodically engage with participants to ensure that they understand their potential obligations and have taken appropriate steps to ensure that they would be able to meet them. Where projected stress-test losses are consistently widely dispersed across participants, then it may be appropriate for the central counterparty to augment pooled financial resources. The central counterparty should have documented and effective processes in place to achieve this. These processes should clearly specify the circumstances in which additional pooled financial resources may be called, including how any additional contributions from participants are to be determined and when these should be paid.

4.7.2. A central counterparty should have clear procedures to report the results of its stress tests to appropriate decision-makers at the central counterparty and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress scenarios, models and underlying parameters and assumptions should be examined based on historical data of prices of cleared products and participants' positions and potential developments of these factors under extreme but plausible market conditions in the markets that the central counterparty serves.

4.8. An FMI central counterparty should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI central counterparty. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI central counterparty may borrow from liquidity providers. These rules and procedures should also indicate the FMI's central counterparty's process to replenish any financial resources that the FMI central counterparty may employ during a stress event, so that the FMI central counterparty can continue to operate in a safe and sound manner.

## Use of financial resources

4.8.1. 3.4.24.—The rules of an FMI central counterparty should expressly set out the waterfall, including the circumstances in which specific resources of the FMI central counterparty can be used in a participant default (see Principle 13 CCP Standard 12 on participant default rules and procedures and Principle 23 CCP Standard 20 on disclosure of rules, key policies and procedures, and market data). For the purposes of this principle standard, an FMI, a central counterparty should not include as 'available' to cover credit losses from participant defaults those resources that are needed to cover current operating expenses, potential general business losses, or other losses from other ancillary activities in which the FMI central counterparty is engaged (see Principle 15 CCP Standard 1 on legal basis and CCP Standard 14 on general business risk). In addition, if an FMI central counterparty serves multiple markets (either in the same jurisdiction or multiple jurisdictions), its ability to use resources supplied by participants in one market to cover losses from a participant default in another market should have a sound legal basis, be clear to all participants, and avoid significant levels of contagion risk between markets and participants. The design of an FMI's central counterparty's stress tests should take into account the extent to which resources are pooled across markets in scenarios involving one or more participant defaults across several markets.

## Contingency planning for uncovered credit losses

4.8.2. 3.4.25.—In certain extreme circumstances, the post-liquidation value of the collateral and other financial resources that secure an FMI's central counterparty's credit exposures may not be sufficient to cover fully credit losses resulting from those exposures fully. An FMI central

counterparty should analyse and plan for how it would address any uncovered credit losses. An FMI central counterparty should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI central counterparty. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI central counterparty may borrow from liquidity providers.<sup>41</sup> An FMI's central counterparty's rules and procedures should also indicate its process to replenish any financial resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

## **PrincipleStandard 5: Collateral**

An FMI central counterparty that requires collateral to manage its or its participants' credit exposures should accept collateral with low credit, liquidity, and market risks. An FMI central counterparty should also set and enforce appropriately conservative haircuts and concentration limits.

### **Explanatory noteGuidance**

**3.5.1**—Collateralising credit exposures protects an FMI central counterparty and, where relevant, its participants against potential losses in the event of a participant default (see PrincipleCCP Standard 4 on credit risk). Besides mitigating an FMI's central counterparty's own credit risk, the use of collateral can provide participants with incentives to manage the risks they pose to the FMI central counterparty or other participants. An FMI central counterparty should apply prudent haircuts to the value of the collateral to achieve a high degree of confidence that the liquidation value of the collateral will be greater than or equal to the obligation that the collateral secures in extreme but plausible market conditions.<sup>42</sup> Additionally, an FMI central counterparty should have the capacity to use the collateral promptly when needed.

**5.1.** An FMI central counterparty should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.

**5.1.1.** **3.5.2.**—An FMI central counterparty should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks. Collateral with low credit, liquidity and market risks comprises assets that may be reliably liquidated or repurchased in private markets, within a reasonable time frame and at a value within the haircut applied or, in extremis and where the collateral taker has access, sold to a central bank under a repurchase agreement or otherwise pledged to a central bank. In the normal course of business, an FMI may be exposed to risk from Certain types of collateral that are not considered to have low credit, liquidity, and market risks. However, in some instances, these assets may nevertheless be acceptable collateral for credit purposes if an appropriate haircut is applied. An FMI central counterparty must be confident of the collateral's value in the event of liquidation and of its capacity to use that collateral quickly, especially in stressed market conditions. An FMI Where a central counterparty that accepts collateral with that does not have low credit, liquidity, and market risks above minimum levels, it should demonstrate that it sets and enforces appropriately conservative haircuts and concentration limits (see CCP Standard 5.3).<sup>43</sup>

**5.1.2.** In general, bank guarantees are not acceptable collateral. However, the use of bank guarantees may be acceptable under certain specified circumstances and under certain conditions, subject to prior approval from the Reserve Bank or other relevant authorities. The Reserve Bank will consider the acceptability of bank guarantees as collateral on a case-by-case basis, taking into

41 For instance, an FMI's central counterparty's rules and procedures might provide the possibility to allocate uncovered credit losses by writing down potentially unrealised gains by non-defaulting participants and the possibility of calling for additional contributions from participants based on the relative size and risk of their portfolios.

—The risk-management methods of some FMIs may integrate the management of risk from participant positions with the risk from fluctuations in the value of collateral provided by participants.

43 In general, guarantees are not acceptable collateral. However, in rare circumstances and subject to regulatory approval, a guarantee fully-backed by collateral that is realisable on a same-day basis may serve as acceptable collateral. An explicit guarantee from the relevant central bank of issue would constitute acceptable collateral providing it is supported by the legal framework applicable to and the policies of the central bank.

account factors including: the credit standing of the bank providing the guarantee; the legal certainty of the arrangement; and whether there is any collateral supporting the guarantee.

5.1.3. ~~3.5.3.~~—Further, ~~an FMI~~ a central counterparty should regularly ~~adjust~~ review its requirements for acceptable collateral in accordance with changes in underlying risks. When evaluating types of collateral, ~~an FMI~~ a central counterparty should consider potential delays in accessing the collateral due to the settlement conventions for transfers of the asset. In addition, participants should not be ~~allowed~~ permitted to post their own debt or equity securities, or debt or equity of companies closely linked to them, as collateral.<sup>44</sup> More generally, ~~an FMI~~ a central counterparty should mitigate specific wrong-way risk by limiting the acceptance of collateral that would likely lose value in the event that the participant providing the collateral ~~defaults~~.<sup>45</sup> defaulted. The ~~FMI~~ central counterparty should measure and monitor the correlation between a counterparty's creditworthiness and the collateral posted and take measures to mitigate the risks, for instance by setting more ~~conservative~~ haircuts.

5.1.4. ~~3.5.4.~~—If ~~an FMI~~ a central counterparty plans to use assets held as collateral to secure liquidity facilities in the event of a participant default, the ~~FMI~~ central counterparty will also need to consider, in determining acceptable collateral, what will be acceptable as security to lenders offering liquidity facilities (see Principle CCP Standard 7 on liquidity risk).

5.2. In determining its collateral policies, a central counterparty should take into consideration the broad effect of these policies on the market. As part of this, a central counterparty should consider allowing the use of collateral commonly accepted in the relevant jurisdictions in which it operates.

5.2.1. A central counterparty's collateral policies may have broader effects than their direct implications for the effectiveness of the central counterparty's risk controls. On the one hand, assets accepted as collateral by a central counterparty may be more likely to then be held by participants or used as collateral in other contexts, and may become more liquid as a result. On the other hand, use of a particular class of assets to meet collateral obligations at a central counterparty may, depending on its supply, restrict the availability of such assets for other uses, or significantly affect liquidity and pricing. A central counterparty should consider such broader effects when framing its collateral policies.

5.2.2. Participants that are required to source unfamiliar assets as collateral may face additional operational, legal or financial risks as a result. A central counterparty should therefore consider allowing the use of collateral that is commonly accepted in each jurisdiction in which it operates. In particular, a central counterparty with material Australian-based participation should consider accepting appropriate Australian dollar-denominated securities as collateral.

5.3. An FMI a central counterparty should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.

5.3.1. ~~3.5.5.~~—To ~~have~~ provide adequate assurance of the ~~collateral's~~ value of collateral in the event of liquidation, ~~an FMI~~ a central counterparty should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions. ~~An FMI~~ a central counterparty should, at a minimum, mark its collateral to market daily. Haircuts should reflect the potential for asset values and liquidity to decline over the interval between their last revaluation and the time by which ~~an FMI~~ a central counterparty can reasonably assume that the assets can be liquidated. Haircuts also should incorporate assumptions about collateral value during stressed market conditions and reflect regular stress testing that takes into account extreme price moves, as well as changes in market liquidity for the asset. If market prices do not fairly represent the true value of the assets, ~~an FMI~~ a central counterparty should have the authority to exercise discretion in valuing assets according to predefined and

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<sup>44</sup> Covered bonds issued by a participant or a closely linked company may be accepted as collateral, provided the underlying collateral of these covered bonds would be appropriately segregated by the issuer from its own assets and considered as acceptable under this principle.

<sup>45</sup> Specific wrong-way risk is defined as the risk that an exposure to a counterparty is highly likely to increase when the creditworthiness of that counterparty is deteriorating.

transparent methods. ~~An FMI's~~A central counterparty's haircut procedures should be independently validated at least annually.<sup>46</sup>

**5.4.** In order to reduce the need for procyclical adjustments, ~~an FMI's~~an FMI's central counterparty should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.

**5.4.1.** ~~3.5.6.~~ ~~An FMI's~~An FMI's central counterparty should appropriately address procyclicality in its collateral arrangements. To the extent practicable and prudent, ~~an FMI's~~an FMI's central counterparty should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions in order to reduce the need for procyclical adjustments. In this context, procyclicality typically refers to changes in risk management practices that are positively correlated with market, business, or credit cycle fluctuations and that may cause or exacerbate financial instability.<sup>47</sup> While changes in collateral values tend to be procyclical, collateral arrangements can increase procyclicality if haircut levels fall during periods of low market stress and increase during periods of high market stress. For example, in a stressed market, ~~an FMI's~~an FMI's central counterparty may require the posting of additional collateral both because of the decline ~~of~~in asset prices and because of an increase in haircut levels. Such actions could exacerbate market stress and contribute to driving down asset prices further, resulting in additional collateral requirements. This cycle could exert further downward pressure on asset prices. Addressing issues of procyclicality may create additional costs for ~~FMI's~~FMI's central counterparties and their participants in periods of low market stress because of higher collateral requirements, but result in additional protection and potentially less costly and less disruptive adjustments in periods of high market stress.

**5.5.** ~~An FMI's~~An FMI's central counterparty should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.

**5.5.1.** ~~3.5.7.~~ ~~An FMI's~~An FMI's central counterparty should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects, including in stressed market conditions. High concentrations within holdings can be avoided by establishing concentration limits or imposing concentration charges. Concentration limits restrict participants' ability to provide certain collateral assets above a specified threshold as established by the ~~FMI's~~FMI's central counterparty. Concentration charges penalise participants for maintaining holdings of certain assets beyond a specified threshold as established by the ~~FMI's~~FMI's central counterparty. Further, concentration limits and charges should be constructed to prevent participants from covering a large share of their collateral requirements with the most risky assets acceptable. Concentration limits and charges should be periodically reviewed by the ~~FMI's~~FMI's central counterparty to determine their adequacy.

**5.6.** ~~An FMI's~~An FMI's central counterparty that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.

**5.6.1.** ~~3.5.8.~~ ~~If an FMI accepts cross-border (or foreign)~~If a central counterparty accepts cross-border collateral, it should identify and mitigate any additional risks associated with its use and ensure that it can be used in a timely manner.<sup>48</sup> A cross-border collateral arrangement can provide an efficient liquidity bridge across markets, help relax collateral constraints for some participants, and contribute to the efficiency of some asset markets. These linkages, however, can also create

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46 Validation of the ~~FMI's~~FMI's central counterparty's haircut procedures should be performed by personnel of sufficient expertise who are independent of the personnel that created ~~and applied~~or apply the haircut procedures. These expert personnel could be drawn from within the ~~FMI's~~FMI's central counterparty. However, a review by personnel external to the ~~FMI's~~FMI's central counterparty may also be necessary at times.

See also CGFS, *The role of margin requirements and haircuts in procyclicality*, March 2010.

48 Cross-border collateral has at least one of the following foreign attributes with respect to the country in which the central counterparty's operations are based: (a) the currency of denomination; (b) the jurisdiction in which the assets are located; or (c) the jurisdiction in which the issuer is established.

significant interdependencies ~~between a central counterparty and other FMIs~~ and risks to ~~FMIs the central counterparty~~ that need to be evaluated and managed ~~by the affected FMIs~~ (see also ~~Principle 17~~CCP Standard 16 on operational risk and ~~Principle 20~~CCP Standard 19 on FMI links). For example, ~~an FMI a central counterparty~~ should have appropriate legal and operational safeguards to ensure that it can use the cross-border collateral in a timely manner and should identify and address any significant liquidity effects. ~~An FMI A central counterparty~~ also should consider foreign ~~-~~exchange risk where collateral is denominated in a currency different from that in which the exposure arises, and set haircuts to address the additional risk to a high level of confidence. The ~~FMI central counterparty~~ should have the capacity to address potential operational challenges of operating across borders, such as differences in time zones or operating hours of foreign ~~CSDs central securities depositories~~ or custodians.

**5.7.** ~~An FMI A central counterparty~~ should use a collateral management system that is well ~~-~~designed and operationally flexible.

### Collateral management systems

**5.7.1.** ~~3.5.9.~~—~~An FMI A central counterparty~~ should use a well-designed and operationally flexible collateral management system. Such a system should accommodate changes in the ongoing monitoring and management of collateral. Where appropriate, the system should allow for the timely calculation and execution of margin calls, the management of margin call disputes, and the accurate daily reporting of levels of initial and variation margin. Further, a collateral management system should track the extent of reuse of collateral (both cash and non-cash) and the rights of ~~an FMI a central counterparty~~ to the collateral provided to it by its counterparties. ~~An FMI's~~Where appropriate, a central counterparty's collateral management system should also have functionality to accommodate the timely deposit, withdrawal, substitution, and liquidation of collateral in each jurisdiction in which it operates. In particular, where the scope of Australian participation in the central counterparty is material, and where market conventions dictate, a central counterparty's collateral management system should have the capacity to accommodate the timely deposit, withdrawal, substitution and liquidation of collateral during Australian market hours. ~~An FMI A central counterparty~~ should allocate sufficient resources to its collateral management system to ensure an appropriate level of operational performance, efficiency, and effectiveness. Senior management should ensure that the ~~FMI's central counterparty's~~ collateral management function is adequately staffed to ensure smooth operations, especially during times of market stress, and that all activities are tracked and reported, as appropriate, to senior management.<sup>49</sup>

### Reuse of collateral

**5.7.2.** ~~3.5.10.~~—Reuse of collateral refers to the ~~FMI's central counterparty's~~ subsequent use of collateral that has been provided by participants in the normal course of business. This differs from the ~~FMI's central counterparty's~~ use of collateral in a default scenario during which the defaulter's collateral, which has become the property of the ~~FMI central counterparty~~, can be used to access liquidity facilities or ~~can be~~ liquidated to cover losses (see ~~Principle 13~~CCP Standard 12 on participant ~~-~~default rules and procedures). ~~An FMI A central counterparty~~ should have clear and transparent rules regarding the reuse of collateral (see ~~Principle 23~~CCP Standard 20 on disclosure of rules, key policies and procedures, and market data). In particular, the rules should clearly specify when ~~an FMI a central counterparty~~ may reuse its participant collateral and the process for returning that collateral to participants. In general, ~~an FMI a central counterparty~~ should not rely on the reuse of collateral as an instrument for increasing or maintaining its profitability. However, ~~an FMI a central counterparty~~ may invest any cash collateral received

<sup>49</sup> ~~Information included in summary~~Summary reports should ~~incorporate~~include information on the reuse of collateral and the terms of such reuse, including instrument, credit quality, and maturity. These reports should also track concentration of individual collateral asset classes.

from participants on their behalf (see [Principle 16](#) [CCP Standard 15](#) on custody and investment risks).

## **Principle Standard 6: Margin**

A [CCP central counterparty](#) should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.

### **Explanatory note Guidance**

**3.6.1.**—An effective margining system is a key risk-management tool for a [CCP central counterparty](#) to manage the credit exposures ~~posed by~~ [associated with](#) its participants' open positions (see also [Principle CCP Standard 4](#) on credit risk). A [CCP central counterparty](#) should collect margin, which is a deposit of collateral in the form of money, securities, or other financial instruments ~~to assure performance and~~ to mitigate its credit exposures for all products that it clears ~~if in the event of~~ a participant default~~s~~ (see also [Principle CCP Standard 5](#) on collateral). Margin systems typically differentiate between initial margin and variation margin.<sup>50</sup> Initial margin is typically collected to cover potential changes in the value of each participant's position (that is, potential future exposure) over the appropriate close-out period in the event the participant defaults. Calculating potential future exposure requires modelling potential price movements and other relevant factors, as well as specifying the target degree of confidence and length of the close-out period. Variation margin is collected and paid out to reflect current exposures resulting from actual changes in market prices. To calculate variation margin, open positions are marked to current market prices and funds are typically collected from (or paid to) a counterparty to settle any losses (or gains) on those positions.

**3.6.2.**—~~One of the most common risk-management tools used by CCPs to limit their credit exposure is a requirement that each participant provide collateral to protect the CCP against a high percentile of the distribution of future exposure. In this report, such requirements are described as margin requirements. Margining, however, is not the only risk-management tool available to a CCP (see also Principle 4 on credit risk). In the case of some CCPs for cash markets, the CCP may require each participant to provide collateral to cover credit exposures; they may call these requirements margin, or they may hold this collateral in a pool known as a clearing fund.~~<sup>51</sup>

**6.1.** A [CCP central counterparty](#) should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio, and market it serves.

**6.1.1.** **3.6.3.**—When setting margin requirements, a [CCP central counterparty](#) should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio, and market it serves. Product risk characteristics can include, but are not limited to, price volatility and correlation, non-linear price characteristics, jump-to-default risk, market liquidity, possible liquidation procedures (for example, tender by or commission to market-makers), and correlation between price and position such as wrong-way risk.<sup>52</sup> Margin requirements need to account for the complexity of the underlying instruments and the availability of timely, high-quality pricing data. For example, OTC derivatives may require more-conservative margin models because of their complexity and the greater uncertainty of the reliability of price quotes. Furthermore, the appropriate close-out period may vary among products and markets depending upon the product's liquidity, price, and other characteristics. Additionally, a [CCP central counterparty](#) for cash markets (or physically deliverable derivatives products) should take into account the risk of 'fails to deliver' of securities (or other relevant instruments) in its margin methodology. In a fails-to-deliver scenario, the [CCP central](#)

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<sup>50</sup> Variation margin may also be called mark-to-market margin or variation settlement.

<sup>51</sup> For the purposes of this report, a clearing fund is a prefunded default arrangement.

<sup>52</sup> Correlation should not be understood to be limited to linear correlation, but rather to encompass a broad range of co-dependence or co-movement in relevant economic variables.

counterparty should continue to margin positions for which a participant fails to deliver the required security (or other relevant instrument) on the settlement date.

- 6.2. A CCP central counterparty should have a reliable source of timely price data for its margin system. A CCP central counterparty should also have procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable.

6.2.1. 3.6.4.—A CCP central counterparty should have a reliable source of timely price data because such data ~~is~~are critical for a CCP's central counterparty's margin system to operate accurately and effectively. In most cases, a CCP central counterparty should rely on market prices from continuous, transparent, and liquid markets. If a CCP central counterparty acquires pricing data from third-party pricing services, the CCP central counterparty should continually evaluate the ~~data's~~data's reliability and accuracy of the data. A CCP central counterparty should also have procedures and sound valuation models for addressing circumstances in which pricing data from markets or third-party sources are not readily available or reliable. A CCP central counterparty should have its valuation models validated under a variety of market scenarios at least annually by a qualified and independent party to ensure that its model accurately produces appropriate prices, and, where appropriate, the CCP central counterparty should adjust its calculation of initial margin to reflect any identified model risk.<sup>53</sup> A CCP central counterparty should address all pricing and market liquidity concerns on an ongoing basis ~~in order to~~conduct~~support the~~ daily measurement of its risks.

6.2.2. 3.6.5.—For some markets, ~~such as OTC markets,~~ prices may not be reliable because of the lack of a continuous liquid market. ~~In contrast to an exchange-traded market, there may not be a steady stream of live transactions from which to determine current market prices.~~<sup>54</sup> Although independent third-party sources would be preferable, in some cases, participants may be an appropriate source of price data, as long as the CCP central counterparty has a system that ensures that prices submitted by participants are reliable and accurately reflect the value of cleared products. Moreover, even when quotes are available, bid-ask spreads may be volatile and widen, particularly during times of market stress, thereby constraining the CCP's central counterparty's ability to measure accurately and promptly its exposure. In cases where price data ~~is~~are not available or reliable, ~~to determine appropriate prices~~ a CCP central counterparty should analyse historical information about actual trades submitted for clearing and indicative prices, ~~(such as bid-ask spreads),~~ as well as the reliability of price data, especially in volatile and stressed markets, ~~to determine appropriate prices~~. When prices are estimated, the systems and models used for this purpose must be subject to annual validation and testing. As a general rule, margin settings should, other things being equal, be higher where price data are relatively less timely or reliable.

6.3. A CCP central counterparty should adopt initial margin models and parameters that are risk-based and generate margin requirements sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single-tailed confidence level of at least 99 per cent with respect to the estimated distribution of future exposure. For a CCP central counterparty that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a CCP central counterparty that calculates margin at more granular levels, such as at the sub-portfolio level or by product, ~~this~~ requirement ~~must~~should be met for ~~the~~ corresponding distributions of future exposure. The model should: ~~(a)~~ use a conservative estimate of the time horizons for the effective hedging or close out of the particular types of products cleared by the CCP central counterparty (including in stressed market conditions); ~~(b)~~ have an appropriate method for measuring credit exposure that accounts for relevant product

53 Validation of the FMI's central counterparty's valuation procedures should be performed by personnel with sufficient expertise who are independent of the personnel that created and use the valuation procedures. These expert personnel could be drawn from within the FMI central counterparty. However, a review by personnel external to the FMI central counterparty may also be necessary at times.

—As of the date of this report's publication, regulatory requirements regarding trading in OTC markets are continuing to evolve.

risk factors and portfolio effects across products; and (e) to the extent practicable and prudent, limit the need for destabilising, procyclical changes.

~~6.3.1. 3.6.6. — A CCP should adopt initial margin models and parameters that are risk based and generate margin requirements that are sufficient to cover its potential future exposures to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure.<sup>55</sup> For a CCP that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a CCP that calculates margin at more granular levels, such as at the subportfolio level or by product, the requirement must be met for the corresponding distributions of future exposure at a stage prior to margining among subportfolios or products. The method selected by the CCP counterparty to estimate its potential future exposure should be capable of measuring and incorporating the effects of price volatility and other relevant product factors and portfolio effects over a close out period that reflects the market size and dynamics for each product cleared by the CCP central counterparty.<sup>56</sup> The estimation may account for the CCP's central counterparty's ability to implement effectively the hedging of future exposure. The method selected by the CCP central counterparty should take into account correlations across product prices, market liquidity for close out or hedging, and the potential for non-linear risk exposures posed by certain products, including jump-to-default risks. A CCP Where a central counterparty calculates margin at the sub-portfolio level or by product, initial margin requirements must be met for the corresponding distributions of future exposure at a stage prior to margining among sub-portfolios or products. A central counterparty should have the authority and operational capacity to make intraday initial margin calls, both scheduled and unscheduled, to its participants.~~

~~6.3.2. 3.6.7. — Close-out period. A CCP central counterparty should select an appropriate close out period for each product that it clears and document the close out periods and related analysis for each product type. A CCP central counterparty should base its determination of the close out periods for its initial margin model upon historical price and liquidity data, as well as reasonably foreseeable events in a default scenario. The close out period should account for the impact of a participant's default on prevailing market conditions. Inferences about the potential impact of a default on the close out period should be based on historical adverse events in the product cleared, such as significant reductions in trading or other market dislocations. The close out period should be based on anticipated close out times in stressed market conditions but may also take into account a CCP's central counterparty's ability to hedge effectively the defaulter's portfolio. Further, close out periods should be set on a product-specific basis because less liquid products might require significantly longer close out periods. As a general guide, a central counterparty should assume a close out period of at least two business days, or at least five business days for less liquid markets. A CCP A central counterparty should also consider and address position concentrations, which can lengthen close out time frames and add to price volatility during close outs.~~

~~6.3.3. 3.6.8. — Sample period for historical data used in the margin model. A CCP central counterparty should select an appropriate sample period for its margin model to calculate required initial margin for each product that it clears and should document the period and related analysis for each product type. The amount of margin may be very sensitive to the sample period and the margin model. Selection of the period should be carefully examined based on the theoretical properties of the margin model and empirical tests on these properties using historical data. In certain instances, a CCP central counterparty may need to determine margin levels using a~~

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<sup>56</sup> CCPs central counterparties often calculate exposures for a shorter period, commonly one day, and, when necessary, scale up to cover the liquidation period. A CCP central counterparty should be cautious when scaling because the standard square-root of time heuristic is not appropriate for prices that are serially correlated or exhibit non-linear dynamics.

shorter historical period to reflect new or current volatility in the market more effectively. Conversely, a CCPcentral counterparty may need to determine margin levels based on a longer historical period in order to reflect past volatility. A CCP central counterparty should also consider simulated data projections that would capture plausible events outside of the historical data especially for new products without enough history to cover stressed market conditions.

6.3.4. ~~3.6.9.—Specific wrong-way risk.~~ A CCPcentral counterparty should identify and mitigate any credit exposure that may give rise to specific wrong-way risk. ~~Specific wrong-way risk arises where an exposure to a counterparty is highly likely to increase when the creditworthiness of that counterparty is deteriorating.~~ For example, participants in a CCPcentral counterparty clearing credit -default swaps should not be allowed to clear single-name credit -default swaps on their own names or on the names of their legal affiliates. A CCP central counterparty is expected to review its portfolio regularly in order to identify, monitor, and mitigate promptly any exposures that give rise to specific wrong-way risk.

6.3.5. ~~3.6.10.—Limiting procyclicality.~~ A CCPA central counterparty should appropriately and where practicable address procyclicality in its margin arrangements. ~~(see CCP Standard 5.4).~~ In this context, procyclicality typically refers to changes in risk -management practices that are positively correlated with market, business, or credit cycle fluctuations and that may cause or exacerbate financial instability. For example, in a period of rising price volatility or credit risk of participants, a CCPcentral counterparty may require additional initial margin for a given portfolio beyond the amount required by the current margin model. This could exacerbate market stress and volatility further, resulting in additional margin requirements. These adverse effects may occur without any arbitrary change in risk -management practices. To the extent practicable and prudent, a CCPcentral counterparty should adopt forward-looking and relatively stable and conservative margin requirements that are specifically designed to limit the need for potentially destabilising, procyclical changes. To support this objective, a CCPcentral counterparty could consider increasing the size of its prefunded default arrangements to limit the need for and likelihood of large or unexpected margin calls in times of market stress.<sup>57</sup> These procedures may create additional costs for CCPscentral counterparties and their participants in periods of low market volatility due to higher margin or prefunded default arrangement contributions, but they may also result in additional protection and potentially less costly and less disruptive adjustments in periods of high market volatility. In addition, transparency regarding margin practices when market volatility increases may help mitigate the effects of procyclicality. ~~Nevertheless, it may be impractical and even imprudent for a CCP to establish margin requirements that are independent of significant or cyclical changes in price volatility.~~

6.4. A CCPcentral counterparty should mark participant positions to market and collect variation margin at least daily to limit the build-up of current exposures. A CCPcentral counterparty should have the authority and operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to participants.

## Variation margin

6.4.1. ~~3.6.11.—~~ A CCP central counterparty faces the risk that its exposure to its participants can change rapidly as a result of changes in prices, positions, or both. Adverse price movements, as well as participants building larger positions through new trading, can rapidly increase a CCP'scentral counterparty's exposures to its participants (although some markets may impose trading limits or position limits that reduce this risk). A CCP central counterparty can ascertain its current exposure to each participant by marking each participant's outstanding positions to current market prices. To the extent permitted by a CCP'scentral counterparty's rules and supported by

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See also CGFS, *The role of margin requirements and haircuts in procyclicality*, March 2010.

law, the ~~CCP~~central counterparty should net any gains against any losses and require frequent (at least daily) settlement of gains and losses. This settlement should involve the daily (and, when appropriate, intraday) collection of variation margin from participants whose positions have lost value and can include payments to participants whose positions have gained value. The regular collection of variation margin prevents current exposures from accumulating and mitigates the potential future exposures a ~~CCP~~central counterparty might face. A ~~CCP~~central counterparty should also have the authority and operational capacity to make intraday variation margin calls and payments, both scheduled and unscheduled, to its participants. A ~~CCP~~central counterparty should consider the potential impact of its intraday variation margin collections and payments on the liquidity position of its participants and should have the operational capacity to make intraday variation margin payments.

### Timeliness and possession of margin payments

6.4.2. A central counterparty should establish and rigorously enforce timelines for margin collections and payments and set appropriate consequences for failure to pay on time. Margin should be held by the central counterparty until the associated exposure has been extinguished; that is, margin should not be returned before settlement or close out of an exposure is successfully concluded.

6.5. In calculating margin requirements, a ~~CCP~~central counterparty may allow offsets or reductions in required margin across products that it clears or between products that it and another ~~CCP~~central counterparty clear, if the risk of one product is significantly and reliably correlated with the risk of the other product. Where ~~two or more CCPs~~a central counterparty are authorised to offer cross-margining, enters into a cross-margining arrangement with one or more other central counterparties, they must have appropriate safeguards should be put in place and harmonised steps should be taken to harmonise overall risk-management systems. Prior to entering into such an arrangement, a central counterparty should consult with the Reserve Bank.

### Portfolio margining

6.5.1. 3.6.12.—In calculating margin requirements, a ~~CCP~~central counterparty may allow offsets or reductions in required margin amounts between products for which it is the counterparty if the risk of one product is significantly and reliably correlated with the risk of another product.<sup>58</sup> A ~~CCPA~~central counterparty should base such offsets on an economically meaningful methodology that reflects the degree of price dependence between the products. Often, price dependence is modelled through correlations, but more complete or robust measures of dependence should be considered, particularly for ~~products with~~ non-linear ~~products~~risks. In any case, the ~~CCP~~central counterparty should consider how price dependence can vary with overall market conditions, including ~~in~~-stressed market conditions. Following the application of offsets, the ~~CCP~~central counterparty needs to ensure that the margin ~~meets~~continues to meet or exceeds the single-tailed confidence level of at least 99 ~~percent~~per cent with respect to the estimated distribution of the future exposure of the portfolio. If a ~~CCP~~central counterparty uses portfolio margining, it should continuously review and test offsets among products. It should test the robustness of its portfolio method on both actual and appropriate hypothetical portfolios. It is especially important to test how correlations perform during periods of actual and simulated market stress to assess whether the correlations break down or otherwise behave erratically. Prudent assumptions informed by these tests should be made about product offsets.

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58 Effects on the value of positions in the two products will also depend on whether these positions are long or short positions.

## Cross-margining

- ~~6.5.2.~~ ~~3.6.13.~~ ~~Two or more CCPs~~A central counterparty may enter into a cross-margining arrangement, which is an agreement ~~among the CCPs~~with one or more other central counterparties to consider positions and supporting collateral at their respective organisations as a common portfolio for participants that are members of two or more of the organisations (see also ~~Principle 20~~CCP Standard 19 on FMI links). ~~A central counterparty may reduce~~ the aggregate collateral requirements for positions held in cross-margined accounts ~~may be reduced~~ if the value of the positions held at the ~~separate CCPs~~parties to the cross-margining arrangement move inversely in a significant and reliable fashion. ~~In the event of a participant default under a cross-margining arrangement, participating CCPs may be allowed to use any excess collateral in the cross-margined accounts to cover losses.~~
- ~~6.5.3.~~ ~~3.6.14.~~ ~~CCPs~~A central counterparty that participates in ~~a~~ cross-margining arrangements must share information frequently with other central counterparties in the arrangement and ensure that ~~they have~~it has appropriate safeguards, such as joint monitoring of positions, margin collections, and price information. ~~Each CCP~~The central counterparty must thoroughly understand the ~~others'~~other central counterparties' respective risk management practices and financial resources. The ~~CCPs~~central counterparty should also ~~have harmonised~~take steps to harmonise its overall risk management systems with those of the other central counterparties, and should regularly monitor possible discrepancies in the calculation of ~~their~~ exposures, especially with regard to monitoring how price correlations perform over time. This harmonisation is especially relevant in terms of selecting an initial margin methodology, setting margin parameters, segregating accounts and collateral, and establishing default management arrangements. All of the precautions with regard to portfolio margining discussed ~~above~~ would in paragraph 6.5.1 also apply to cross-margining regimes between or among ~~CCPs~~central counterparties. ~~CCPs operating~~A central counterparty that is party to a cross-margining arrangement should also analyse fully the impact of cross-margining on prefunded default arrangements and on the adequacy of its overall financial resources. ~~The CCPs must~~Each participating central counterparty should have in place arrangements that are legally robust and operationally viable to govern the cross-margining arrangement.
- ~~6.5.4.~~ A central counterparty should consult with the Reserve Bank prior to entering into a cross-margining arrangement with another central counterparty. The central counterparty should be able to demonstrate the safeguards it has in place and provide information regarding its risk management systems and those of the other central counterparties involved in the cross-margining arrangement. Prior to entering into the cross-margining arrangement, the central counterparty should ascertain that the Reserve Bank is satisfied that to do so would not weaken its compliance with the CCP Standards, and should implement any additional controls or mitigants identified in consultation with the Reserve Bank.
- ~~6.6.~~ A ~~CCP~~central counterparty should analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting and at least monthly, and more frequent where appropriate, sensitivity analysis. A ~~CCP~~central counterparty should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears. In conducting sensitivity analysis of the model's coverage, a ~~CCP~~central counterparty should take into account a wide range of parameters and assumptions that reflect possible market conditions, including the most volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices.
- ~~6.6.1.~~ ~~3.6.15.~~ ~~A CCP should analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting and at least monthly, and more frequent as appropriate, sensitivity analysis. A CCP also should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears.~~ In order to validate its margin models and parameters, a ~~CCP~~central counterparty should have a backtesting programme that tests its initial margin models against identified targets.

Backtesting is an ex-post comparison of observed outcomes with the outputs of the margin models. A ~~CCP~~ central counterparty should also conduct sensitivity analysis to assess the coverage of the margin methodology under various market conditions, using historical data from realised stressed market conditions and hypothetical data for unrealised stressed market conditions. Sensitivity analysis should also be used to determine the impact of varying important model parameters. Sensitivity analysis is an effective tool to explore hidden shortcomings that cannot be discovered through backtesting. The results of both the backtesting and sensitivity analyses should be disclosed to participants.

~~6.6.2. 3.6.16. —Backtesting.~~ A ~~CCP~~ central counterparty should backtest its margin coverage using participant positions from each day in order to evaluate whether there are any exceptions to its initial margin coverage. This assessment of margin coverage should be considered an integral part of the evaluation of the model's performance. Coverage should be evaluated across products and participants and take into account portfolio effects across asset classes within the ~~CCP~~ central counterparty. The initial margin model's actual coverage, along with projected measures of its performance, should meet at least the established single-tailed confidence level of 99 per cent with respect to the estimated distribution of future exposure over an appropriate close-out period.<sup>59</sup> In case backtesting indicates that the model did not perform as expected (that is, the model did not identify the appropriate amount of initial margin necessary to achieve the intended coverage), a ~~CCP~~ central counterparty should have clear procedures for recalibrating its margining system, such as by making adjustments to parameters and sampling periods. In addition, a ~~CCP~~ central counterparty should ~~evaluate~~ analyse the source of any exceptions to initial margin coverage identified through backtesting ~~exceedances~~, to determine if a fundamental change to the margin methodology is warranted or if only the recalibration of current parameters is necessary. Backtesting procedures alone are not sufficient to evaluate the effectiveness of models and adequacy of financial resources against forward-looking risks.

~~6.6.3. 3.6.17. —Sensitivity analysis.~~ A ~~CCP~~ central counterparty should test the sensitivity of its margin model coverage using a wide range of parameters and assumptions that reflect possible market conditions in order to understand how the level of margin coverage might be affected by highly stressed market conditions. The ~~FMI~~ central counterparty should ensure that the range of parameters and assumptions captures a variety of historical and hypothetical conditions, including the most -volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices. The ~~CCP~~ central counterparty should conduct sensitivity analysis incorporating stressed market conditions on its margin model coverage at least monthly ~~using the results of these sensitivity tests~~ and conduct a thorough analysis of the potential losses it could suffer. A ~~CCP~~ central counterparty should evaluate the potential losses in individual participants' positions and, where appropriate, their customers' positions. Furthermore, for a ~~CCP~~ central counterparty clearing credit instruments, parameters reflective of the simultaneous default of both participants and issuers of the underlying credit instruments should be considered. Sensitivity analysis should be performed on both actual and simulated positions. Rigorous sensitivity analysis of margin requirements may take on increased importance when markets are illiquid or volatile. This analysis should be conducted more frequently when markets are unusually volatile or less liquid or when the size or concentration of positions held by its participants increases significantly.

~~6.7. A~~ CCP central counterparty should regularly review and validate its margin system.

~~6.7.1. 3.6.18. —A CCP should regularly review and validate its margin system.~~ A ~~CCP's~~ central counterparty's margin methodology should be reviewed and validated by a qualified and independent party at least annually, or more frequently if there are material market

<sup>59</sup> This period should be appropriate to capture the risk characteristics of the specific instrument in order to allow the ~~CCP~~ central counterparty to estimate the magnitude of the price changes expected to occur in the interval between the last margin collection and the time the ~~CCP~~ central counterparty estimates it will be able to close out the relevant positions.

developments. Any material revisions or adjustments to the methodology or parameters should be subject to appropriate governance processes (see also [Principle CCP Standard 2](#) on governance) and validated prior to implementation. ~~CCPs operating~~[A central counterparty that is party to](#) a cross-margining arrangement should also analyse the impact of cross-margining on prefunded default arrangements and evaluate the adequacy of ~~its~~ overall financial resources. ~~(see CCP Standard 6.5)~~. Also, the margin methodology, including the initial margin models and parameters used by a ~~CCP~~[central counterparty](#), should be made as transparent as possible. At a minimum, the basic assumptions of the analytical method selected and the key data inputs should be disclosed to participants. ~~Ideally, a CCP would~~[A central counterparty should](#) make details of its margin methodology available to its participants for use in their individual risk - management efforts.

~~6.8.~~ [In designing its margin system, a central counterparty should consider the operating hours of payment and settlement systems in the markets in which it operates.](#)

~~6.8.1.~~ [3.6.19. — A CCP should establish and rigorously enforce timelines for margin collections and payments and set appropriate consequences for failure to pay on time. A CCPA central counterparty](#) with participants in a range of time zones may need to adjust its procedures for margining (including the times at which it makes margin calls) to take into account the liquidity of a participant's local funding market and the operating hours of relevant payment and settlement systems. ~~Margin should be held by the CCP until the exposure has been extinguished; that is, margin should not be returned before settlement is successfully concluded.~~[The extent to which a central counterparty's margining procedures should take into account local operating hours in a particular jurisdiction will depend on the extent of local participation and the relative costs of any adjustments required to its operations. A central counterparty with material Australian-based participation that clears Australian dollar-denominated products for which the greatest depth of liquidity is in Australian markets should consider making margin calls during Australian market hours and in Australian dollars.](#)

## **PrincipleStandard 7: Liquidity risk**

*[Key Consideration 3 not relevant to central counterparties]*

~~An FMI~~[A central counterparty](#) should effectively measure, monitor, and manage its liquidity risk. ~~An FMI~~[A central counterparty](#) should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the ~~FMI~~[central counterparty](#) in extreme but plausible market conditions.

### **~~Explanatory note~~Guidance**

~~3.7.1.~~[Liquidity risk arises in an FMI](#)[a central counterparty](#) when it, its participants, or other entities cannot settle their payment obligations when due as part of the clearing or settlement process. Depending on the design of ~~an FMI~~[a central counterparty](#), liquidity risk can arise between the ~~FMI~~[central counterparty](#) and its participants, ~~or~~ between the ~~FMI~~[central counterparty](#) and other entities (such as ~~its commercial bank money~~ settlement ~~banks~~agents, nostro agents, custodian banks, and liquidity providers), ~~or between participants in an FMI (such as in a DNS payment system or SSS)~~. It is particularly important for ~~an FMI~~[a central counterparty](#) to manage carefully its liquidity risk if, as is typical in many systems, the ~~FMI~~[central counterparty](#) relies on incoming payments from participants or other entities during the settlement process in order to make payments to other participants. If a participant or another entity fails to pay the ~~FMI~~[central counterparty](#), the ~~FMI~~[central counterparty](#) may not have sufficient funds to meet its payment obligations to other participants. In such an event, the ~~FMI~~[central counterparty](#) would need to rely on its own liquidity resources (that is, liquid assets and prearranged funding arrangements, ~~including any arrangements with its participants~~) to cover the funds shortfall and complete settlement. ~~An FMI~~[A central counterparty](#) should have a robust framework to manage its liquidity risks from the full range of

participants and other entities. In some cases, a participant may play other roles within the FMI central counterparty, such as a settlement or custodian bank or liquidity provider. These other roles should be considered in determining an FMI's central counterparty's liquidity needs.

**7.1.** An FMIA central counterparty should have a robust framework to manage its liquidity risks from its participants, settlement banks commercial bank money settlement agents, nostro agents, custodian banks custodians, liquidity providers, and other entities.

### Sources of liquidity risk

**7.1.1.** ~~3.7.2.~~—An FMIA central counterparty should clearly identify its sources of liquidity risk and assess its current and potential future liquidity needs on a daily basis. An FMIA central counterparty can face liquidity risk from the default of a participant. For example, ~~if an FMIA central counterparty extends intraday credit, implicitly or explicitly, to participants, such credit, even when fully collateralised, may create liquidity pressure in the event of a participant default. The FMI might not be able to convert quickly the a defaulting participant's collateral into cash at short notice. If an FMI does not have sufficient cash to meet all of its payment obligations to participants, there will be a settlement failure.~~ An FMIA central counterparty can also face liquidity risk from its any commercial bank money settlement banks agents, nostro agents, custodian banks custodians and liquidity providers, as well as linked FMIs and service providers, if they fail to perform as expected. Moreover, as noted above, an FMIA central counterparty may face additional risk from entities that have multiple roles within the FMI central counterparty (for example, a participant that also serves as the FMI's central counterparty's money settlement bank agent or liquidity provider). These interdependencies and the multiple roles that an entity may serve assume within an FMIA central counterparty should be taken into account by the FMI central counterparty.

~~3.7.3.~~—An FMI that employs a DNS mechanism may create direct liquidity exposures between participants. For example, in a payment system that uses a multilateral net settlement mechanism, participants may face liquidity exposures to each other if one of the participants fails to meet its obligations. Similarly, in an SSS that uses a DvP model 2 or 3 settlement mechanism and does not guarantee settlement, participants may face liquidity exposures to each other if one of the participants fails to meet its obligations.<sup>60</sup> A long-standing concern is that these types of systems may address a potential settlement failure by unwinding transfers involving the defaulting participant.<sup>61</sup> An unwind imposes liquidity pressures (and, potentially, replacement costs) on the non-defaulting participants. If all such transfers must be deleted, and if the unwind occurs at a time when money markets and securities lending markets are illiquid (for example, at or near the end of the day), the remaining participants could be confronted with shortfalls of funds or securities that would be extremely difficult to cover. The potential total liquidity pressure of unwinding could be equal to the gross value of the netted transactions.

### Managing liquidity risk

**7.1.2.** ~~3.7.6.~~—An FMIA central counterparty should ~~also~~ regularly assess its design and operations to manage liquidity risk in the system. ~~An FMI that employs a DNS mechanism may be able to reduce its or its participants' liquidity risk by using alternative settlement designs, such as new RTGS designs with liquidity saving features or a continuous or extremely frequent batch settlement system. In addition,~~ It could reduce the liquidity demands of its participants by providing participants with sufficient information or control systems to help them manage their liquidity needs and risks. Furthermore, an FMIA central counterparty should ensure that it is operationally ready to manage the liquidity risk caused by participants' or other entities'

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60—See also Annex D on summary of designs of payment systems, SSSs, and CCPs, and CPSS, Delivery versus payment in securities settlement systems, September 1992.

61—Unwinding involves deleting some or all of the defaulting participant's provisional funds transfers and, in an SSS, securities transfers and then recalculating the settlement obligations of the other participants.

financial or operational problems. Among other things, the FMIa central counterparty that does not settle its funds obligations directly in central bank money (see CCP Standard 9 on money settlements) should have the operational capacity to reroute payments, where feasible, on a timely basis in case of problems with a correspondent bank.

7.1.3. ~~3.7.7.~~ An FMI has A central counterparty may use other risk management tools ~~that it can use~~ to manage its ~~or, where relevant, its participants'~~ liquidity risk. To mitigate and manage liquidity risk stemming from a participant default, an FMIa central counterparty could use, either individually or in combination, exposure limits, collateral requirements, and prefunded default arrangements. ~~To mitigate and manage liquidity risks from the late day submission of payments or other transactions, an FMI could adopt rules or financial incentives for timely submission resources.~~ To mitigate and manage liquidity risk stemming from a service provider or a linked FMI, an FMIa central counterparty could use, individually or in combination, selection criteria, concentration or exposure limits, and collateral requirements. For example, an FMIa central counterparty should seek to manage or diversify its ~~settlement flows and~~ liquid resources to avoid excessive intraday or overnight exposure to one entity. This, however, may involve trade-offs between the efficiency of relying on an entity and the risks of being overly dependent on that entity. ~~These tools are often also used by an FMI to manage its credit risk.~~

7.2. An FMIa central counterparty should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.

7.2.1. ~~3.7.4~~ A central counterparty should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity. In particular, an FMIa central counterparty should understand and assess the value and concentration of its daily settlement and funding flows through ~~its settlement banks~~ any commercial bank money settlement agents, nostro agents, and other intermediaries. An FMIa central counterparty also should be able to monitor on a daily basis the level of liquid assets (such as cash, securities, other assets held in custody, and investments) that it holds. A central counterparty should be able to determine the value of its available liquid assets, taking into account the appropriate haircuts on those assets (see Principle CCP Standard 5 on collateral and Principle CCP Standard 6 on margin). ~~In a DNS system, the FMI should provide sufficient information and analytical tools to help its participants measure and monitor their liquidity risks in the FMI.~~

7.2.2. ~~3.7.5.~~ If an FMIa central counterparty maintains prearranged funding arrangements, the FMI central counterparty should also identify, measure, and monitor its liquidity risk from the liquidity providers of those arrangements. An FMIa central counterparty should obtain a high degree of confidence through rigorous due diligence that each liquidity provider, whether or not it is a participant in the FMI central counterparty, would have the capacity to perform as required under the liquidity arrangement and is subject to commensurate regulation, supervision, or oversight of its liquidity risk management requirements. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, the liquidity provider's potential access to credit from the relevant central bank may be taken into account.

~~3.7.8.~~ An FMI should ensure that it has sufficient liquid resources, as determined by regular and rigorous stress testing, to effect settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios. A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same day and, where appropriate, intraday or multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions. In some instances, a payment system or SSS may need to have sufficient liquid resources to effect settlement of payment obligations over multiple days to account for any potential liquidation of collateral that is outlined in the FMI's participant default procedures.

**7.3.** A CCP central counterparty should maintain sufficient liquid resources in all relevant currencies to settle securities-related payments, make required variation margin payments, and meet other payment obligations on time with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the CCP central counterparty in extreme but plausible market conditions. In addition, a CCP central counterparty that is involved in activities with a more complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP central counterparty in extreme but plausible market conditions.

**7.3.1.** ~~3.7.9. — Similarly, a CCP should maintain sufficient liquid resources in all relevant currencies to settle securities-related payment obligations, make required variation margin payments, and meet other payment obligations on time with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions. In addition, a CCP that is involved in activities with a more complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions. The CCPA central counterparty should carefully analyse its projected liquidity needs, and the under a range of stress scenarios, and subject this analysis is expected to be reviewed to review by the Reserve Bank and other relevant authorities. In many cases, a CCP may central counterparty will need to maintain sufficient liquid resources to meet payments to settle required margin and other payment obligations over multiple days to account for accommodate multiday hedging and close out activities as directed by the CCP's central counterparty's participant default procedures (see CCP Standard 7.8 on liquidity stress testing).~~

**7.4.** For the purpose of meeting its minimum liquid resource requirement, ~~an FMI's a central counterparty's~~ qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If ~~an FMI's a central counterparty~~ has access to routine credit at the central bank of issue, the FMI central counterparty may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.

~~3.7.10. — For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If an FMI has access to routine credit at the central bank of issue, the FMI may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed. However, such access does not eliminate the need for sound risk management practices and adequate access to private sector liquidity resources.<sup>62</sup>~~

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<sup>62</sup> The authority or authorities with primary responsibility for an FMI will assess the adequacy of an FMI's liquidity risk management procedures, considering the views of the central banks of issue in accordance with Responsibility E.

7.4.1. A central counterparty's outright holdings of qualifying instruments, such as cash and assets eligible for pledging as collateral to (or for conducting other collateralised transactions with) the central bank of issue, are generally the most reliable source of liquidity and should form a substantial part of a central counterparty's qualifying liquid resources (see CCP Standard 7.7).

7.4.2. In addition to outright holdings of qualifying instruments, a central counterparty may negotiate committed lines of credit and repos on commercial terms with external third parties. A central counterparty may also conclude contractual agreements with its participants to provide additional qualifying liquid resources in specified circumstances. Such resources may, for example, be provided under committed lines of credit or committed repos. Any such arrangements should be highly reliable and explicitly included in the central counterparty's rules and procedures, ensuring that they have at least as robust a contractual basis as any equivalent commercial arrangement that might be reached with non-participant counterparties.

7.5. An FMIA central counterparty may supplement its qualifying liquid resources with other forms of liquid resources. If the FMIcentral counterparty does so, ~~then~~ these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if ~~an FMIA central counterparty~~ does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. A central counterparty should not assume the availability of emergency central bank credit as ~~a~~ part of its liquidity plan.

7.5.1. 3.7.11. An FMI may supplement its qualifying liquid resources with other forms of liquid resources. If the FMI does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. An FMI may consider using suchA central counterparty may consider using non-qualifying liquid resources within its liquidity risk management framework in advance of, or in addition to, using its qualifying liquid resources. This may be particularly beneficial where liquidity needs exceed qualifying liquid resources, where qualifying liquid resources can be preserved to cover a future default, or where using other liquid resources would cause less liquidity dislocation to the FMI'scentral counterparty's participants and the financial system as a whole. ~~Even if an FMI does not have access to routine central bank credit, it should take account of what collateral is typically accepted by the relevant central bank of issue, as such assets may be more likely to be liquid in stressed circumstances. In any case, an FMI should not assume the availability of emergency central bank credit as a part of its liquidity plan.~~

7.6. An FMIA central counterparty should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMIcentral counterparty or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. An FMIA central counterparty should regularly test its procedures for accessing its liquid resources at a liquidity provider.

~~3.7.12. If an FMI has prearranged funding arrangements, the FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMI or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. Additionally, an FMI should adequately plan for the renewal of prearranged funding arrangements with liquidity providers in advance of their expiration.~~

- 7.6.1. 3.7.13.** ~~An FMI~~ A central counterparty should have detailed procedures for using its liquid resources to complete settlement during a liquidity shortfall. ~~An FMI's~~ A central counterparty's procedures should clearly document the sequence ~~for using in which~~ each type of liquid resource would be expected to be used (for example, the use of certain assets before prearranged funding arrangements). These procedures may include instructions for accessing cash deposits or overnight investments of cash deposits, executing same-day market transactions, or drawing on prearranged liquidity lines. ~~In addition, an FMI, including any pre-committed liquidity allocation mechanisms involving participants established under the central counterparty's rules. In addition, a central counterparty~~ should regularly test its procedures for accessing its liquid resources at a liquidity provider, including by activating and drawing down test amounts from committed credit facilities and by testing operational procedures for conducting same-day repos. A central counterparty should also adequately plan for the renewal of prearranged funding arrangements with liquidity providers in advance of their expiration.
- 7.7.** ~~An FMI~~ A central counterparty with access to central bank accounts, payment services, or securities services should use these services, where practical, to enhance its management of liquidity risk. A central counterparty that the Reserve Bank determines to be systemically important in Australia and has obligations in Australian dollars should operate its own Exchange Settlement Account, in its own name or that of a related body corporate acceptable to the Reserve Bank, to enhance its management of Australian dollar liquidity risk.
- 7.7.1. 3.7.14.** ~~If an FMI~~ a central counterparty has access to central bank accounts, payment services, securities services, or collateral management services, it should use these services, where practical, to enhance its management of liquidity risk. Cash balances at the central bank of issue, for example, offer the highest liquidity (see Principle CCP Standard 9 on money settlements).
- 7.7.2.** A central counterparty that the Reserve Bank determines to be systemically important in Australia and has obligations in Australian dollars should operate its own Exchange Settlement Account at the Reserve Bank to enhance its management of Australian dollar liquidity risk.<sup>63</sup> This account may be held in the central counterparty's own name or, if approved by the Reserve Bank, in the name of a related body corporate. A holder of an Exchange Settlement Account may access the Reserve Bank's overnight and intraday liquidity facilities, provided it meets the Reserve Bank's other requirements for access to these facilities, including that it can deliver securities eligible as collateral to the Reserve Bank under a repo agreement. In assessing the systemic importance of a central counterparty, the Reserve Bank will consider factors such as:
- the size of the central counterparty in Australia (for example, the value of transactions processed by the central counterparty in Australian dollar-denominated products, or its market share; or the total amount of initial margin held in respect of Australian dollar-denominated products)
  - the availability of substitutes for the central counterparty's services in Australia
  - the nature and complexity of the products cleared by the central counterparty
  - the degree of interconnectedness with other parts of the Australian financial system.
- 7.8.** ~~An FMI~~ A central counterparty should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. ~~An FMI~~ A central counterparty should have clear procedures to report the results of its stress tests to appropriate decision-makers at the ~~FMI~~ central counterparty and to use these results to evaluate the adequacy of, and adjust, its liquidity risk - management framework. In conducting stress testing, ~~an FMI~~ a central counterparty should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple

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<sup>63</sup> The Reserve Bank has established a specific category of Exchange Settlement Account for central counterparties available at <http://www.rba.gov.au/media-releases/2012/mr-12-17.html>.

defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the FMI central counterparty, include all entities that might pose material liquidity risks to the FMI central counterparty (such as commercial bank money settlement banks agents, nostro agents, custodian banks custodians, liquidity providers, and linked FMIs) and, where appropriate, cover a multiday period. In all cases, an FMI central counterparty should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.

7.8.1. ~~3.7.15. — An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI and to use these results to evaluate the adequacy of and adjust its liquidity risk management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward looking stress scenarios in a variety of extreme but plausible market conditions.<sup>64</sup> Scenarios should also consider the design and operation of the FMI, include all entities that might pose material liquidity risks to the FMI (such as settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. An FMI should also~~ As part of a central counterparty's assessment of the sufficiency of its liquid resources through stress testing, it should consider any strong inter-linkages or similar exposures between its participants, as well as the multiple roles that participants may play with respect to the risk management of the FMI central counterparty, and assess the probability of multiple failures and the contagion effect among its participants that such failures may cause.

7.8.2. ~~3.7.17. — Frequency of stress testing.~~ Liquidity stress testing should be performed on a daily basis using standard and predetermined parameters and assumptions. In addition, on at least a monthly basis, an FMI central counterparty should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for achieving the FMI's central counterparty's identified liquidity needs and resources in light of current and evolving market conditions. An FMI central counterparty should perform stress testing more frequently when markets are unusually volatile, when they are less liquid, or when the size or concentration of positions held by its participants increases significantly. A full validation of an FMI's central counterparty's liquidity risk management model should be performed at least annually.

7.8.3. ~~3.7.16. — Reverse stress tests.~~ An FMI central counterparty should conduct, as appropriate, reverse stress tests aimed at identifying the extreme default scenarios and extreme market conditions for which the FMI's central counterparty's liquid resources would be insufficient. In other words, these tests identify how severe stress conditions would be covered by the FMI's central counterparty's liquid resources. An FMI central counterparty should judge whether it would be prudent to prepare for these severe conditions and various combinations of factors influencing these conditions. Reverse stress tests require an FMI central counterparty to model extreme market conditions that may go beyond what are considered extreme but plausible market conditions in order to help understand the sufficiency of liquid resources given the underlying assumptions modelled. Modelling very extreme market conditions can help an FMI central counterparty determine the limits of its current model and resources; however, it requires the FMI central counterparty to exercise judgement when modelling different markets and products. An FMI central counterparty should develop hypothetical very extreme scenarios and market conditions tailored to the specific risks of the markets and of the products it serves. Reverse stress tests should

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64— See BCBS, Principles for sound stress-testing practices and supervision, May 2009.

be considered a helpful risk -management tool but they need not, necessarily, drive ~~an FMI's~~ central counterparty's determination of the appropriate level of liquid resources.

**7.9.** ~~An FMI~~ A central counterparty should establish explicit rules and procedures that enable the ~~FMI~~ central counterparty to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the ~~FMI's~~ central counterparty's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

**7.9.1.** ~~3.7.18.~~—In certain extreme circumstances, the liquid resources of ~~an FMI~~ a central counterparty or its participants required under CCP Standard 7.3 may not be sufficient to meet the payment obligations of the ~~FMI~~ central counterparty to its participants ~~or the payment obligations of participants to each other within the FMI.~~<sup>65</sup> In a stressed environment, for example, normally liquid assets held by ~~an FMI~~ a central counterparty may prove not to be sufficiently liquid to obtain same-day funding, or the liquidation period may be longer than expected. ~~An FMI~~ A central counterparty should establish explicit rules and procedures that enable the ~~FMI~~ central counterparty to effect same-day, and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the ~~FMI's~~ central counterparty's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

**7.9.2.** ~~3.7.19.~~—If ~~an FMI~~ a central counterparty allocates potentially uncovered liquidity shortfalls to its participants, the ~~FMI~~ central counterparty should have clear and transparent rules and procedures for the allocation of shortfalls. These procedures could involve a funding arrangement between the ~~FMI~~ central counterparty and its participants, the mutualisation of shortfalls among participants according to a clear and transparent formula, or the use of liquidity rationing (for example, reductions in payouts to participants). Any allocation rule or procedure must be discussed thoroughly with and communicated clearly to participants, as well as be consistent with participants' respective regulatory liquidity risk -management requirements. Furthermore, ~~an FMI~~ a central counterparty should consider and validate, through simulations and other techniques and through discussions with each participant, the potential impact on each participant of any such same-day allocation of liquidity risk and each participant's ability to bear proposed liquidity allocations.

## **Principle**Standard 8: Settlement finality

~~An FMI~~ A central counterparty should ~~provide~~ ensure clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, ~~an FMI~~ a central counterparty should ~~provide~~ facilitate final settlement intraday or in real time.

### **Explanatory note**Guidance

**3.8.1.**—~~An FMI~~ A central counterparty should be designed to ~~provide~~ ensure clear and certain final settlement of payments, transfer instructions, or other obligations. Final settlement is defined as the irrevocable and unconditional transfer of an asset or financial instrument, or the discharge of an obligation by the ~~FMI~~ central counterparty or its participants in accordance with the terms of the underlying

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<sup>65</sup> These exceptional circumstances could arise from unforeseen operational problems or unanticipated rapid changes in market conditions.

contract.<sup>66</sup> A payment, transfer instruction, or other obligation that an FMI's central counterparty accepts for settlement in accordance with its rules and procedures should be settled with finality on the intended value date.<sup>67</sup> ~~The value date is the day on which the payment, transfer instruction, or other obligation is due and the associated funds and securities are typically available to the receiving participant.~~<sup>68</sup> Completing final settlement by the end of the value date is important because deferring final settlement to the next business day can create both credit and liquidity pressures for an FMI's central counterparty's participants and other stakeholders, and potentially be a source of systemic risk. Where necessary or preferable, an FMI's central counterparty should provide ensure intraday or real-time settlement finality to reduce settlement risk. This will be necessary where transactions are settled through an intraday multilateral net batch or on a real-time basis.

~~3.8.2.~~ Although some FMI's central counterparties guarantee settlement, this ~~principle~~ Standard does not necessarily require an FMI's central counterparty to provide such a guarantee. Instead, this ~~principle~~ Standard requires FMI's central counterparties to clearly define the point at which the settlement of a payment, transfer instruction, or other obligation is final, and to ~~complete ensure completion of~~ the settlement process no later than the end of the value date, and preferably earlier ~~in on~~ the value date. Similarly, this ~~principle~~ Standard is not intended to eliminate fails to deliver in securities trades.<sup>69</sup> The occurrence of non-systemic amounts of such failures, although potentially undesirable, should not by itself be interpreted as a failure to satisfy this ~~principle.~~<sup>70</sup> Standard. However, an FMI's central counterparty should take steps to mitigate both the risks and the implications of such failures to deliver securities (see Principle, in particular, CCP Standard 4 on credit risk, Principle and CCP Standard 7 on liquidity risk, and other relevant principles).

8.1. An FMI's central counterparty's rules and procedures should clearly define the point at which settlement is final.

8.1.1. 3.8.3. ~~An FMI's~~ A central counterparty's rules and procedures should clearly define the point at which settlement is final. A clear definition of when settlements are final also greatly assists in a resolution scenario such that the positions of the participant in resolution and other affected parties can be quickly ascertained.

8.1.2. 3.8.4. ~~An FMI's~~ A central counterparty's legal framework and rules generally determine finality. For a transaction to be considered final, the legal basis governing the FMI's central counterparty, including ~~the relevant~~ insolvency law, must acknowledge the discharge of a payment, transfer instruction, or other obligation between the FMI's central counterparty and system participants, or between or among participants, ~~for the transaction to be considered final. An FMI (see CCP Standard 1.5). Where relevant, a central counterparty~~ should take reasonable steps to confirm the effectiveness of cross-border recognition and protection of cross-system settlement finality, especially when it is developing plans for recovery or orderly wind-down or providing the Reserve Bank and other relevant authorities with information relating to its resolvability. Because of the complexity of legal frameworks and system rules, particularly in the context of cross-border settlement where legal frameworks are not harmonised, a well-reasoned legal opinion is generally necessary to establish the point at which finality takes place (see also Principle CCP Standard 1 on legal basis).

8.2. An FMI's central counterparty should ~~complete ensure~~ final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. ~~An LVPS or SSS should consider adopting RTGS or multiple batch processing during the settlement day.~~

<sup>66</sup> Final settlement (or settlement finality) is a legally defined moment. See also Principle CCP Standard 1 on legal basis.

<sup>67</sup> The value date of an FMI's central counterparty's settlement activity might not necessarily coincide with the exact calendar date if the FMI's central counterparty introduces utilises night-time settlement.

~~— This principle is not intended to discourage an FMI from offering a facility for entering transaction details in advance of the value date.~~

<sup>69</sup> These fails typically occur because of miscommunication between the counterparties, operational problems in the delivery of securities, or failure to acquire a specific security associated with the trade by a specific point in time.

~~— In certain markets, participants may have adopted the convention of rescheduling delivery until the trade finally settles.~~

## Same-day settlement

~~8.2.1. 3.8.5.~~ ~~An FMI's processes~~A central counterparty's arrangements should be designed to ~~complete~~ensure final settlement, at a minimum no later than the end of the value date. This means that any payment, transfer instruction, or other obligation that has been submitted to and accepted by ~~an FMI~~a central counterparty in accordance with its risk management ~~process~~ and other relevant acceptance criteria should be settled on the intended value date. ~~An FMI~~A central counterparty that is not designed to ~~provide~~ensure final settlement on the value date (or same-day settlement) would not satisfy this ~~principle~~Standard, even if the transaction's settlement date is adjusted back to the value date after settlement. This is because, in most ~~of~~ such arrangements, there is no certainty that final settlement will occur on the value date as expected. Further, deferral of final settlement to the next ~~business~~ day can entail overnight risk exposures. For example, if ~~an SSS or CCP~~a central counterparty conducts its money settlements using instruments or arrangements that involve next-day settlement, a participant's default on its settlement obligations between the initiation and finality of settlement could pose significant credit and liquidity risks to the ~~FMI~~central counterparty and its other participants.<sup>74</sup>

## Intraday settlement

~~8.2.2. 3.8.6.~~ Depending on the type of obligations that ~~an FMI settles~~a central counterparty has, the use of intraday settlement, either in multiple batches or in real time, may be necessary or desirable to reduce settlement risk.<sup>72</sup> ~~As such, some types of FMIs, such as LVPs and SSSs, Accordingly, a central counterparty should consider adopting the use of real-time gross settlement (RTGS) or multiple batch settlement to complete final settlement intraday. RTGS is the real-time. A central counterparty should, for instance, settle margin intraday, preferably via RTGS. If a central counterparty does settle margin via batch settlement, the batch process should not include settlement of payments, transfer instructions, or other non-margin obligations individually on a transaction by transaction basis. Batch settlement is the or obligations associated with unrelated products. The timely settlement of groups of payments, transfer instructions, or other obligations together at one or more discrete, often pre-specified times during the processing day. With batch settlement, the margins is a critical component of a central counterparty's risk management process and should not be dependent on the settlement of other transactions. Any time lag between the acceptance and final settlement of instructions should also be minimised where batch settlement is used. transactions should be kept short.~~<sup>73</sup> ~~To speed up settlements, an FMI should encourage its participants to submit transactions promptly. To validate the finality of settlement, an FMI also should inform its participants of their final account balances and, where practical, settlement date and time as quickly as possible, preferably in real time.~~<sup>74</sup>

~~3.8.7.~~ The use of multiple batch settlement and RTGS involves different trade-offs. Multiple batch settlement based on a DNS mechanism, for example, may expose participants to settlement risks for the period during which settlement is deferred. These risks, if not sufficiently controlled, could result in the inability of one or more participants to meet their financial obligations. Conversely, while an RTGS system can mitigate or eliminate these settlement risks, it requires participants to have sufficient liquidity to cover all their outgoing payments and can therefore require relatively large amounts of intraday liquidity. This liquidity can come from various sources, including balances at a central bank or commercial bank, incoming payments, and intraday credit. An RTGS system may be able to reduce its liquidity needs by implementing a queuing facility or other liquidity saving mechanisms.<sup>75</sup>

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— In most cases, next-day settlements over weekend periods involve multi-day settlement risk.

72 For example, intraday or real-time finality is sometimes necessary for monetary policy or payments operations, settlement of back-to-back transactions, intraday margin calls by CCPs, or safe and efficient cross-border links between CSDs that perform settlement functions.

73 Transactions, in certain circumstances, may be settled on a gross basis although through multiple batches during the operating day.

74 Nominal value date might not necessarily coincide with local settlement date.

— See also CPSS, New developments in large value payment systems, May 2005.

**8.3.** ~~An FMI central counterparty~~ should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.

**8.3.1.** ~~3.8.8.~~—~~An FMI central counterparty~~ should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant. In general, ~~an FMI central counterparty~~ should prohibit the unilateral revocation of accepted and unsettled payments, transfer instructions, or other obligations after a certain point or time in the settlement day, so as to avoid creating liquidity risks. In all cases, cut-off times and materiality rules for exceptions should be clearly defined. The rules should make clear that changes to operating hours are exceptional and require individual justifications. For example, ~~an FMI central counterparty~~ may want to permit extensions for reasons connected with ~~the implementation of monetary policy or widespread~~ **broader** financial market disruption. If extensions are allowed for participants with operating problems to complete processing, the rules governing the approval and duration of such extensions should be clear to participants.

## **Principle Standard 9: Money settlements**

~~An FMI central counterparty~~ should conduct its money settlements in central bank money where practical and available. If central bank money is not used, ~~an FMI central counterparty~~ should minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

### ~~Explanatory note~~ **Guidance**

**3.9.1.**—~~An FMI central counterparty~~ typically needs to conduct money settlements with or between its participants for a variety of purposes, such as the settlement of individual payment obligations, funding and defunding activities, and the collection and distribution of margin payments.<sup>76</sup> To conduct such money settlements, ~~an FMI central counterparty~~ can use central bank money ~~or~~ commercial bank money. ~~Central bank or a combination of the two. Where individual payment obligations are settled in commercial bank money is a liability of a central bank, in this case in the form of deposits held at the central bank, exposures are typically created between commercial banks, which can be used for settlement purposes, are ultimately settled in central bank money. A central counterparty may not specify how participants fund their obligations. However, the central counterparty, its participants, any commercial settlement banks and any commercial bank money settlement agents should take into account the risks associated with alternative money settlement arrangements.~~

Settlement in central bank money typically involves the ~~discharge of settlement obligations on the books of the central central bank of issue. Commercial bank money is a liability of a commercial bank, in the form of deposits held at~~ assuming the role of money settlement agent, with final money settlement occurring across accounts held by participants or their commercial settlement banks with the central bank. Typically, ~~this sort of arrangement for the commercial bank, which can be used for settlement purposes, settlement of individual transactions minimises the accrual of exposures between commercial settlement banks.~~

Settlement in commercial bank money typically occurs on the books of a commercial bank: **money settlement agent**. In this model, ~~an FMI central counterparty~~ typically establishes an account with one or more commercial ~~settlement banks~~ **bank(s)** and requires each of its participants to establish an account with one of them. In some cases, the ~~FMI central counterparty~~ itself can serve as the **money settlement bank agent, in which case** money settlements are ~~then~~ effected through accounts on the books of the ~~FMI, which may need to be funded and defunded. An FMI central counterparty. A central counterparty~~ may also use a combination of central bank and commercial bank monies to conduct settlements, for example, by using central bank money for funding ~~and defunding activities and using accounts at~~ commercial ~~bank money for the banks, prior to~~ settlement of individual payment obligations **in commercial bank money across those accounts.**

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<sup>76</sup> It should be noted, however, that the settlement of payment obligations does not always require a transfer of monies; in some cases, an offsetting process can discharge obligations.

~~3.9.2. — An FMI central counterparty~~ and its participants may face credit and liquidity risks from money settlements. Credit risk may arise when ~~a participants use commercial settlement banks to effect money settlements, or when the central counterparty uses a commercial bank has the potential to default on its obligations (for example, if the money settlement bank becomes insolvent). When an FMI settles on its own books, participants face credit risk from the FMI itself agent.~~ Liquidity risk may arise in money settlements if, after a payment obligation has been settled, participants or the ~~FMI central counterparty~~ itself are unable to transfer readily their assets at the ~~commercial settlement bank, or money settlement agent,~~ into other liquid assets, such as claims on a central bank.

~~9.1. An FMI central counterparty~~ should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks. ~~A central counterparty that the Reserve Bank determines to be systemically important in Australia and has Australian dollar obligations should settle its Australian dollar obligations across an Exchange Settlement Account held at the Reserve Bank, in its own name or that of a related body corporate acceptable to the Reserve Bank.~~

~~9.1.1. 3.9.3. — An FMI should conduct its money settlements using central bank money, where practical and available, to avoid credit and liquidity risks.~~ With the use of central bank money, a payment obligation is typically discharged by providing the ~~FMI or central counterparty,~~ its participants ~~or its participants' commercial settlement banks~~ with a direct claim on the central bank; that is, the ~~relevant central bank is the money settlement agent, and the~~ settlement asset is central bank money. Central banks have the lowest credit risk and are the source of liquidity with regard to their currency of issue. ~~Indeed, one of the fundamental purposes of central banks is to provide a safe and liquid settlement asset. However,~~ the use of central bank money, ~~however,~~ may not always be practical or available. For example, ~~an FMI central counterparty~~ or its participants may not have direct access to ~~all relevant~~ central bank accounts and payment services ~~in all relevant jurisdictions. A multicurrency FMI that has access to all relevant central bank accounts and payment services may find that some central bank payment services do not operate, or provide finality, at the times when it needs to make money settlements.~~

~~9.1.2. In Australia, a central counterparty may apply to hold an Exchange Settlement Account at the Reserve Bank, in its own name or that of a related body corporate acceptable to the Reserve Bank, provided that it meets any associated financial, operational and legal requirements.<sup>77</sup> Further, a central counterparty that the Reserve Bank determines to be systemically important in Australia and has obligations in Australian dollars should operate its own Exchange Settlement Account, in its own name or that of a related body corporate acceptable to the Reserve Bank, to settle its Australian dollar obligations. In determining whether a central counterparty is systemically important in Australia the Reserve Bank will have regard to relevant factors, including those listed in paragraph 7.7.2.~~

~~9.2. If central bank money is not used, an FMI central counterparty~~ should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.

~~9.2.1. 3.9.4. — An alternative to the use of central bank money is commercial bank money. When settling in commercial bank money, a payment obligation is typically discharged by providing the FMI central counterparty or its participants with a direct claim on the relevant commercial bank money settlement agent.~~ To conduct settlements in commercial bank money, ~~an FMI central counterparty~~ and its participants need to establish accounts with at least one commercial bank, and likely hold intraday or overnight balances, or both. The use of commercial bank money to settle payment obligations, however, can create additional credit and liquidity risks for the ~~FMI central counterparty~~ and its participants. ~~For example, if the commercial bank conducting~~ ~~For example, if a commercial bank money settlement becomes agent became~~ insolvent, the ~~FMI central counterparty~~ and its participants ~~may might~~ not have immediate

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<sup>77</sup> See the Reserve Bank's policy on Exchange Settlement Accounts for central counterparties, available at <<http://www.rba.gov.au/media-releases/2012/mr-12-17.html>>.

access to their settlement funds or ultimately receive the full value of their funds. It also creates operational dependencies on the relevant commercial bank(s).

9.3. ~~If an FMI uses a central counterparty settles in~~ commercial bank ~~for its money or its participants effect~~ settlements using commercial settlement banks, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial ~~settlement banks~~ bank money settlement agents and commercial settlement banks. In particular, ~~an FMI~~ a central counterparty should establish and monitor adherence to strict criteria for ~~its settlement commercial~~ banks ~~that appropriate to their role in the settlement process, take taking~~ account of, ~~among other things, matters such as~~ their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. ~~An FMI~~ a central counterparty should also monitor and manage the concentration of its and its participants' credit and liquidity exposures to commercial bank money settlement agents and settlement banks.

9.3.1. ~~3.9.5.~~ —If an FMI ~~a central counterparty~~ uses a commercial bank money settlement agent (or a non-bank deposit-taking institution) for its money settlements, it should monitor, manage, and limit its credit and liquidity risks arising from ~~the commercial settlement bank~~ this arrangement. For example, ~~an FMI~~ a central counterparty should limit both the probability of being exposed to ~~a commercial settlement~~ the bank's failure and limit the potential losses and liquidity pressures to which it would be exposed in the event of such a failure. ~~An FMI~~ a central counterparty should establish and monitor adherence to strict criteria for its commercial bank money settlement ~~banks~~ agents that take into account, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. Under these criteria, a commercial bank money settlement ~~bank~~ agent should be subject to effective banking regulation and supervision. It should also be creditworthy, be well capitalised, and have ample liquidity from the marketplace or the central bank of issue. Where money settlements take place in Australian dollars, a central counterparty should only utilise an authorised deposit-taking institution (ADI) that holds an Exchange Settlement Account at the Reserve Bank and has been approved to act as an agent for RTGS payments by the Australian Prudential Regulation Authority.

9.3.2. ~~3.9.6.~~ —In addition, an FMI should take further steps to limit its credit exposures and liquidity pressures by diversifying the risk of a commercial bank failure, where reasonable, through use of multiple commercial settlement banks. In some jurisdictions, however, there may be only one commercial settlement bank that meets appropriate criteria for creditworthiness and operational reliability. Additionally, even with multiple commercial settlement banks, the extent to which risk is actually diversified depends upon the distribution or concentration of participants using different commercial settlement banks and the amounts owed by those participants.<sup>78</sup> Even where ultimate settlement occurs in central bank money, many participants in a central counterparty may not have direct access to accounts with the relevant central bank. They will therefore typically use the services of commercial settlement banks to effect money settlements or carry out funding and defunding activities. These commercial settlement banks play an important role in the settlement of payment obligations (including margin payments) and therefore the central counterparty should establish appropriate criteria around their financial and operational capacity to fulfil this role, which may include similar criteria to those described in paragraph 9.3.1 (see also CCP Standard 12 on participant default rules and procedures).

9.3.3. ~~An FMI~~ In addition, a central counterparty should monitor and manage the ~~full range and concentration of~~ concentration of its and, to the extent reasonably practicable, its participants' credit and liquidity exposures to commercial bank money settlement agents and commercial settlement banks. The central counterparty should consider the diversification of its and its

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<sup>78</sup> — The concentration of an FMI's exposure to a commercial settlement bank can be further exacerbated if the commercial settlement bank has multiple roles with respect to the FMI. For example, an FMI may use a particular commercial settlement bank that is also a participant in the FMI for depositing and investing funds, for depositing and transferring securities, and for back-up liquidity resources. See Principle 7 on liquidity risk.

~~participants'~~ exposures to ~~its~~ commercial ~~banks in the settlement banks~~process and assess its potential losses and liquidity pressures as well as those of its participants in the event ~~that the~~ of the failure of a commercial bank money settlement agent or commercial settlement bank with the largest share of activity were to fail.(see also CCP Standard 18 on tiered participation arrangements).

9.4. If ~~an FMI~~ a central counterparty conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks.

9.4.1. ~~3.9.7.~~ 3.9.7.— If money settlement does not occur in central bank money and the FMI conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks. ~~In such an arrangement, an FMI~~ Where a central counterparty conducts money settlements on its own books, it offers cash accounts to its participants, and a payment or settlement obligation is discharged by providing ~~an FMI's~~ the central counterparty's participants with a direct claim on the ~~FMI~~ central counterparty itself. The credit and liquidity risks associated with a claim on ~~an FMI~~ a central counterparty are therefore directly related to the ~~FMI's~~ central counterparty's overall credit and liquidity risks. ~~One way an FMI could~~ A central counterparty should look to minimise these risks ~~is to limit~~ by limiting its activities and operations to clearing and ~~settlement~~ and closely related processes. ~~(see CCP Standard 1.1).~~ Further, to settle payment obligations, the ~~FMI~~ central counterparty could be established as a supervised special -purpose financial institution and limit the provision of cash accounts to ~~only~~ participants.<sup>79</sup> In some cases, ~~an FMI~~ a central counterparty can further mitigate risk by having participants fund and defund their cash accounts at the ~~FMI~~ central counterparty using central bank money. In such an arrangement, ~~an FMI~~ a central counterparty is able to back the settlements conducted on its own books with balances that it holds in its account at the central bank.

9.5. ~~An FMI's~~ A central counterparty's legal agreements with any ~~settlement banks~~ commercial bank money settlement agents should state clearly when transfers on the books of ~~individual settlement banks~~ the relevant commercial bank are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the ~~FMI~~ central counterparty and its participants to manage credit and liquidity risks.

9.5.1. ~~3.9.8.~~ 3.9.8.— In settlements involving either central bank or commercial bank money, a critical issue is the timing of the finality of funds transfers. These transfers should be final when effected (see also ~~Principle~~ CCP Standard 1 on legal basis and ~~Principle~~ CCP Standard 8 on settlement finality). To this end, ~~an FMI's~~ a central counterparty's legal agreements with any ~~commercial bank money settlement banks~~ agent should ~~state clearly when transfers on~~ contain clear provisions regarding the ~~books~~ finality of individual settlement banks are expected to occur, ~~that transfers are to be final when effected, and that funds received~~ transfers. The central counterparty should be transferable as soon as possible, at a minimum by ~~communicate the end~~ effect of the day and ideally intraday, in order to enable the FMI and its ~~these provisions to~~ participants to manage credit and liquidity risks. Participants' legal agreements with commercial settlement banks should similarly provide clarity in relation to these matters, although in some cases a central counterparty may not have access to these agreements. If ~~an FMI~~ a central counterparty conducts intraday money settlements (for example, to collect intraday margin), the arrangement should provide real-time finality or intraday finality at the times when ~~an FMI~~ a central counterparty wishes to effect money settlement.

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<sup>79</sup> Depending on local laws, these special-purpose institutions would generally be required to have banking licenses and be subject to prudential supervision.

## Principle Standard 10: Physical deliveries

~~An FMI~~A central counterparty should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries.

### ~~Explanatory note~~Guidance

~~3.10.1. An FMI may settle~~A central counterparty may take on obligations involving the settlement of transactions using physical delivery, which is the delivery of an asset, such as an instrument or a commodity, in physical form.<sup>80</sup> For example, the settlement of futures contracts cleared by a ~~CCP~~central counterparty may allow or require the physical delivery of an underlying financial instrument or commodity. ~~An FMI~~A central counterparty that provides physical settlement should have rules that clearly state its obligations with respect to the delivery of physical instruments or commodities.<sup>81</sup> In addition, ~~an FMI~~a central counterparty should identify, monitor, and manage the risks and costs associated with the storage and delivery of such physical instruments and commodities.

~~10.1. An FMI's~~A central counterparty's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.

~~10.1.1. 3.10.2. An FMI's~~A central counterparty's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities. The obligations that ~~an FMI~~a central counterparty may assume with respect to physical deliveries vary based on the types of assets that the ~~FMI~~central counterparty settles. ~~An FMI~~A central counterparty should clearly state which asset classes it accepts for physical delivery and the procedures surrounding the delivery of each. ~~An FMI~~A central counterparty also should clearly state whether its obligation is to make or receive physical deliveries or to indemnify participants for losses incurred in the delivery process. Clear rules on physical deliveries enable the ~~FMI~~central counterparty and its participants to take the appropriate steps to mitigate the risks posed by such physical deliveries. ~~An FMI~~A central counterparty should engage with its participants to ensure that they have an understanding of their obligations and the procedures for effecting physical delivery.

~~10.2. An FMI~~A central counterparty should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.

### Risk of storage and delivery

~~10.2.1. 3.10.3. An FMI~~A central counterparty should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities. Issues relating to delivery may arise, for example, when a derivatives contract requires physical delivery of an underlying instrument or commodity. ~~An FMI~~A central counterparty should plan for and manage physical deliveries by, for example, establishing: definitions for acceptable physical instruments or commodities; the appropriateness of alternative delivery locations or assets; rules for warehouse operations; and the timing of delivery, when relevant. If ~~an FMI~~a central counterparty is responsible for the warehousing and transportation of a commodity, it should make arrangements that take into account the commodity's particular characteristics (for example, storage under specific conditions, such as an appropriate temperature and humidity for perishables).

~~10.2.2. 3.10.4. An FMI~~A central counterparty should have appropriate processes, procedures, and controls to manage the risks of storing and delivering physical assets, such as the risk of theft, loss, counterfeiting, or deterioration of assets. ~~An FMI's~~A central counterparty's policies and

<sup>80</sup> Examples of physical instruments that may be covered under this ~~principle-Standard~~ include securities, commercial paper, and other debt instruments that are issued in paper form.

<sup>81</sup> The term "physical delivery" in the credit-default swap market typically refers to the process by which the protection buyer of a credit-default swap contract "delivers" an instrument to the protection seller after a credit event, but does not necessarily involve the delivery of an instrument in paper form. This type of "physical delivery" is outside the scope of this ~~principle. Immobilised and dematerialised securities, which represent the normal market practice, are covered in Principle 11 on CSDs Standard.~~

procedures should ensure that the ~~FMI's~~central counterparty's record of physical assets accurately reflects its holdings of assets, for example, by separating duties between handling physical assets and maintaining records. ~~An FMI's~~central counterparty also should have appropriate employment policies and procedures for personnel that handle physical assets and should include appropriate pre-employment checks and training. In addition, ~~an FMI's~~central counterparty should consider other measures, such as insurance coverage and random storage facility audits, to mitigate its storage and delivery risks (other than principal risk).

### Matching participants for delivery and receipt

**10.2.3. 3.10.5.**—In some instances, ~~an FMI's~~central counterparty serving a commodity market can reduce its risks associated with the physical storage and delivery of commodities by matching participants that have delivery obligations with those due to receive the commodities, thereby removing itself from direct involvement in the storage and delivery process. In such instances, the legal obligations for delivery should be clearly expressed in the rules, including default rules, and any related agreements. In particular, ~~an FMI's~~central counterparty should be clear whether the receiving participant should seek compensation from the ~~FMI's~~central counterparty or the delivering participant in the event of a loss. Additionally, ~~an FMI's~~central counterparty holding margin should not release the margin of the matched participants until it confirms that both have fulfilled their respective obligations. ~~An FMI's~~central counterparty should also monitor its participants' performance and, to the extent practicable, ensure that its participants have the necessary systems and resources to be able to fulfil their physical delivery obligations.

*[Principle 11 on central securities depositories not relevant to central counterparties]*

### **Principle 12**~~Standard 11~~: **Exchange-of-value settlements**~~systems~~

~~If an FMI settles~~If a central counterparty is involved in the settlement of transactions that ~~involve the settlement of~~comprise two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by ensuring that~~conditioning~~ the final settlement of one obligation is conditional upon the final settlement of the other.

#### ~~Explanatory note~~**Guidance**

**3.12.1.**—The settlement of a financial transaction ~~by an FMI~~ may involve the settlement of two linked obligations, such as the delivery of securities against payment of cash or securities or the delivery of one currency against delivery of another currency.<sup>82</sup> In this context, principal risk may be created when one obligation is settled, but the other obligation is not (for example, the securities are delivered but no cash payment is received). Because this principal risk involves the full value of the transaction, substantial credit losses as well as substantial liquidity pressures may result from the default of a counterparty or, more generally, the failure to complete the settlement of both linked obligations. Further, a settlement default could result in high replacement costs (that is, the unrealised gain on the unsettled contract or the cost of replacing the original contract at market prices that may be changing rapidly during periods of stress). ~~An FMI's~~central counterparty should eliminate or mitigate these risks ~~through the use of~~by ensuring that it uses an appropriate DvP, DvD, or PVP settlement mechanism.<sup>83</sup>

**11.1.** ~~An FMI that is an exchange-of-value settlement system~~A central counterparty should eliminate principal risk associated with the settlement of any obligations involving two linked obligations by ensuring that the payment system or securities settlement facility employed operates in such a way

<sup>82</sup> In some cases, the settlement of a transaction can be free of payment, for example, for the purposes of pledging collateral and repositioning securities. The settlement of a transaction may also involve more than two linked obligations, for example, for the purposes of some collateral substitutions where there are multiple securities or for premium payments related to securities lending in two currencies. These cases are not inconsistent with this ~~principle~~Standard.

<sup>83</sup> While DvP, DvD, and PVP settlement mechanisms eliminate principal risk, they do not eliminate the risk that the failure of a participant could result in systemic disruptions, including liquidity dislocations.

~~that~~ the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs, regardless of whether the ~~FMI~~securities settlement facility settles on a gross or net basis and when finality occurs.

~~11.1.1. 3-12.2.—An FMI~~A central counterparty should ensure that it employs an appropriate DvP, DvD, or Pvp settlement mechanism~~(see also Principle 4 on credit risk, Principle 7 on liquidity risk, and Principle 8 on settlement finality). DvP, DvD, and Pvp settlement mechanisms eliminate, which eliminates~~ principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation occurs.~~If an FMI effects settlements using a DvP, DvD, or Pvp settlement mechanism, it should settle a high percentage of obligations through that mechanism. (see also CCP Standard 4 on credit risk, CCP Standard 7 on liquidity risk and CCP Standard 8 on settlement finality).~~ In the securities market, for example, a DvP settlement mechanism is a mechanism that links a securities transfer and a funds transfer in such a way as to ensure that delivery occurs if and only if the corresponding payment occurs.<sup>84</sup> Similarly, a Pvp settlement mechanism is a mechanism which ensures that the final transfer of a payment in one currency occurs if and only if the final transfer of a payment in another currency or currencies takes place, and a DvD settlement mechanism is a securities settlement mechanism which links two or more securities transfers in such a way as to ensure that delivery of one security occurs if and only if the corresponding delivery of the other security or securities occurs.

~~11.1.2. DvP (or Pvp or DvD) can and~~ should be achieved for ~~both the primary and secondary markets~~all linked obligations cleared by a central counterparty. The settlement of two obligations can be achieved in several ways and varies by how trades or obligations are settled, either on a gross basis (trade-by-trade or line-by-line) or on a net basis, and the timing of when finality occurs.

11.2. A central counterparty should eliminate principal risk associated with the settlement of linked obligations by ensuring that it employs an appropriate delivery versus payment (DvP), delivery versus delivery (DvD) or payment versus payment (Pvp) settlement mechanism.

~~11.2.1. 3-12.3.—In meeting the requirements of CCP Standard 11.1, the final settlement of two linked obligations can be achieved either on a gross basis or on a net basis.<sup>85</sup> For example, an SSS. The choice of settlement model employed by a central counterparty will depend on the nature of obligations that it settles. Typically, exchange-of-value settlement can settle~~be achieved in one of three ways:

- ~~• where the final transfers of both payment and/or securities and funds between trade counterparties required to extinguish linked obligations occur contemporaneously and on a gross~~trade-by-trade (or line-by-line) basis throughout the settlement day. Alternatively, an SSS can settle in real time (i.e. DvP model 1)
- ~~• where final securities transfers are settled on a gross~~trade-by-trade (or line-by-line) basis throughout the day but settle funds in real time, with final payment transfers settled on a multilateral net basis at the end of the day or at certain times during the day. An SSS can also settle bothprocessing cycle (i.e. DvP model 2)<sup>86</sup>
- ~~• where both final securities and funds transfers and/or final payment transfers required to extinguish linked obligations occur contemporaneously on a multilateral net basis at the end of the day or at certain times during the day.~~processing cycle (i.e. DvP model 3).

Regardless of whether ~~an FMI~~a central counterparty employs a payment system or securities settlement facility that settles on a gross or net basis, the facility's legal, contractual, technical,

<sup>84</sup> Similarly, a Pvp settlement mechanism is a mechanism which ensures that the final transfer of a payment in one currency occurs if and only if the final transfer of a payment in another currency or currencies takes place. A DvD settlement mechanism is a securities settlement mechanism which links two or more securities transfers in such a way as to ensure that delivery of one security occurs if and only if the corresponding delivery of the other security or securities occurs.

<sup>85</sup> For a discussion of stylised models of DvP settlement, see CPSS, Delivery versus payment in securities systems, September 1992.

<sup>86</sup> Given the separation of securities and funds transfers in such a system, intraday finality of securities settlement can only be achieved if securities transfers are collateralised or otherwise guaranteed.

and risk -management framework should ensure that the settlement of an obligation is final if and only if the settlement of the corresponding obligation is final.

~~3.12.4. DvP, DvD, and Pvp can be achieved through different timing arrangements. Strictly speaking, DvP, DvD, and Pvp do not require a simultaneous settlement of obligations. In some cases, settlement of one obligation could follow the settlement of the other. For example, when an SSS does not itself provide cash accounts for settlement, it may first block the underlying securities in the account of the seller.<sup>87</sup> The SSS may then request a transfer of funds from the buyer to the seller at the settlement bank for funds transfers. The securities are delivered to the buyer or its custodian if and only if the SSS receives confirmation of settlement of the cash leg from the settlement bank. In such DvP arrangements, however, the length of time between the blocking of securities, the settling of cash, and the subsequent release and delivery of the blocked securities should be minimised.<sup>88</sup> Further, blocked securities must not be subject to a claim by a third party (for example, other creditors, tax authorities, or even the SSS itself) because these claims would give rise to principal risk.~~

11.2.2. The timing of exchange-of-value settlement of trades is important. Where the final contemporaneous transfers of securities and/or payment required to extinguish linked obligations occur either in real time throughout the day, or on a multilateral net basis at the end of the processing cycle, principal risk is eliminated. On the other hand, where final transfer of securities occurs in real time, but final payment is deferred until some later time, sellers of securities remain exposed to principal risk, which must therefore be managed.

11.2.3. Where settlement involves the exchange of a security for payment (a DvP transaction), the settlement of obligations requires up to three steps:

- the security (or title over the security) needs to be transferred from seller to buyer
- payment must be transferred from the buyer to the seller, either across accounts with the securities settlement facility's money settlement agent (which may be the central bank of issue), or using the services of a commercial settlement bank
- where the buyer and seller use a different commercial settlement bank, funds must be transferred from the account of the buyer's settlement bank to the account of the seller's settlement bank with the money settlement agent (see CCP Standard 9 on money settlements).

11.2.4. Contemporaneous performance of the three steps involved in a DvP transaction requires that:

- the transfer of money settlement assets is irrevocably linked with the settlement of securities and payment obligations, such that one cannot occur without the other
- where netting is used, securities blocked prior to transfer are not subject to claims by third parties
- final and irrevocable settlement of all obligations arising from a securities trade occurs either simultaneously or within such a very small period of time that the benefits of DvP are achieved.

11.2.5. Notwithstanding that contemporaneous multilateral net settlement of securities and/or final payment transfers eliminates principal risk, a participant default that triggered recalculation of obligations within the net settlement batch could, if obligations were sufficiently large, cause either, or both, the central counterparty and survivors to face significant liquidity pressures on a short horizon. Furthermore, even where a participant default did not give rise to sizeable swings in liquidity requirements for participants, the dependencies between participants in a net batch

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<sup>87</sup>— In this context, DvP could be achieved through a link between an SSS and a payment system. The SSS settles the securities leg of the transaction while the payment system settles the cash leg. However, in the context of these principles this arrangement is not considered an FMI link, but a DvP system.

<sup>88</sup>— An SSS that settles securities transactions on a net basis with an end-of-day finality arrangement could meet this requirement by providing a mechanism that allows intraday finality.

settlement model are such that problems with a single participant could nevertheless cause delays and uncertainty for all participants.

11.2.6. Where individual trade values are large, in the sense that dealing with a defaulting participant's obligations within a multilateral net batch could cause significant delays, uncertainty or liquidity pressures a central counterparty would be expected to settle linked obligations via a payment system or securities settlement facility that provides for trade-by-trade (or line-by-line) settlement on a real-time basis. Only where trade values are not large in this sense would it be acceptable for the payment transfers and/or final securities transfers required to extinguish linked obligations to occur on a multilateral net basis. Even where trade values are small, linked settlements should occur contemporaneously unless this is precluded by operational requirements. Where netting is involved, the central counterparty should ensure that it has taken steps to ensure the certainty of netting arrangements (see CCP Standard 1 on legal basis). The central counterparty should, at a minimum, ensure that the final and irrevocable settlement of obligations is completed by the end of the settlement day.

11.2.7. Operational requirements that may necessitate non-contemporaneous settlement of linked obligations refer to practical matters arising out of the nature of the security and payment being exchanged that preclude contemporaneous settlement. This may occur, for example, where title must be exchanged by individual physical delivery and, as a practical matter, payment is by other than electronic transfer.

## **Principle 13 Standard 12: Participant -default rules and procedures**

An FMIA central counterparty should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMIA central counterparty can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

### **Explanatory noteGuidance**

3.13.1. Participant -default rules and procedures facilitate the continued functioning of an FMIA central counterparty in the event that a participant fails to meet its obligations. TheseSuch rules and procedures help limit the potential for the effects of a participant's failure to spread to other participants and possibly undermine the viability of the FMIA central counterparty. Key objectives of default rules and procedures should include ~~(a)~~; ensuring timely completion of settlement, even in extreme but plausible market conditions; ~~(b)~~ minimising losses for the FMIA central counterparty and for non-defaulting participants; ~~(c)~~ limiting disruptions to the market; ~~(d)~~ providing a clear framework for accessing FMIA central counterparty liquidity facilities as needed; and ~~(e)~~ managing and closing out thea defaulting participant's positions and liquidating any applicable collateral in a prudent and orderly manner. In some instances, managing a participant default may involve hedging open positions, funding collateral so that the positions can be closed out over time, or both. An FMIA central counterparty may also decide to auction or allocate open positions to its participants.<sup>89</sup> To the extent consistent with these objectives, an FMIA central counterparty should allow non-defaulting participants to continue to manage their positions and transactions as normal.

12.1. An FMIA central counterparty should have default rules and procedures that enable the FMIA central counterparty to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default. A central counterparty should ensure that financial and other obligations created for non-defaulting participants in the event of a participant default are proportional to the scale and nature of individual participants' activities.

<sup>89</sup> An OTC derivatives CCP For certain products, a central counterparty may need to consider requiring participants to agree in advance to bid on the defaulting participant's portfolio and, should the auction fail, accept an allocation of the portfolio. Where used, such procedures should include consideration of the risk profile and portfolio of each receiving participant before allocating positions so as to minimise additional risk for the non-defaulting participants.

## Rules and procedures

**12.1.1. 3.13.2.** ~~An FMI's~~ **central counterparty** should have default rules and procedures that enable ~~the FMI's~~ **central counterparty** to continue to meet its obligations to non-defaulting participants in the event of a participant default. ~~An FMI's~~ **central counterparty** should explain clearly in its rules and procedures what circumstances constitute a participant default, addressing both financial and operational defaults.<sup>90</sup> ~~An FMI's~~ **central counterparty** should describe the method for identifying a default. In particular, ~~an FMI's~~ **central counterparty** should specify whether a declaration of default is automatic or discretionary, and if discretionary, which person or group shall exercise that discretion. Key aspects to be considered in designing the rules and procedures include ~~(a)~~ the actions that ~~an FMI's~~ **central counterparty** can take when a default is declared; ~~(b)~~ the extent to which such actions are automatic or discretionary; ~~(c)~~ potential changes to the normal settlement practices, should these changes be necessary in extreme circumstances, to ensure timely settlement; ~~(d)~~ the management of transactions at different stages of processing; ~~(e)~~ the expected treatment of proprietary and customer transactions and accounts; ~~(f)~~ the probable sequencing of actions; ~~(g)~~ the roles, obligations, and responsibilities of the various parties, including non-defaulting participants; and ~~(h)~~ the existence of other mechanisms that may be activated to contain the impact of a default. ~~An FMI's~~ **central counterparty** should involve its participants, **the Reserve Bank and other relevant** authorities, and other relevant stakeholders in developing its default rules and procedures (see **Principle CCP Standard 2** on governance).

**12.1.2.** In the event of a participant default, financial and other obligations created for non-defaulting participants should be proportional to the scale and nature of participants' activities. Disproportionate obligations may place undue demands on participants at a time of wider market distress. Obligations placed on non-defaulting participants may include calls for additional default fund contributions, unfunded loss or liquidity allocations, or compulsory participation in auctions or allocations of the defaulting participant's open positions. In these cases, a central counterparty may consider making the size of participant contributions or allocation of positions dependent on the risk and scale of the participant's activities. Where compulsory participation in auctions or allocations of the defaulting participant's open positions is used, procedures should include consideration of the risk profile and portfolio of each receiving participant before allocating positions, so as to minimise additional risk for the non-defaulting participants. The scope of an individual participant's activities should also be considered. For example, where a central counterparty clears multiple products with distinct risk profiles, it should consider the potential impact on participants that are active in only a subset of these products when determining whether to operate a commingled default fund, or separate default funds based on product types. As another example, where a participant holds most of its positions in Australian dollar-denominated contracts, a central counterparty's loss allocation arrangements could be designed to avoid allocating positions in other currencies to that participant.

## Use and sequencing of financial resources

**12.1.3. 3.13.3.** ~~An FMI's~~ **central counterparty's** default rules and procedures should enable the ~~FMI's~~ **central counterparty** to take timely action to contain losses and liquidity pressures, before, at, and after the point of participant default (see also **Principle CCP Standard 4** on credit risk and **Principle CCP Standard 7** on liquidity risk). Specifically, ~~an FMI's~~ **central counterparty's** rules and procedures should allow the ~~FMI's~~ **central counterparty** to use promptly any financial resources that it maintains for covering losses and containing liquidity pressures arising from default, including liquidity facilities. The rules of the ~~FMI's~~ **central counterparty** should specify the order in

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<sup>90</sup> An operational default occurs when a participant is not able to meet its obligations due to an operational problem, such as a failure in information technology systems.

which different types of resources will be used. This information ~~enables~~would enable participants to assess their potential future exposures from using the ~~FMI's~~central counterparty's services. Typically, ~~an FMI's~~a central counterparty should first use assets provided by the defaulting participant, such as margin or other collateral, to provide incentives for participants to manage prudently the risks, particularly credit risk, they pose to ~~an FMI's~~a central counterparty.<sup>91</sup> The application of previously provided collateral should not be subject to prevention, stay, or reversal under applicable law and the rules of the ~~FMI~~. ~~An FMI's~~a central counterparty. A central counterparty should also have a credible and explicit plan for replenishing its resources over an appropriate time horizon following a participant default so that it can continue to operate in a safe and sound manner. In particular, the ~~FMI's~~central counterparty's rules and procedures should define ~~the~~any obligations of the non-defaulting participants to replenish the financial resources depleted during a default so that the time horizon of such replenishment is anticipated by non-defaulting participants ~~without any disruptive effects~~.

### ~~Proprietary and customer~~Close out or transfer of positions

~~12.1.4.~~ ~~3.13.4.~~ ~~A CCPA~~a central counterparty should have rules and procedures to facilitate the prompt close out or transfer of a defaulting participant's proprietary and customer positions. Typically, the longer these positions remain open on the books of the ~~CCP's~~central counterparty, the larger the ~~CCP's~~central counterparty's potential credit exposures resulting from changes in market prices or other factors ~~will be~~. A ~~CCP's~~central counterparty should have the ability to apply the proceeds of liquidation, along with other funds and assets of the defaulting participant, to meet the defaulting participant's obligations. It is critical that a ~~CCP's~~central counterparty has the authority to act promptly to contain its exposure, while having regard ~~for~~to overall market effects, such as ~~potential~~sharp declines in market prices.

~~12.2.~~ ~~An FMI's~~a central counterparty should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules. ~~This requires that the central counterparty should:~~

~~(a) require its participants to inform it immediately if they:~~

~~(i) become subject to, or aware of the likelihood of external administration, or have reasonable grounds for suspecting that they will become subject to external administration; or~~

~~(ii) have breached, or are likely to breach, a risk control requirement of the central counterparty; and~~

~~(b) have the ability to close out, hedge or transfer, a participant's open contracts in order to appropriately control risk of a participant that:~~

~~(i) becomes subject to external administration; or~~

~~(ii) breaches a risk control requirement of the central counterparty.~~

~~12.2.1.~~ ~~This Standard is aimed at avoiding any systemic disturbance that may arise from the default of a participant. The central counterparty should have a legally binding requirement for participants to notify it should they be in default or reasonably suspect that this is the case. Similar notification should be made in the event of a breach or likely breach of any risk control requirement of the central counterparty. Any communication should be at an appropriately high level both within the participant organisation and the central counterparty. There is a difference between external administration and cases where a participant may have sufficient~~

<sup>91</sup> The defaulting participant's assets do not include segregated customer collateral; such segregated collateral should not be used to cover losses resulting from a participant default, except in the case of a potential close out of segregated customer positions. See ~~Principle 14~~CCP Standard 13 on segregation and portability.

assets to meet its obligations, yet be unable to complete settlement of its obligations due to operational failure or liquidity pressures. This distinction should be recognised in the rules of the central counterparty. The central counterparty should have the ability to suspend or cancel the participation of a participant in default, thus preventing that participant from continuing to take on trade obligations.

12.2.2. 3.13.5—An FMI central counterparty should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in the rules. Management should ensure that the FMI central counterparty has the operational capacity, including sufficient well-trained personnel, to implement its procedures in a timely manner. An FMI's—A central counterparty's rules and procedures should outline examples of when management discretion may be appropriate and should include arrangements to minimise any potential conflicts of interests. Management should also have internal plans that clearly delineate the roles and responsibilities for addressing a default and provide training and guidance to its personnel on how the procedures should be implemented. These plans should address documentation, information needs, and coordination when more than one FMI central counterparty or authority is involved. In addition, timely communication with stakeholders, in particular with the Reserve Bank and other relevant authorities, is of critical importance. (see also

CCP Standard 21 on regulatory reporting). The FMI central counterparty, to the extent permitted, should clearly convey to affected stakeholders information that would help them to manage their own risks. The internal plan should be reviewed by management and the relevant board committees at least annually or after any significant changes to the FMI's central counterparty's arrangements.

12.2.3. [3.13.4]—A CCP central counterparty should have the information, resources, and tools to close out positions promptly. In circumstances where prompt close out is not practicable, a CCP central counterparty should have the tools to hedge positions as an interim risk-management technique. In some cases, a CCP central counterparty may use seconded personnel from non-defaulting participants to assist in the close-out or hedging process. The CCP central counterparty's rules and procedures should clearly state the anticipated scope of duties and term of service expected from seconded personnel. In other cases, the CCP central counterparty may elect to auction positions or portfolios to the market. The CCP central counterparty's rules and procedures should clearly state the scope for such action, and any participant obligations with regard to such auctions should be clearly set out. The close out of positions should not be subject to prevention, stay or reversal under applicable law and the rules of the FMI central counterparty.

12.3. An FMI central counterparty should publicly disclose key aspects of its default rules and procedures.

12.3.1. 3.13.6.—To provide certainty and predictability regarding the measures that an FMI central counterparty may take in a default event, an FMI central counterparty should publicly disclose key aspects of its default rules and procedures, including: (a) the circumstances in which action may be taken; (b) who may take those actions; (c) the scope of the actions which may be taken, including the treatment of both proprietary and customer positions, funds, and other assets; (d) the mechanisms to address an FMI's central counterparty's obligations to non-defaulting participants; and (e), where direct relationships exist with participants' customers, the mechanisms to help address the defaulting participant's obligations to its customers. This Such transparency fosters should facilitate the orderly handling of defaults, enables participants to understand their obligations to the FMI central counterparty and to their customers, and gives provide for informed decisions by market participants the information they need to make informed decisions about their activities in the market. An FMI central counterparty should ensure that its participants and their customers, as well as the public, have appropriate access to the FMI's central counterparty's default rules and procedures and should promote their

understanding of those procedures in order to foster confidence in the market in the event of a participant default.

**12.4.** ~~An FMI's central counterparty~~ should involve its participants and other stakeholders in the testing and review of the ~~FMI's central counterparty's~~ default procedures, including any close-out procedures. Such testing and review should be conducted at least annually ~~or~~ and following material changes to the rules and procedures to ensure that they are practical and effective.

**12.4.1.** ~~3.13.7.~~ ~~An FMI's central counterparty~~ should involve relevant participants and other stakeholders in the testing and review of its default procedures, including any close out procedures. Such testing and review should be conducted at least annually ~~or~~ and following material changes to the rules and procedures to ensure that they are practical and effective. The periodic testing and review of default procedures is important to help the ~~FMI's central counterparty~~ and its participants understand fully the procedures and to identify any lack of clarity in, or discretion allowed by, the rules and procedures. Such tests should include all relevant parties, or an appropriate subset, that would likely be involved in the default procedures, such as members of the appropriate board committees, participants, linked or interdependent FMIs, the Reserve Bank and other relevant authorities, and any related service providers. This is particularly important where ~~an FMI's central counterparty~~ relies on non-defaulting participants or third parties to assist in the close-out process and where the default procedures have never been tested by an actual default. The results of these tests and reviews should be shared with the ~~FMI's central counterparty's~~ board of directors, risk committee, and the Reserve Bank and other relevant authorities.

**12.4.2.** ~~3.13.8.~~ Furthermore, part of ~~an FMI's central counterparty's~~ participant default testing should include the implementation of the resolution regime for ~~an FMI's central counterparty's~~ participants, as relevant. ~~An FMI's central counterparty~~ should be able to take all appropriate steps to address the resolution of a participant. Specifically, the ~~FMI's central counterparty~~, or if applicable a resolution authority, should be able to transfer a defaulting participant's open positions and customer accounts to a receiver, third party, or bridge financial company.

**12.5.** A central counterparty should demonstrate that its default management procedures take appropriate account of interests in relevant jurisdictions and, in particular, any implications for pricing, liquidity and stability in relevant financial markets.

**12.5.1.** A central counterparty should ensure that its default management procedures take appropriate account of the interests of all relevant stakeholders across the jurisdictions in which it operates, including those of its direct and indirect participants. A central counterparty's governance arrangements should ensure that these interests are taken into account (see CCP Standard 2 on governance). The actions that a central counterparty takes in the event of a default, such as closing out a defaulter's positions or auctioning or allocating open positions to surviving participants, could potentially impact on pricing, liquidity and stability in relevant financial markets. A central counterparty should consider these wider market impacts of its default management actions, and take mitigating action to minimise market impacts as appropriate.

## **Principle 14** Standard 13: Segregation and portability

~~A CCP's central counterparty~~ should have rules and procedures that enable the segregation ~~and portability~~ of positions of a participant's customers and the collateral provided to the ~~CCP's central counterparty~~ with respect to those positions.

### Explanatory note Guidance

**3.14.1.** ~~Segregation of customers' positions and collateral plays an important part in the safe and effective holding and transfer of customers' positions and collateral, especially in the event of a participant's default or insolvency. Segregation refers to a method of protecting customer collateral and contractual Customers' positions by holding or accounting for them separately. Customer and collateral should be segregated from the assets those of the participant through which the customers clear. In~~

addition, individual ~~customer~~customers' positions and collateral may be held separately from the positions and collateral of other customers of the same participant to protect customers from each other's default. Where such segregation is offered by the ~~CCP~~central counterparty, ~~such~~ positions and collateral should be protected effectively from the concurrent default or insolvency of ~~both a customer and~~ the participant and a fellow customer.

**3.14.2**—Effective segregation arrangements can reduce the impact of a participant's insolvency on its customers by providing for clear and reliable identification of a participant's ~~customer's~~customers' positions and related collateral. Segregation also protects ~~a customer's~~customers' collateral from becoming lost to a participant's other creditors. In addition, segregation facilitates the transfer of customers' positions and collateral. Even if no transfers take place, segregation can improve a customer's ability to identify and recover its collateral (or the value thereof), which, at least to some extent, contributes to retaining customers' confidence in their clearing participants and may reduce the potential for 'counterparty runs' on a deteriorating clearing participant.

**3.14.3.** ~~Portability refers to the operational aspects of the transfer of contractual positions, funds, or securities from one party to another party.~~ By facilitating transfers from one participant to another, effective portability arrangements lessen the need for closing out positions, including during times of market stress. Portability thus minimises the costs and potential market disruption associated with closing out positions and reduces the possible impact on customers' ability to continue to obtain access to central clearing.

**3.14.4.** ~~Effective~~The effectiveness of segregation and portability ~~of a participant's customers' positions and collateral depend not only on the~~ measures taken by a ~~CCP itself but also~~central counterparty depends in part on applicable legal frameworks, including those in foreign jurisdictions in the case of remote participants. ~~Effective segregation and portability also depend, and~~ on measures taken by other parties, for example, where customers post ~~additional~~excess collateral to the participant.<sup>92</sup>

**13.1.** A ~~CCP~~central counterparty should, at a minimum, have segregation and portability arrangements that effectively protect a participant's customers' positions and related collateral from the default or insolvency of that participant. If the ~~CCP~~central counterparty additionally offers protection of such customer positions and collateral against the concurrent default of the participant and a fellow customer, the ~~CCP~~central counterparty should take steps to ensure that such protection is effective.

**13.1.1.** **3.14.5.**—In order to achieve fully the benefits of segregation and portability, the ~~legal framework applicable to the CCP should support its~~central counterparty's arrangements to protect and transfer the positions and collateral of a participant's customers should be supported by the legal framework applicable to the central counterparty.<sup>93</sup> The legal framework will influence how the segregation and portability arrangements are designed and what benefits can be achieved. The relevant legal framework will vary depending upon many factors, including the participant's legal form of organisation, the manner in which collateral is provided (for example, security interest, title transfer, or full ownership right), and the types of assets (for example, cash or securities) provided as collateral. ~~Therefore, it is not possible to design a single model.~~ The appropriate model may therefore vary for ~~all CCPs~~central counterparties across ~~all~~ relevant jurisdictions. However, a ~~CCP~~central counterparty should structure its segregation and portability arrangements (including applicable rules) in a manner that protects the interests of ~~its~~ participant's customers and achieves a high degree of legal certainty under applicable law. ~~A CCP~~A central counterparty should also consider potential conflicts of laws when designing its arrangements. In particular, the ~~CCP's~~central counterparty's rules and procedures that set out

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— Participants may collect excess collateral from their customers, beyond that which is required by and provided to the CCP. This excess collateral may be held by the participant or its custodian and outside of the segregation and portability regime in effect at the CCP.

<sup>93</sup> For example, portability arrangements could be undermined if applicable insolvency laws did not protect the transfer of customer positions and collateral from avoidance ('clawback') by the participant's insolvency practitioner. Also, in some jurisdictions, it may not be possible to segregate cash.

its segregation and portability arrangements should avoid any potential conflict with applicable legal or regulatory requirements.

**13.2.** A ~~CCP~~central counterparty should employ an account structure that enables it readily to identify positions of a participant's customers and to segregate related collateral. A ~~CCP~~central counterparty should maintain customer positions and collateral in individual customer accounts or in omnibus customer accounts, or equivalent.

**13.2.1.** In considering the appropriate account structure, including the level of segregation and the basis for margin collection (that is, gross or net), a central counterparty should take into account stakeholders' views and assess the important benefits of individual customer protection alongside all relevant legal and operational factors. Such factors might include applicable insolvency regimes, costs of implementation and operational implications (for example, operational challenges associated with maintaining and managing individual customer accounts).

### Customer account structures

**13.2.2.** ~~3.14.7. The segregation and portability principle~~This Standard is particularly relevant for ~~CCPs~~central counterparties that clear positions and hold collateral belonging to customers of a participant. This clearing structure allows customers (such as buy-side firms) that are not direct participants of a ~~CCP~~central counterparty to obtain access to central clearing where direct access is either not possible (for example, due to an inability to meet membership criteria) or not considered commercially appropriate (for example, due to the cost of establishing and maintaining the infrastructure necessary to perform as a clearing member or contributing to a ~~CCP's~~central counterparty's default resources). A ~~CCP~~central counterparty should employ an account structure that enables it readily to identify positions belonging to a participant's customers and to segregate related collateral. Segregation of customer collateral by a ~~CCP~~central counterparty can be achieved in different ways, including through individual or omnibus accounts.

**13.2.3.** ~~3.14.8~~—The degree of protection achievable for customer collateral will depend on whether customers are protected on an individual or omnibus basis and the way initial margin is collected (gross or net basis) by the ~~CCP~~<sup>95</sup>central counterparty. Collecting margin on a gross basis means that the amount of margin a participant must post to the central counterparty on behalf of its customers is the sum of the amounts of margin required for each such customer. Collecting margin on a net basis means that the participant may, in calculating the amount of margin it must post to the central counterparty on behalf of its customers, offset the amounts of margin associated with the portfolios of different customers. Each of these decisions will have implications for the risks the ~~CCP~~central counterparty faces from its participants and, in some cases, their customers. The ~~CCP~~central counterparty should understand, monitor, and manage these risks.<sup>95</sup> ~~Similarly, there are advantages and disadvantages to each type of account structure that the CCP should consider when designing its segregation regime. (See also CCP Standard 18 on tiered participation arrangements.)~~

### Individual account structure

**13.2.4.** ~~3.14.9.~~ Similarly, there are advantages and disadvantages to each type of account structure that the central counterparty should consider when designing its segregation regime. The individual account structure provides a high degree of protection to the clearing level collateral of

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— Collecting margin on a gross basis means that the amount of margin a participant must post to the CCP on behalf of its customers is the sum of the amounts of margin required for each such customer. Collecting margin on a net basis means that the participant may, in calculating the amount of margin it must post to the CCP on behalf of its customers, offset the amounts of margin associated with the portfolios of different customers.

95— See also Principle 19 on tiered participation arrangements.

customers of participants in a CCPcentral counterparty, even in the case where the losses associated with another customer's default exceed the resources of the participant ~~(see paragraph 3.14.10)~~. Under this approach, each customer's collateral is held in a separate, segregated individual account at the CCPcentral counterparty, and depending on the legal framework applicable to the CCPcentral counterparty, a customer's collateral may only be used to cover losses associated with the default of that customer (that is, customer collateral is protected on an individual basis). This account structure facilitates the clear and reliable identification of a customer's collateral, which supports full portability of an individual customer's positions and collateral or, alternatively, can expedite the return of collateral to the customer. Since all collateral maintained in the individual customer's account is used to margin that customer's positions only, the CCPcentral counterparty should be able to transfer these positions from the customer account of a defaulting participant to that of another participant with sufficient collateral to cover the exposures. The use of individual accounts and the collection of margin on a gross basis provide flexibility in how a customer's portfolio may be ported to another participant or group of participants.<sup>96</sup> Maintaining individual accounts, however, can be operationally and resource intensive for the CCPcentral counterparty in settling transactions and ensuring accurate bookkeeping. ~~This approach could impact the overall efficiency of the CCP's operations.~~ Finally, effectively achieving the advantages of maintaining individual accounts may depend upon the legal framework applicable to the insolvency of the participant.

### Omnibus account structure

13.2.5. ~~3.14.10.~~ Another approach ~~would be~~ to use an omnibus account structure where all collateral belonging to all customers of a particular participant is commingled and held in a single account segregated from that of the participant. This approach can be less operationally intensive, ~~can be more efficient when porting positions and collateral for a group of customers of a defaulting participant (where there has been no customer default or where customer collateral is legally protected on an individual basis), and can be structured while continuing to protect customers' collateral from being used to cover a default by the direct participant.~~

13.2.6. ~~3.14.11.~~ However, depending on the legal framework and the CCP's central counterparty's rules, omnibus accounts ~~where the customer collateral is protected on an omnibus basis~~ may expose a customer to 'fellow customer risk' – the risk that another customer of the same participant will default and create a loss that exceeds both the amount of available collateral supporting the defaulting customer's positions and the available resources of the participant.<sup>97</sup> As a result, the remaining commingled collateral of the participant's non-defaulting customers is exposed to the loss. Fellow -customer risk is of particular concern because customers have limited, if any, ability to monitor or to manage the risk of their fellow customers.

13.2.7. ~~3.14.12.~~ One potential solution is for omnibus account structures to be designed in a manner that operationally commingles collateral related to customer positions while protecting customers legally on an individual basis – that is, protecting them from fellow -customer risk. Such individual protection does require the CCPcentral counterparty to maintain accurate books sufficient to promptly ascertain an individual customer's interest in a portion of the collateral. A failure to do so can lead to delays or even losses in returning margin and other collateral that has been provided to the CCPcentral counterparty to individual customers in the event that a participant becomes insolvent.<sup>98</sup>

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<sup>96</sup> As a practical matter, an individual account structure is inconsistent with net collection of margin, since under such netting, it is impractical for the CCP to allocate the net margin to individual customers.

— In some jurisdictions, customers in an omnibus account can include affiliates of the direct participant.

<sup>98</sup> Ascertaining each customer's interest in the omnibus account may require reliance on the participant's records containing the sub-accounting for individual customers. Under some legal frameworks, the collateral in the omnibus account is distributed to customers proportionately, based on their net customer claims, and participants may be required to provide certain customer information to the CCP.

~~13.2.8. 3.14.13.~~ The degree to which portability is fostered for a customer whose assets are held in an omnibus account also varies depending on whether the ~~CCP~~central counterparty collects margin on a gross or net basis. As with account structure, there are advantages and disadvantages to the alternative ways in which margin may be collected by the ~~CCP~~central counterparty that employs an omnibus account structure. Margin calculated on a gross basis to support individual customer portfolios results in less netting efficiency at the participant level; however, it is likely to ~~preclude~~mitigate the ~~possibility~~risk of under-margined customer positions when ported. As a result, ~~CCPs~~central counterparties can port a participant's customers' positions and related margin in bulk or piecemeal.<sup>99</sup> Gross margining enhances the feasibility of portability, which is desirable since porting avoids the transaction costs, including bid-offer spreads, associated with terminating and replacing a participant's customers' positions. When margin is collected on a gross basis, it is more likely that there will be sufficient collateral in the omnibus account to cover all positions of a participant's customers.

~~13.2.9. 3.14.14.~~ When margin is collected by the ~~CCP~~central counterparty on a net basis but held in an omnibus account structure, there is a risk that full portability cannot be achieved.<sup>100</sup> Since the collateral maintained in the omnibus account covers the net positions across all customers of a particular participant, upon a participant default, any excess collateral maintained by the defaulting participant may not be readily available for porting to another participant to adequately collateralise a customer's positions ~~on a going forward basis.~~<sup>101</sup> Moreover, other than a bulk transfer of all customer positions of the defaulting participant, along with the aggregate of the customer collateral held at the ~~CCP~~central counterparty and at the participant, any transfer of a customer's positions to another participant would depend on the ability and willingness of customers to provide additional collateral. Otherwise, porting individual customer portfolios, with their pro rata share of net margin, to multiple transferee clearing members is likely to result in under-margined customer positions. Transferee clearing members are unlikely to accept such positions unless the margin shortfall is remedied by the customer.

~~3.14.15. In considering whether to offer individual customer collateral protection at the clearing level, the CCP should take into account all relevant circumstances. Such circumstances include applicable insolvency regimes, costs of implementation, and risk management challenges associated with the use of individual customer accounts, as well as the important benefits of individual customer protection. If the CCP determines that individual customer accounts should be offered, then the CCP should endeavour to offer them at reasonable cost and in an unrestrictive manner and encourage direct participants to offer those accounts to their customers at a reasonable cost and in an unrestrictive manner.~~

### Alternative arrangements for cash markets

~~13.2.10. 3.14.6—In Under certain circumstances, jurisdictions, cash market CCPs operate in legal regimes that facilitate segregation and portability central counterparties clearing cash markets may be able to achieve materially equivalent protection of customer assets by alternate alternative means. Such alternative arrangements should ensure that: that offer the same degree of protection as the approach required by this principle. Features of these regimes are that if a participant fails, (a) the customer positions can be identified in a timely manner; (b) customers will be protected by an alternative mechanism (for example, an investor protection scheme designed to move customer accounts from the failed or failing participant to another participant in a timely manner; and (c) customer assets can be restored.~~<sup>102</sup> In these cases, the

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— Although portability on a portfolio basis has historically been feasible in the absence of a customer default, it is possible that such portability may not be achievable due to a lack of willing and able transferees. Such lack may occur due to stressed market conditions, the complexity or size of the portfolio, or lack of information on the individual constituents.

<sup>100</sup> — Collateral exceeding the amount required by the CCP to cover the net positions is often maintained by the participant.

<sup>101</sup> — Collateral exceeding the amount required by the ~~CCP~~central counterparty to cover the net positions is often maintained by the participant.

<sup>102</sup> — For example, domestic law subjects participants to explicit and comprehensive financial responsibility or customer protection requirements that obligate participants to make frequent determinations (for example, daily) that they maintain possession and control of all customers' fully paid and excess margin securities and to segregate their proprietary activities from those of their customers. Under these

~~CCP and central counterparty should consult with the Reserve Bank and other relevant authorities to demonstrate that for these particular cash markets should evaluate whether the applicable legal or regulatory framework achieves materially equivalent the same degree of protection and efficiency (see Principle 21 on efficiency and effectiveness) for customers to that which would otherwise be achieved by the segregation and portability arrangements at the CCP level described elsewhere in this Standard in Principle 14.~~

13.3. ~~To the extent reasonably practicable under prevailing law, An FMI a central counterparty~~ should structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be transferred to one or more other participants.

13.3.1. ~~3.14.16.~~ Efficient and complete portability of a participant's customers' positions and related collateral is important in both pre-default and post-default scenarios but is particularly critical when a participant defaults or is undergoing insolvency proceedings.<sup>103</sup> ~~A CCP's A central counterparty's~~ ability to transfer customers' positions and related collateral in a timely manner may depend on such factors as market conditions, sufficiency of information on the individual constituents, and the complexity or sheer size of the portfolio. ~~A CCP~~To the extent reasonably practicable under prevailing law, a central counterparty should therefore structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be effectively transferred to one or more other participants, taking into account all relevant circumstances. In order to achieve a high likelihood of portability, a ~~CCP central counterparty~~ will need to: have the ability to identify positions that belong to customers; identify and assert its rights to related collateral held by or through the ~~CCP central counterparty~~; transfer positions and related collateral to one or more other participants; identify potential participants to accept the positions; and disclose relevant information to such participants so that they can evaluate the counterparty credit and market risk associated with the customers and positions, respectively, and facilitate the CCP's ability to carry out its default management procedures in an orderly manner. ~~A CCP's A central counterparty's~~ rules and procedures should require participants to facilitate the transfer of a participant's customers' positions and collateral upon the customer's request, subject to any notice or other contractual requirements. The ~~CCP central counterparty~~ should obtain the consent of the direct participant to which positions and collateral are ported. If there are circumstances where this would not be the case, they should be set out in the ~~CCP's central counterparty's~~ rules, policies, or procedures. ~~A CCP's A central counterparty's~~ policies and procedures also should provide for the proper handling of positions and collateral of customers of a defaulting participant.<sup>104</sup> ~~(See also CCP Standard 12 on participant default rules and procedures.)~~

13.4. ~~A CCP central counterparty~~ should disclose its rules, policies, and procedures relating to the segregation and portability of a participant's customers' positions and related collateral. In particular, the ~~CCP central counterparty~~ should disclose whether customer collateral is ~~protected segregated~~ on an individual or omnibus basis. In addition, a ~~CCP central counterparty~~ should disclose any constraints, such as legal or operational constraints, that may impair its ability to segregate or port a participant's customers' positions and related collateral.

13.4.1. ~~3.14.17.~~ ~~A central counterparty~~ should state its segregation and portability arrangements, including the method for determining the value at which customer positions will be transferred,

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~~regimes, pending securities purchases do not belong to the customer; thus, there is no customer trade or position entered into the CCP. As a result, participants provide collateral to the CCP on behalf of their customers regardless of whether they are acting on a principal or agent basis, and the CCP is not able to identify positions or possess the assets of its participants' customers.~~

<sup>103</sup> A customer should also be able to transfer its positions and collateral to another participant in the normal course of business (for example, in the case of a relationship with a new clearing firm or merger of entities), subject to applicable laws and contractual terms. In addition, portability arrangements can also facilitate an orderly wind-down of a participant.

<sup>104</sup> — See also Principle 13 on participant default rules and procedures.

in its rules, policies, and procedures.<sup>105</sup> (See CCP Standard 20 on disclosure of rules, key policies and procedures, and market data.) A ~~CCP's~~central counterparty's disclosure should be adequate such that customers can understand how much customer protection is provided, how segregation and portability are achieved, and any risks or uncertainties associated with such arrangements. Disclosure helps customers to assess ~~and manage~~ the related risks and conduct due diligence when entering into transactions that are cleared or settled through a direct participant in the ~~CCP~~central counterparty, reducing the risk of financial spillover via customers in the event of a participant default. Customers should have sufficient information about which of ~~its~~their positions and collateral held at or through a ~~CCP~~central counterparty are segregated from positions and collateral of the participant and the ~~CCP~~central counterparty. Disclosure regarding segregation should include ~~(a)~~; whether the segregated assets are reflected on the books and records at the ~~CCP~~central counterparty or unaffiliated third-party custodians that hold assets for the ~~CCP~~; ~~(b)~~central counterparty; who holds the customer collateral (for example, ~~CCP~~the central counterparty or a third-party custodian); and ~~(c)~~under what circumstances customer collateral may be used by the ~~CCP~~central counterparty. In particular, the ~~CCP~~central counterparty should disclose whether customer collateral is protected on an individual or omnibus basis.

## Principle 15Standard 14: General business risk

An FMI's central counterparty should identify, monitor, and manage its general business risk and hold, or demonstrate that it has legally certain access to, sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

### Explanatory noteGuidance

3.15.1. — An FMI's central counterparty should have robust management and control systems to identify, monitor, and manage general business risk. General business risk refers to the risks and potential losses arising from an FMI's central counterparty's administration and operation as a business enterprise that are neither related to participant default nor separately covered by financial resources under the CCP Standard 4 on credit risk or CCP Standard 7 on liquidity risk principles. General business risk includes any potential impairment of the FMI's central counterparty's financial position (as a business concern) as a consequence of a decline in its revenues or an increase in its expenses, such that expenses exceed revenues and result in a loss that must be charged against capital. Such impairment can be caused by a variety of business factors, including poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses. Business-related losses also may arise from risks covered by other principlesstandards, for example, legal risk (in the case of legal actions challenging the FMI's central counterparty's custody arrangements), investment risk affecting the FMI's central counterparty's resources, and operational risk (in the case of fraud, theft, or loss).<sup>106</sup> In these cases, general business risk may cause an FMI's central counterparty to experience an extraordinary one-time loss as opposed to recurring losses.

14.1. An FMI's central counterparty should have robust management and control systems to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses.

### Identifying business risk

14.1.1. 3.15.2. — An FMI's central counterparty should identify and assess the sources of business risk and their potential impact on its operations and services, taking into account past loss events and

<sup>105</sup> See Principle 23 on disclosure of rules, key procedures, and market data.

<sup>106</sup> See also Principle CCP Standard 1 on legal basis, Principle CCP Standard 165 on custody and investment risks, and Principle 17CCP Standard 16 on operational risk.

financial projections. ~~An FMI central counterparty~~ should assess and thoroughly understand its business risk and the potential effect that this risk could have on its cash flows, liquidity, and capital positions. In doing so, ~~an FMI central counterparty~~ should consider a combination of tools, such as risk management and internal control assessments, scenario analysis, and sensitivity analysis. Internal control assessments should identify key risks and controls and assess the impact and probability of the risks and the effectiveness of the controls. Scenario analysis should examine how specific scenarios would affect the ~~FMI central counterparty~~. Sensitivity analysis should test how changes in one risk affect the ~~FMI's central counterparty's~~ financial standing; for example, ~~conducting the analysis of~~ how the loss of a key customer or service provider might impact the ~~FMI's central counterparty's~~ existing business activities. In some cases, ~~an FMI central counterparty~~ may ~~want~~ wish to consider an independent assessment of specific business risks.

~~14.1.2.~~ ~~3.15.3.~~ ~~An FMI central counterparty~~ should clearly understand its general business risk profile so that it is able to assess its ability to either ~~(a) to~~ avoid, reduce, or transfer specific business risks, or ~~(b) to~~ accept and manage those risks. This requires the ongoing identification of risk-mitigation options that the ~~FMI central counterparty~~ may use in response to changes in its business environment. When planning an expansion of activity, ~~an FMI central counterparty~~ should conduct a comprehensive enterprise risk assessment. In particular, when considering any major new product, service, or project, the ~~FMI central counterparty~~ should ~~project~~ forecast potential revenues and expenses as well as identify and plan how it will cover any additional capital requirements. Further, ~~an FMI central counterparty~~ may eliminate or mitigate some risks by instituting appropriate internal controls or by obtaining insurance or indemnity from a third party.

#### Measuring and monitoring business risk

~~14.1.3.~~ ~~3.15.4.~~ Once ~~an FMI central counterparty~~ has identified and assessed its business risk, it should measure and monitor these risks on an ongoing basis and develop appropriate information systems as part of a robust enterprise-wide risk-management program. Key components of a robust enterprise-wide risk-management program include establishing strong financial and internal control systems, so that the ~~FMI central counterparty~~ can monitor, manage, and control its cash flows and operating expenses and mitigate any business-related losses (see ~~Principle CCP Standard 3~~ on ~~the~~ framework for the comprehensive management of risks). In particular, ~~an FMI central counterparty~~ should minimise and mitigate the probability of business-related losses and their impact on its operations across a range of adverse business and market conditions, including the scenario that its viability as a going concern is questioned. ~~An FMI central counterparty~~ should also ensure that it has rigorous and appropriate investment guidelines and monitoring procedures (see ~~Principle 16 CCP Standard 15~~ on custody and investment risks).

~~14.2.~~ ~~An FMI central counterparty~~ should hold, ~~or demonstrate that it has legally certain access to~~, liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity ~~an FMI central counterparty~~ should hold, ~~or have access to~~, should be determined by its general business-risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.

~~14.2.1.~~ ~~3.15.5.~~ ~~An FMI central counterparty~~ should hold, ~~or demonstrate that it has legally certain access to~~, liquid net assets funded by equity (such as common stock, disclosed reserves, or ~~other~~ retained earnings) so that it can continue operations and services as a going concern if it incurs

general business losses.<sup>107</sup> Equity allows ~~an FMI~~ central counterparty to absorb losses on an ongoing basis and should be permanently available for this purpose. The amount of liquid net assets funded by equity ~~an FMI~~ central counterparty should hold, or have access to, should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.<sup>108</sup> If these assets are not held by the central counterparty itself, the central counterparty must have legally certain arrangements in place that guarantee it can access liquid net assets held by an affiliated entity, including in circumstances where its own or the affiliated entity's financial standing was in doubt. Any such arrangement should be subject to approval by the Reserve Bank and other relevant authorities.

**14.2.2. 3.15.6.**—In order to estimate the amount of liquid net assets funded by equity that a particular ~~FMI~~ central counterparty would need, the ~~FMI~~ central counterparty should regularly analyse and understand how its revenue and operating expenses may change under a variety of adverse business scenarios as well as how it might be affected by extraordinary one-time losses. This analysis should also be performed when a material change to the assumptions underlying the model occurs, either because of changes to the ~~FMI's~~ central counterparty's business model or because of external changes. ~~An FMI~~ central counterparty needs to consider not only possible decreases in revenues but also possible increases in operating expenses, as well as the possibility of extraordinary one-time losses, when deciding on the amount of liquid net assets to hold or make accessible to cover general business risk.

**14.3.** ~~An FMI~~ central counterparty should maintain a viable recovery or orderly wind-down plan and should hold, or have legally certain access to, sufficient liquid net assets funded by equity to implement this plan. At a minimum, ~~an FMI~~ central counterparty should hold, or have legally certain access to, liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under ~~the financial resources principles~~ CCP Standard 4 on credit risk and CCP Standard 7 on liquidity risk. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.

**14.3.1. [3.15.5]** ~~Accordingly, an FMI~~ A central counterparty should maintain a viable plan to achieve recovery and orderly wind-down and should hold, or have access to, sufficient liquid net assets funded by equity to implement this plan.<sup>109</sup> The appropriate amount of liquid net assets funded by equity will depend on the content of the plan and, specifically, on the size of the ~~FMI~~ central counterparty, the scope of its activities, the types of actions included in the plan, and the length of time needed to implement them. ~~An FMI~~ A central counterparty should also take into consideration the operational, technological, and legal requirements for participants to establish and move to an alternative arrangement in the event of an orderly wind-down. At a minimum, however, a central counterparty ~~an FMI~~ should hold, or have access to, liquid net assets funded by equity equal to at least six months of current operating expenses.<sup>110</sup>

**14.3.2. 3.15.7**—Assets held by ~~an FMI~~ central counterparty to cover risks or losses other than business risk (for example, the financial resources required under ~~the~~ CCP Standard 4 on credit risk and CCP Standard 7 on liquidity risk principles) ~~or to cover losses from other business lines that are unrelated to its activities as an FMI~~ should not be included when accounting for liquid net

107 If the ~~FMI's~~ central counterparty's corporate structure is such that it cannot legally or institutionally raise equity (for example, under certain structures of mutual ownership ~~or when the FMI is run by a central bank~~) or if the FMI is a new start-up and cannot initially raise the required level of equity, it should ensure an equal amount of equivalent loss-absorbing financial resources is available.

108 Recovery could include recapitalising, replacing management, merging with another ~~FMI~~ central counterparty, revising business strategies (including cost or fee structures), or restructuring services provided.

109 ~~For the purposes of this principle,~~ The requirement for liquid net assets funded by equity ensures that the assets held for the purposes of this principle Standard are sufficiently liquid to be available to mitigate any potential business risks in a timely manner, can only be used for business risk purposes, and are funded by equity rather than long term liabilities.

110 Operating expenses may exclude depreciation and amortisation expenses for the purposes of this calculation.

assets available to cover business risk.<sup>111</sup> However, any equity held under international risk-based capital standards should be included where relevant and appropriate to avoid duplicate capital requirements.

**14.4.** Assets held to cover general business risk should be of high quality and sufficiently liquid in order to allow the FMI central counterparty to meet its current and projected operating expenses under a range of scenarios, including in adverse market conditions.

**14.4.1.** ~~3.15.8.~~—To ensure the adequacy of its own resources, an FMI central counterparty should regularly assess and report its liquid net assets funded by equity relative to its potential business risks to ~~its regulators~~ the Reserve Bank and other relevant authorities (see also CCP Standard 21 on regulatory reporting).

**14.5.** An FMI central counterparty should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.

**14.5.1.** ~~3.15.9.~~—An FMI central counterparty should provide a viable capital plan for maintaining an appropriate level of equity. The capital plan should specify how an FMI central counterparty would raise new capital if its equity capital were to fall close to or below the amount needed. This plan should be approved by the board of directors (or an appropriate board committee), reviewed at least annually and updated regularly. An FMIs appropriate. A central counterparty may also need to consult its participants and others during the development of its plan.

**14.5.2.** ~~3.15.10.~~—In developing a capital plan, an FMI central counterparty should consider a number of factors, including its ownership structure and any insured business risks. For example, an FMI central counterparty should determine if and to what extent specific business risks are covered by ~~(a)~~ explicit insurance from a third party, ~~or (b)~~ explicit indemnity agreements from a parent, owners, or participants (for example, general loss-allocation provisions and parent guarantees), which would be realisable within the recovery or orderly wind-down time frame. Given the contingent nature of these resources, an FMI central counterparty should use conservative assumptions when taking them into account for its capital plan. Furthermore, these resources should not be taken into account when assessing the FMI central counterparty's capital adequacy.

## **Principle 16** Standard 15: Custody and investment risks

An FMI central counterparty should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. An FMI's central counterparty's investments should be in instruments with minimal credit, market, and liquidity risks.

### **Explanatory note** Guidance

**3.16.1.**—An FMI central counterparty has the responsibility to safeguard its assets, such as cash and securities, as well as the assets that its participants have provided to the central counterparty. FMI. Custody risk is the risk of loss on assets held in custody in the event of a custodian's (or subcustodian's) insolvency, negligence, fraud, poor administration, or inadequate recordkeeping. Assets that are used by an FMI central counterparty to support its operating funds or capital funds or that have been provided by participants to secure their obligations to the FMI central counterparty should be held at supervised or regulated entities that have strong processes, systems, and credit profiles, including other FMIs (for example, CSDs central securities depositories). In addition, assets should generally be held in a manner that assures the FMI central counterparty of prompt access to those assets in the event that the FMI central counterparty needs to draw on them. Investment risk refers to the risk of loss faced by an FMI when it invests its own or its participants' assets.

<sup>111</sup> Depending on the rules of the particular FMI central counterparty and the insolvency law of the jurisdiction in which it is established, the equity of an FMI central counterparty may ultimately be used if the resources that form the default backing are insufficient to cover the losses generated in the event of a participant default.

A central counterparty should ensure that its investment strategy is consistent with its overall risk management strategy. Resources held by a central counterparty to cover credit, liquidity or general business risks should not be exposed to credit, market or liquidity risks (including through concentrated exposures to investment counterparties) that may compromise the ability of the central counterparty to use these resources when needed.

15.1. An FMIA central counterparty should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.

15.1.1. 3.16.2.—An FMIA central counterparty should mitigate its custody risk by using only supervised and regulated entities with robust accounting practices, safekeeping procedures, and internal controls that fully protect its own and its participants' assets. It is particularly important that assets held in custody are protected against claims of a custodian's creditors. The custodian should have a sound legal basis supporting its activities, including the segregation of assets (see also Principle CCP Standard 1 on legal basis and Principle 11 on CSDs). The custodian also should have a strong financial position to be able to sustain losses from operational problems or ancillary non-custodial activities.

15.2. An FMIA central counterparty should have prompt access to its assets and the assets provided by participants, when required.

15.2.1. An FMIA central counterparty should confirm that its interest or ownership rights in the assets can be enforced and that it can have prompt access to its assets and the assets provided by participants, when required. Timely availability and access should be ensured even if these securities are held in another time zone or jurisdiction. Furthermore, the FMI central counterparty should confirm it has prompt access to the assets in the event of the default of a participant.

15.3. An FMIA central counterparty should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each custodian bank.

15.3.1. 3.16.3.—An FMIA central counterparty should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each custodian bank. For example, a financial institution may serve as a custodian bank to an FMIA central counterparty as well as a money settlement bank and agent or liquidity provider to the FMI central counterparty. The custodian bank also might be a participant in the FMI central counterparty and offer clearing services to other participants. An FMIA central counterparty should carefully consider all of its relationships with a particular custodian bank to ensure that its overall risk exposure to an individual custodian remains within acceptable concentration limits. Where feasible, an FMIA central counterparty could consider using multiple custodians for the safekeeping of its assets to diversify its exposure to any single custodian. For example, a CCP central counterparty may want to use one custodian for its margin assets and another custodian for its prefunded default arrangement resources. Such a CCP central counterparty, however, may need to balance the benefits of risk diversification against the benefits of pooling resources at one or a small number of custodians. In any event, an FMIA central counterparty should monitor the concentration of risk exposures to, and financial condition of, its custodian banks on an ongoing basis.

15.4. An FMIA central counterparty's investment strategy should be consistent with its overall risk -management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect.

15.4.1. 3.16.4.—An FMIA central counterparty's strategy for investing its own and its participants' assets should be consistent with its overall risk -management strategy and fully disclosed to its participants. When making its investment choices, the FMI central counterparty should not allow pursuit of profit to compromise its financial soundness and liquidity risk management.

Investments should be secured by, or be claims on, high-quality obligors to mitigate the credit risk to which the ~~FMI central counterparty is exposed~~. Within these parameters, a central counterparty should, to the extent reasonably practicable, have a high degree of confidence that its own capital would be sufficient to withstand losses associated with the failure of any individual non-government investment counterparty. This implies the imposition of conservative limits on the size and concentration of counterparty exposures. In considering its overall credit risk exposures to individual obligors, a central counterparty should also take into account other relationships with the obligor that create additional exposures, such as where an obligor is also a participant or an affiliate of a participant in the central counterparty. In addition, a central counterparty should ensure that any investment of participant assets in the securities of participants or their affiliates is subject to appropriate controls for specific wrong-way risk.

~~15.4.2. Also, because the value of an FMI's~~Because the value of a central counterparty's investments may need to be realised quickly, investments should allow for quick liquidation with little, if any, adverse price effect. For example, ~~an FMI a central counterparty~~ could invest in overnight reverse repo agreements backed by liquid securities with low credit risk. ~~An FMI~~In allowing for quick liquidation with minimal adverse price effect, a central counterparty should carefully consider its overall credit risk exposures to individual obligors, including other relationships with ~~also impose limits on~~the obligor that create additional exposures such as an obligor that is also a participant or an affiliate ~~concentration~~ of a participant in the FMI. In addition, an FMI should not invest participant ~~certain~~ assets in the participant's own securities or those of its affiliates ~~its investment portfolio~~. If an FMI's own resources can be used to cover losses and liquidity pressures resulting from a participant default, the investment of those resources should not compromise the FMI's ability to use them when needed.

## **Principle 17**~~Standard 16: Operational risk~~

*[Key Considerations 4 and 5 both incorporated into CCP Standard 16.3]*

~~An FMI~~A central counterparty should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the ~~FMI's~~central counterparty's obligations, including in the event of a wide-scale or major disruption.

### **Explanatory note**~~Guidance~~

~~3.17.1.~~Operational risk is the risk that deficiencies in information systems, internal processes, and personnel, or disruptions from external events, will result in the reduction, deterioration, or breakdown of services provided by ~~an FMI a central counterparty~~. Operational failures can damage ~~an FMI's a central counterparty's~~ reputation or perceived reliability, lead to legal consequences, and result in financial losses incurred by the ~~FMI~~central counterparty, participants, and other parties. In certain cases, operational failures can also be a source of systemic risk. ~~An FMI~~A central counterparty should: establish a robust framework to manage its operational risks ~~with appropriate systems, policies, procedures, and controls~~. As part of an FMI's operational risk management framework, the FMI, which should identify the plausible sources of operational risk; deploy appropriate systems; establish appropriate policies, procedures, and controls; set operational reliability objectives; and develop a business continuity plan. ~~An FMI~~A central counterparty should take a holistic approach when establishing its operational risk management framework.

## Identifying ~~sources of~~ and managing operational risk

**16.1.** ~~An FMI's~~ central counterparty should establish a robust operational risk -management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.

**16.1.1.** ~~3.17.2.~~ ~~An FMI's~~ central counterparty should actively identify, monitor, and manage the plausible sources of operational risk and establish clear policies and procedures to address them. Operational risk can stem from both internal and external sources. Internal sources of operational risk include inadequate identification or understanding of risks and the controls and procedures needed to limit and manage them, inadequate control of systems and processes, inadequate screening of personnel, and, more generally, inadequate management. External sources of operational risk include the failure of critical service providers or utilities or events affecting a wide metropolitan area such as natural disasters, terrorism, and pandemics. Both internal and external sources of operational risk can lead to a variety of operational failures that include ~~(a)~~ errors or delays in message handling, ~~(b)~~ miscommunication, ~~(c)~~ service degradation or interruption, ~~(d)~~ fraudulent activities by staff, and ~~(e)~~ disclosure of confidential information to unauthorised entities. If ~~an FMI's~~ central counterparty provides services in multiple time zones, it may face increased operational risk due to longer operational hours and less downtime for maintenance. ~~An FMI's~~ central counterparty should identify all potential single points of failure in its operations.<sup>112</sup> Additionally, ~~an FMI's~~ central counterparty should assess the evolving nature of the operational risk it faces on an ongoing basis (for example, pandemics and cyber-attacks), so that it can analyse its potential vulnerabilities and implement appropriate defence mechanisms.

~~3.17.3. — A TR typically serves as a single source of information for a particular market, and it may be the central registry for certain trades. Therefore, a TR's failure to perform as expected could cause significant disruption. The key risk of a TR is operational. Deficiencies in business continuity management, data integrity, and the safeguarding of data are a particular concern. Inadequate disclosure or faulty delivery of data by a TR to relevant authorities or the public could undermine the primary purpose of the TR. Access to timely and reliable data provides greater insights into the derivatives market and improves the ability of relevant authorities to oversee the markets it serves and its participants. Data recorded by a TR may also be used as inputs by the TR's participants and potentially by other relevant infrastructures and service providers. Therefore, continuous availability of data stored in a TR is critical.<sup>113</sup> Also, a TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources. Where a TR provides access to another type of FMI, such as a CCP, the linked FMIs may be exposed to additional risks if the interface is not properly designed. FMIs establishing a link to a TR should ensure that the system and communication arrangements between the linked entities are reliable and secure such that the operation of the link does not pose significant reliability and security risks.~~

**16.2.** ~~An FMI's~~ central counterparty's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the ~~FMI's~~ central counterparty's operational risk -management framework. Systems, operational policies, procedures, and controls should be reviewed, audited, and tested periodically and after significant changes.

**16.2.1.** ~~3.17.4.~~ ~~An FMI's~~ central counterparty should establish clear policies, procedures, and controls that mitigate and manage its sources of operational risk. Overall, operational risk management is a continuous process encompassing risk assessment, defining an acceptable tolerance for risk, and implementing risk controls. This process results in ~~an FMI's~~ central counterparty accepting, mitigating, or avoiding risks consistent with its operational reliability objectives. ~~An FMI's~~ central counterparty's governance arrangements are pertinent to its operational risk -management framework (see also Principle CCP Standard 2 on governance). In particular, ~~an~~

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<sup>112</sup> A single point of failure is any point in a system, whether a service, activity, or process, ~~that~~ which, if it fails ~~ed~~ to work correctly, ~~leads~~ would lead to the failure of the entire system.

<sup>113</sup> The mitigation of operational risk is particularly important because the information maintained by a TR can support bilateral netting and be used to provide services directly to market participants or other providers (for example, portfolio compression), including other linked FMIs.

~~FMI's~~a central counterparty's board should explicitly define the roles and responsibilities for addressing operational risk and endorse the ~~FMI's~~central counterparty's operational risk -management framework.

16.2.2. ~~3-17.5.~~—To ensure the proper functioning of its risk controls, ~~an FMI's~~a central counterparty should have sound internal controls. For example, ~~an FMI's~~a central counterparty should have adequate management ~~controls, such as~~processes for setting operational standards, measuring and reviewing performance, and correcting deficiencies. ~~There are many~~A central counterparty may draw on relevant international, national, and industry -level standards, guidelines, or recommendations ~~that an FMI may use~~ in designing its operational risk -management framework. Conformity with commercial standards can help ~~an FMI's~~a central counterparty reach~~meet~~ its operational objectives. For example, commercial standards exist for information security, business continuity, and project management. ~~An FMI's~~a central counterparty should regularly assess the need to integrate the applicable commercial standards into its operational risk -management framework. In addition, ~~an FMI's~~a central counterparty should seek to comply with relevant commercial standards in a manner commensurate with the ~~FMI's~~central counterparty's importance and level of interconnectedness.

16.2.3. ~~3-17.6.~~—~~An FMI's~~A central counterparty's arrangements with participants, operational policies, and operational procedures should be periodically, and whenever necessary, tested and reviewed, especially after significant changes occur to the system or a major incident occurs. In order to minimise any effects of the testing on operations, tests should be carried out in a 'testing environment'. This testing environment should, to the extent possible, replicate the production environment (including the implemented security provisions, in particular, those regarding data confidentiality). Additionally, key elements of ~~an FMI's~~a central counterparty's operational risk -management framework should be audited periodically and whenever necessary. In addition to periodic internal audits, external ~~audits~~independent reviews may be necessary, depending on the ~~FMI's~~central counterparty's importance and level of interconnectedness. Consistent with the evolving nature of operational risk management, ~~an FMI's~~a central counterparty's operational objectives should be periodically reviewed to incorporate new technological and business developments.

16.2.4. ~~3-17.8.~~—The ~~FMI's~~central counterparty's operational risk -management framework should include formal change -management and project -management processes to mitigate operational risk arising from modifications to operations, policies, procedures, and controls. Change -management processes should provide mechanisms for preparing, approving, tracking, testing, and implementing all changes to the system. Project -management processes, in the form of policies and procedures, should mitigate the risk of any inadvertent effects on ~~an FMI's~~a central counterparty's current or future activities due to an upgrade, expansion, or alteration to its service offerings, especially for major projects. In particular, these policies and procedures should guide the management, documentation, governance, communication, and testing of projects, regardless of whether projects are outsourced or executed ~~in-house~~internally.

16.3. ~~An FMI's~~A central counterparty should have clearly defined operational -reliability objectives and should have policies in place that are designed to achieve those objectives. These policies include, but are not limited to, having: exacting targets for system availability; scalable capacity adequate to handle increasing stress volumes; and comprehensive physical and information security policies that address all potential vulnerabilities and threats.

### Operational reliability

16.3.1. ~~3-17.9.~~—~~An FMI's~~A central counterparty should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives. These objectives serve as benchmarks for ~~an FMI's~~a central counterparty to evaluate its efficiency and effectiveness and evaluate its performance against expectations. These objectives should

be designed to promote confidence among the ~~FMI's~~central counterparty's participants. Operational reliability objectives should include the ~~FMI's~~central counterparty's operational performance objectives and committed service -level targets. Operational performance objectives and service -level targets should define both qualitative and quantitative measures of operational performance and should explicitly state the performance standards the ~~FMI~~central counterparty is intending to meet. The ~~FMI~~central counterparty should monitor and assess regularly whether the system is meeting its established objectives and service -level targets. The system's performance should be reported regularly to senior management, relevant board committees, participants, the Reserve Bank and other relevant authorities. In addition, ~~an FMI's~~a central counterparty's operational objectives should be periodically reviewed to incorporate new technological and business developments.

### System availability

16.3.2. A central counterparty should set explicit and exacting benchmarks for the availability of key systems, commensurate with the criticality of the services it provides. Measures of system availability should be reported regularly to senior management, relevant board committees, participants, the Reserve Bank and other relevant authorities. A central counterparty should have procedures to investigate a failure to meet system availability benchmarks, including external review where appropriate, and should implement any recommended changes to operations on a timely basis.

### Operational capacity

16.3.3. 3.17.11. An FMIA central counterparty should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service -level objectives, such as the required processing speed. ~~A TR, in particular, should have scalable capacity adequate to maintain historical data as required.~~ Capacity management requires that the ~~FMI~~central counterparty monitor, review, and test (including stress test) the actual capacity and performance of the system on an ongoing basis. The ~~FMI~~central counterparty should carefully forecast demand and make appropriate plans to adapt to any plausible change in the volume of business or technical requirements. These plans should be based on a sound, comprehensive methodology so that the required service levels and performance can be achieved and maintained. As part of its capacity planning, ~~an FMIA~~a central counterparty should determine a required level of redundant capacity, taking into account the ~~FMI's~~central counterparty's level of importance and interconnectedness, so that if an operational outage occurs, the system is able to resume operations and process all remaining transactions before the end of the day: (see CCP Standard 16.7).

### Physical and information security

16.3.4. 3.17.12. An FMIA central counterparty should have comprehensive physical and information security policies that address all potential vulnerabilities and threats. In particular, ~~an FMIA~~central counterparty should have policies effective in assessing and mitigating vulnerabilities in its physical sites from attacks, intrusions, and natural disasters. ~~An FMIA central counterparty~~ also should have sound and robust information security policies, standards, practices, and controls to ensure an appropriate level of confidence and trust in the ~~FMI~~central counterparty by all stakeholders. These policies, standards, practices, and controls should include the identification, assessment, mitigation and management of current and potential future security threats and vulnerabilities for the purpose of implementing appropriate safeguards into its systems. These safeguards should both defend against the intrusion of external threats and limit the vulnerability of systems to threats that breach perimeter safeguards. System security should be subject to regular review and testing, and systems should be periodically updated as appropriate. Data should be protected from loss and leakage, unauthorised access, and other

processing risks, such as negligence, fraud, poor administration, and inadequate recordkeeping. ~~An FMI's~~ A central counterparty's information security objectives and policies should conform to commercially reasonable standards for confidentiality, integrity, authentication, authorisation, non-repudiation, availability, and auditability (or accountability).

16.4. A central counterparty should ensure that it can reliably access and utilise well-trained and competent personnel, as well as technical and other resources. These arrangements should be designed to ensure that all key systems are operated securely and reliably in all circumstances, including where a related body becomes subject to external administration.

#### Access to resources

16.4.1. 3.17.7.—Because the proper performance of ~~an FMI's~~ a central counterparty's employees is a core aspect of any operational risk management framework, ~~an FMI~~ a central counterparty should ~~employ~~ be able to access and utilise sufficient, well-qualified personnel. ~~An FMI's~~ These personnel should be able to operate the system safely ~~and efficiently and~~ consistently follow operational and risk management procedures during normal and abnormal circumstances. ~~An FMI~~ A central counterparty should implement appropriate human resources policies to hire, train, and retain qualified personnel, thereby mitigating the effects of high rates of personnel turnover or key person risk. Additionally, ~~an FMI~~ a central counterparty should have appropriate human resources and risk management policies to address fraud prevention. Where appropriate, a central counterparty should also have reliable access to technical expertise and other resources external to the central counterparty as necessary to ensure the security and reliability of key systems.

#### Resources shared with a related body

16.4.2. In some cases a central counterparty may utilise personnel and other resources that are employed or owned by a related body. Agreements between a central counterparty and any related bodies governing such arrangements should ensure, to the extent permissible by law, that the central counterparty can continue to access key resources in all circumstances, including in the event of the related body's insolvency or external administration.

16.5. An FMI a central counterparty should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. A central counterparty should inform the Reserve Bank of any critical dependencies on utilities or service providers. In addition, ~~an FMI~~ a central counterparty should identify, monitor, and manage the risks its operations might pose to its participants and other FMIs. Where a central counterparty operates in multiple jurisdictions, managing these risks may require it to provide adequate operational support to participants during the market hours of each relevant jurisdiction.

16.5.1. 3.7.18—A central counterparty is connected directly and indirectly to its participants, other FMIs, and its service and utility providers. Accordingly, the ~~FMI~~ central counterparty should identify both direct and indirect effects on its ability to process and settle transactions in the normal course of business and manage risks that would stem from ~~an the~~ external operational failure of a connected entity. These entity. Such effects may include those transmitted through its participants, which may participate in multiple FMIs. ~~In addition, an FMI~~ Likewise, a central counterparty should ~~also~~ identify, monitor, and manage the risks it poses to its participants and that it faces from and poses to other FMIs (see ~~Principle 20~~ CCP Standard 19 on FMI links). To the extent possible, ~~interdependent FMIs~~ a central counterparty should coordinate business continuity arrangements ~~An FMI with interdependent FMIs.~~ A central counterparty also should consider the risks associated with its service and utility providers and the operational effect on the ~~FMI~~ central counterparty if a service or utility providers fail ~~provider failed~~ to perform as expected. ~~An FMI~~ A central counterparty should provide reliable service, not only for the benefit of its direct participants, but also for all entities that would be affected by its ability to process transactions.

## Dependencies on service providers

16.5.2. A central counterparty should have a formal policy that sets out the process for entering into, maintaining and exiting key outsourcing or service provision arrangements. Before an outsourcing or service provision arrangement is established, senior management should identify the business, operational and other risks involved and ensure that these risks can be adequately monitored and controlled by the facility, and that the Reserve Bank and other relevant authorities are able to access sufficient information and effectively perform crisis management actions (see CCP Standards 16.9, 16.10 and 16.11). The board should approve the establishment of any outsourcing or service provision arrangement for a key business activity and be informed on a regular basis of the performance of the service provider.

16.5.3. ~~3.17.21.~~ An FMI<sup>114</sup> central counterparty that outsources operations to or is otherwise dependent on critical service providers should also disclose the nature and scope of this dependency to its participants. In addition to these service providers (such as financial messaging providers), an FMI<sup>114</sup> central counterparty is also typically dependent on the adequate functioning of utilities (such as power and telecommunication companies). As a result, an FMI<sup>114</sup> central counterparty should identify the risks from its critical service providers and utilities and take appropriate actions to manage these dependencies through appropriate contractual and organisational arrangements. An FMI<sup>114</sup> central counterparty should inform its relevant authorities about the Reserve Bank of any such critical dependencies on critical utilities or service providers and utilities ensure that both it and take measures the Reserve Bank are able to allow these authorities to be informed about access sufficient information on the performance of these critical utilities or service providers and utilities. To that end, the FMI<sup>114</sup> central counterparty may contractually provide for direct contacts between the critical service provider and the relevant authority, Reserve Bank, or contractually ensure that the relevant authority can Reserve Bank is able to obtain specific reports from the critical service provider, or the FMI. Alternatively, the central counterparty may provide full information to the authority the Reserve Bank with relevant information that it receives from the critical service provider.

16.5.4. Some service providers may be critical, such as those that generate environmental interdependencies, because several FMIs or some of their key participants rely upon their services.<sup>114</sup> A contractual relationship should be in place between the FMI and the critical service provider allowing the FMI and relevant authorities to have full access to necessary information. The contract A central counterparty's contractual arrangements with critical service providers should also ensure that the FMI's central counterparty's approval is mandatory before the a critical service provider can itself outsource material elements of the service provided to the FMI central counterparty, and that in the event of such an arrangement, full access to the necessary information is preserved. Clear lines of communication should be established between the outsourcing FMI dependent central counterparty and the critical service provider to facilitate the flow of functions and information between parties in both ordinary and exceptional circumstances. (see CCP Standard 16.9). Additional controls may be required where outsourcing or service provision arrangements involve critical functions of the central counterparty or where relevant to crisis management (see CCP Standards 16.10 and 16.11).

16.5.5. Where a central counterparty operates in multiple jurisdictions, managing the risks that it poses to its participants may require it to provide adequate operational support to participants during the market hours of each relevant jurisdiction. In particular, where it has material Australian-based participation, the central counterparty should provide an appropriate degree of operational support to its Australian-based participants during Australian market hours. The degree of operational support should be sufficient to allow participants to resolve operational

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<sup>114</sup> Environmental interdependencies result from indirect relationships between two or more systems that arise from broader factors, including a common reliance on a service provider or financial market. Examples include common third-party IT or network providers, common elements of the physical infrastructure (power, water, etc.), common financial markets, or even common risk management procedures. See CPSS, The interdependencies of payment and settlement systems, June 2008.

issues on a timely basis during Australian market hours (or within a reasonable extension of these hours, where necessary).

16.6. A participant of a central counterparty should have complementary operational and business continuity arrangements that are appropriate to the nature and size of the business undertaken by that participant. The central counterparty's rules and procedures should clearly specify operational requirements for participants.

16.6.1. 3.17.19. To manage the operational risks associated with its participants, ~~an FMI's~~ central counterparty should ~~consider establishing~~ establish minimum operational requirements for its participants (see also ~~Principle 18~~ CCP Standard 17 on access and participation requirements). ~~For example, an FMI may want to~~ A central counterparty should define operational and business continuity requirements for participants in accordance with the participant's role and importance to the system, taking into consideration the nature and scale of the business undertaken by each participant. These requirements should complement the central counterparty's own operational and business continuity arrangements. Rules and procedures should clearly and fairly specify the requirements of participants in this regard. In some cases, ~~an FMI's~~ central counterparty may ~~want~~ wish to identify critical participants based on ~~the~~ consideration of transaction volumes and values, services provided to the ~~FMI's~~ central counterparty and other interdependent systems, and, more generally, the potential impact on other participants and the system as a whole in the event of a significant operational problem. Critical participants may need to meet some of the same operational risk ~~management~~ requirements as the ~~FMI's~~ central counterparty itself. ~~An FMI's~~ central counterparty should have clear and transparent criteria, methodologies, or standards for critical participants to ensure that their operational risks are managed appropriately.

#### Business continuity arrangements

16.7. An FMI's central counterparty should have a business ~~continuity~~ plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. Business continuity arrangements should provide appropriate redundancy of critical systems and appropriate mitigants for data loss. The business continuity plan should be designed to enable the ~~FMI's~~ central counterparty to facilitate settlement by the end of the day of the disruption, even in case of extreme circumstances. The ~~FMI's~~ central counterparty should regularly test these arrangements.

#### Business continuity management

16.7.1. 3.17.13. Business continuity management is a key component of ~~an FMI's~~ central counterparty's operational risk ~~management~~ framework. A business continuity plan should have clearly stated objectives and should include policies and procedures that allow for the rapid recovery and timely resumption of critical operations following a disruption to a service, including in the event of a wide-scale or major disruption. ~~An FMI's~~ central counterparty should explicitly assign responsibility for business continuity planning and devote adequate resources to this planning. The plan should identify and address events that pose a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption, and should focus on the impact on the operation of critical infrastructures and services. ~~An FMI's~~ central counterparty's business continuity plan should ensure that the ~~FMI's~~ central counterparty can continue to meet agreed ~~upon~~ service levels in such events. Both internal and external threats should be considered in the business continuity plan, and the impact of each threat should be identified and assessed. In addition to reactive measures, ~~an FMI's~~ central counterparty's business continuity plan may need to include measures that prevent disruptions of critical operations. All

aspects of the business continuity plan should be clearly and fully documented and details of relevant procedures made available to participants.

16.7.2. ~~3.17.14.~~ The objectives of ~~an FMI's~~ a central counterparty's business continuity plan should include the system's recovery time and recovery point. An FMI central counterparty should aim to be able to resume operations within two hours following disruptive events; however, backup systems ideally should commence processing immediately. This may imply maintenance of dual redundancy for critical systems at its primary site. The plan should be designed to enable the ~~FMI~~ central counterparty to ~~complete~~ facilitate settlement by the end of the day even in case of extreme circumstances. ~~Depending on their Systems, including backup and data recovery time objectives and designs, some FMIs may procedures, should be able~~ designed to resume operations with some high degree of confidence that data will not be lost. This should include regular, and ideally real-time, replication of data across primary and secondary sites, and robust and timely procedures to recover data and transactions submitted in the interval between the last data replication and successful failover to a secondary site. Should data loss; ~~however nevertheless occur~~, contingency plans for all ~~FMIs~~ central counterparties should ensure that the status of all transactions at the time of the disruption can be identified with certainty in a timely manner.

16.7.3. ~~3.17.15.~~ An FMI central counterparty should set up a secondary site with sufficient resources, capabilities, and functionalities and appropriate staffing arrangements that would not be affected by a wide-scale disruption and would allow the secondary site to take over operations if needed.<sup>115</sup> The secondary site should provide the level of critical services necessary to perform the functions consistent with the recovery time objective and should be located at a sufficient geographical distance from the primary site that ~~is sufficient to have it~~ has a distinct risk profile.<sup>116</sup> Depending on the ~~FMI's~~ central counterparty's importance and level of interconnectedness, the need and possibilities for a third site could be considered, in particular to provide sufficient confidence that the ~~FMI's~~ central counterparty's business continuity objectives will be met in all scenarios. An FMI central counterparty should also consider alternative arrangements (for example, manual paper-based procedures) to allow for the processing of time-critical transactions in extreme circumstances. Both primary and secondary (and any additional) sites should have sufficient capacity to process volumes that are at least double projected stress volumes. This redundant capacity should be sufficient to ensure that each site is able to operate continuously and independently even in extreme circumstances.

16.7.4. ~~3.17.16.~~ An FMI's a central counterparty's business continuity plan should also include clearly defined procedures for crisis and event management. The plan, for example, should address the need for rapid deployment of a ~~multi-skilled~~ multiskilled crisis and event management team as well as procedures to consult and inform participants, interdependent FMIs, the Reserve Bank and other relevant authorities, and others (such as service providers and, where relevant, the media) quickly on a timely basis. Communication with ~~regulators, supervisors, and overseers~~ the Reserve Bank and other relevant authorities is critical in case of a major disruption to ~~an FMI's~~ a central counterparty's operations or a wider market distress that affects the ~~FMI~~ central counterparty, particularly where ~~relevant authorities might rely on~~ data held by the ~~FMI~~ central counterparty may be critical for crisis management. Depending on the nature of the problem, communication channels with local civil authorities (for physical attacks or natural disasters) or computer experts (for software malfunctions or cyber-attacks) may also need to be activated. If ~~an FMI~~ a central counterparty has global importance or critical linkages to one or more

<sup>115</sup> A particular site may be primary for certain functions and secondary for others. It is not intended that ~~an FMI~~ a central counterparty would be required to have numerous separate secondary sites for each of its essential functions.

<sup>116</sup> A ~~n FMI~~ central counterparty should conduct a comparative risk analysis of the secondary site. The secondary site should in principle not be affected by an event that affects the primary site, with the exception of some very specific threats, such as a coordinated attack. Each site should have robust resilience based on the duplication of software and hardware, and the technology in place to replicate data between the various sites should be consistent with the chosen recovery point objectives.

interdependent FMIs, it should set up, test, and review appropriate cross-system or cross-border crisis-management arrangements.

16.7.5. 3.17.17. An FMI's central counterparty's business continuity plan and its associated arrangements should be subject to periodic review and testing. Tests should address various scenarios that simulate wide-scale disasters and inter-site switchovers. An FMI's central counterparty's employees should be thoroughly trained to execute the business continuity plan, and participants, critical service providers, and linked FMIs should be regularly involved in the testing and be provided with a general summary of the testing results. The degree of participant involvement in the testing should be appropriate to the nature and size of the business undertaken by individual participants (see CCP Standard 16.8). The central counterparty should also consider the need to participate in industry-wide tests. An FMI's central counterparty should make appropriate adjustments to its business continuity plans and associated arrangements based on the results of the testing exercises.

### Incident management

16.7.6. 3.17.10. An FMI's central counterparty should have comprehensive and well-documented procedures in place to record, report, analyse, and resolve all operational incidents. After every significant disruption, an FMI's central counterparty should undertake a 'post-incident' review to identify the causes and any required improvement to the normal operations or business continuity arrangements. Such reviews should, where relevant, include the FMI's central counterparty's participants. The details of the incident and conclusions of the review should be provided to the Reserve Bank on a timely basis (see CCP Standard 21.1(h)).

16.8. A central counterparty should consider making contingency testing compulsory for the largest participants to ensure they are operationally reliable and have in place tested contingency arrangements to deal with a range of operational stress scenarios that may include impaired access to the central counterparty.

16.8.1. An operational disruption to the largest participants of a central counterparty may pose significant risks to the central counterparty's own operational performance, either directly or through interdependencies with other participants or FMIs. A central counterparty should therefore consider requiring its largest participants to perform contingency tests for their own operations with a particular focus on reliability of access to the central counterparty, and to participate in the central counterparty's own contingency testing. Where interdependencies between the central counterparty and its largest participants are significant, there will be a strong case for these participants to be involved in the central counterparty's contingency tests. Large participants' contingency tests should address the operational reliability of the participants and should cover a range of stress scenarios, including impaired access to the central counterparty.

### Outsourcing and other dependencies

16.9. A central counterparty that relies upon, outsources some of its operations to, or has other dependencies with a related body, another FMI or a third-party service provider (for example, data processing and information systems management) should ensure that those operations meet the resilience, security and operational performance requirements of these CCP Standards and equivalent requirements of any other jurisdictions in which it operates.

16.9.1. 3.17.20. An FMI's central counterparty that relies upon or, outsources some of its operations to, or has other dependencies with a related body, another FMI, or a third-party service provider (for example, data processing and information systems management) should ensure that those operations meet the relevant resilience, security and operational requirements they would need to meet if they were provided internally of the CCP Standards and equivalent requirements of any other jurisdiction in which it operates. Requirements placed on such

service providers should be proportional to the nature of the services that they provide. Further, even when systems and processes are outsourced or provided externally, the central counterparty remains responsible for those systems and processes. The FMI central counterparty should have robust arrangements for the selection and substitution of such providers, timely access to all necessary information, and ~~the proper~~appropriate controls and monitoring tools (see CCP Standard 16.5).

~~3.17.22. The relevant authority of the FMI may establish expectations specifically targeted at critical service providers, as presented in Annex F. Adherence to these expectations can be achieved in one of two ways, at the discretion of the authority: (a) the authority monitors adherence to the expectations itself in a direct relationship with the critical service provider or (b) the authority communicates the standards to the FMI, which obtains assurances from its critical service providers that they comply with the expectations. These expectations may also be relevant to an FMI as it reviews its contracts with critical service providers.~~

16.9.2. Where a central counterparty outsources or is otherwise dependent on a provider of a critical function – a function that is integral to the safe and effective provision of its core services as a central counterparty – a greater degree of scrutiny of arrangements may be appropriate. In scrutinising service providers in accordance with this Standard, a central counterparty that outsources or relies upon external providers of critical functions should, consistent with the expectations set out in Annex F to the Principles, ensure that each provider of these critical services:

- identifies and manages relevant operational and financial risks to its critical services and ensures that its risk management processes are effective
- implements and maintains appropriate policies and procedures, and devotes sufficient resources to ensure the confidentiality and integrity of information and the availability of its critical services in order to fulfil the terms of its relationship with the central counterparty
- implements appropriate policies and procedures to ensure that its critical services are available, reliable and resilient. Its business continuity management and disaster recovery plans should therefore support the timely resumption of its critical services in the event of an outage so that the service provided fulfils the terms of its agreement with the central counterparty
- has in place robust methods to plan for the entire lifecycle of the use of its technologies and the selection of technological standards
- provides users, including the central counterparty and, where appropriate, its participants, with sufficient information to enable them to understand clearly their roles and responsibilities in managing risks related to their use of a critical service provider.

Where a critical service provider is a regulated entity, it may be more likely to achieve these criteria. However, the central counterparty must still form its own judgement as to whether the criteria have been met. The central counterparty should inform the Reserve Bank of the arrangements it has in place to ensure that critical service providers meet these requirements (see CCP Standard 16.10).

16.10. All of a central counterparty's outsourcing or critical service provision arrangements should provide rights of access to the Reserve Bank to obtain sufficient information regarding the service provider's operation of any critical functions provided. A central counterparty should consult with the Reserve Bank prior to entering into an outsourcing or service provision arrangement for critical functions.

16.10.1. All of a central counterparty's outsourcing or critical service provision arrangements should incorporate contractual rights of access for the Reserve Bank, allowing the Reserve Bank to seek information directly from the service provider in order to assess its operational performance and reliability with regard to any critical functions provided (see CCP Standard 16.5). Notwithstanding any assessment that the Reserve Bank may make regarding service providers,

a central counterparty should independently monitor the adherence of outsourcing or critical service providers to the resilience, security and operational performance requirements of the CCP Standards and other relevant standards (see CCP Standard 16.9).

16.10.2. Prior to entering into an outsourcing or service provision arrangement for a critical function, a central counterparty should consult with the Reserve Bank (see also CCP Standard 21 on regulatory reporting). As part of this consultation process, the central counterparty should provide the Reserve Bank with details of the arrangement, including provisions that satisfy the requirements of CCP Standards such as 16.5, 16.9, 16.10 and 16.11, and any other provisions necessary to comply with the operational requirements under the CCP Standards.

16.11. A central counterparty should organise its operations, including any outsourcing or critical service provision arrangements, in such a way as to ensure continuity of service in a crisis and to facilitate effective crisis management actions by the Reserve Bank or other relevant authorities. These arrangements should be commensurate with the nature and scale of the central counterparty's operations.

16.11.1. A central counterparty should ensure that its operations, including any outsourcing or critical service provision arrangements, are organised in such a way that it is able to provide continuous and reliable service in a crisis, and that the Reserve Bank or other relevant authorities are able to take effective action to manage or resolve a crisis. A central counterparty may need to consider contractual arrangements with outsourcing providers or other service providers that contain explicit provisions safeguarding continuity of service in crisis scenarios, including financial distress to the central counterparty.

16.11.2. A systemically important central counterparty should have robust arrangements to ensure continuity of service and facilitate effective crisis management actions by the Reserve Bank or other relevant authorities.<sup>117</sup> A systemically important central counterparty that also has a strong connection to the Australian real economy and financial system should also organise its operations so as to facilitate resolution actions taken by the Reserve Bank or other relevant authorities. This may require that the central counterparty directly operate critical functions, or, for outsourced or externally provided functions and to the extent supported by law, provide for contractual rights of access to any appointed statutory manager in a resolution scenario. These rights of access would need to survive termination of the outsourcing or service provision agreement. In determining whether a systemically important central counterparty has a strong connection to the Australian real economy and financial system, the following factors are likely to be relevant:

- whether the central counterparty offers services in a domestic or international market
- the mix of domestic and international participants in the central counterparty
- the potential for disruption to the central counterparty to affect the real economy
- whether the market serviced by the central counterparty is retail or wholesale
- whether the central counterparty clears a domestic securities market
- links that the central counterparty has with other Australian FMIs.

## **Principle 18**Standard 17: Access and participation requirements

An FMIA central counterparty should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.

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<sup>117</sup> See guidance to CCP Standard 7.7 for factors the Reserve Bank will consider in assessing the systemic importance of a central counterparty.

## Explanatory noteGuidance

**3.18.1.**—Access refers to the ability to use an FMI's a central counterparty's services and includes the direct use of the FMI's central counterparty's services by participants, including other market infrastructures (for example, trading platforms) and, where relevant, service providers (for example, matching and portfolio compression service providers). In some cases, this includes the rules governing indirect participation. An FMIA central counterparty should allow for fair and open access to its services.<sup>118</sup> It should control the risks to which it is exposed by its participants by setting reasonable risk-related requirements for participation in its services. An FMIA central counterparty should ensure that its participants and any linked FMIs have the requisite operational capacity, financial resources, legal powers, and risk management expertise to prevent unacceptable risk exposure for the FMI's central counterparty and other participants. An FMI's A central counterparty's participation requirements should be clearly stated and publicly disclosed so as to eliminate ambiguity and promote transparency.

**17.1.** An FMIA central counterparty should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements.

**17.1.1.** ~~3.18.2. Fair and open access to FMI services encourages competition among market participants and promotes efficient and low-cost payment, clearing, and settlement. Because an FMI often benefits from economies of scale, there is typically only one FMI, or a small number of FMIs, for a particular market. As a result, participation in an FMI may significantly affect the competitive balance among market participants. In particular, limiting access to an FMI's services may disadvantage some market participants (and their customers), other FMIs (for example, a CCP that needs access to a CSD), and service providers that do not have access to the FMI's services. Restrictions on access can result in highly tiered clearing arrangements and potentially give rise to concentration risks (see CCP Standard 18 on tiered participation arrangements). Further, direct access to one or more FMI's central counterparties may play an important role in meeting other public policy objectives around the depth, efficiency and liquidity of markets, and support any marketwide market-wide plan or policy for the safe and efficient clearing of certain classes of financial instruments and the promotion of efficient financial markets (including the reporting and recording of transaction data). An FMI's (for example, any mandatory clearing of certain classes of derivatives). Care should therefore be taken that participation requirements should therefore allow for fair and open access, in all relevant jurisdictions, based on reasonable risk-related participation requirements. Moreover, open access may reduce the concentrations of risk that may result from highly tiered arrangements for payment, clearing, and settlement. do not arbitrarily limit access to a central counterparty's services.~~

~~3.18.3. For a TR, ensuring fair and open access may be essential because a wide set of stakeholders may need, or be required by law to have, access to the TR's data warehousing services, both to store and retrieve data. This may be even more relevant when one TR is serving a particular market and serves multiple jurisdictions. Access is critical for participants reporting trade information to the TR and for platforms that may submit transaction data on behalf of participants, including exchanges, electronic trading venues, and confirmation or matching service providers. In addition, other FMIs or platforms that offer ancillary services may need to obtain trade information from the TR to use as an input to these services.~~

~~3.18.4. In addition, a TR should provide terms of use that are commercially reasonable and are designed to support interconnectivity with other FMIs and service providers, where requested, so that competition and innovation in post trade processing are not impaired as a result of centralising recordkeeping activity. A TR should not engage in anti-competitive practices such as product or service tying, setting overly restrictive terms of use, or anti-competitive price discrimination. A TR also should not develop closed,~~

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<sup>118</sup> Central banks, however, may exclude certain categories of financial institutions (such as non-deposit-taking institutions) from the FMIs that they operate, such as LVPS, because of legislative constraints or broader policy objectives.

~~proprietary interfaces that result in vendor lock-in or barriers to entry with respect to competing service providers that rely on the data maintained by the TR.~~

~~17.1.2. 3.18.5.—An FMI~~While pursuing the benefits of fair and open access, however, a central counterparty's participation requirements should not compromise its risk-based controls or conflict with directors' statutory duties. Indeed, a central counterparty should always consider the risks that an actual or prospective participant may pose, both to the ~~FMI~~central counterparty and to other participants. ~~Accordingly, an FMI should establish~~This will typically entail risk-related participation requirements adequate to ensure that its participants meet appropriate operational, financial, and legal ~~requirements to allow them to fulfil standards consistent with timely fulfilment of~~ their obligations to the central counterparty. ~~FMI, including the other participants, on a timely basis. Where participants act for other entities (indirect participants), it may be appropriate for the FMI to impose additional requirements to ensure that the direct participants have the capacity to do so (see also Principle 19 on tiered participation arrangements).~~

17.2. An FMI's~~A central counterparty's~~ participation requirements should be justified in terms of the safety of the ~~FMI~~central counterparty and the markets it serves, be tailored to and commensurate with the ~~FMI's~~central counterparty's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk ~~control standards, an FMI~~a central counterparty should endeavour to set requirements that have the least restrictive impact on access that circumstances permit.

17.2.1. 3.18.6.—An FMI's~~A central counterparty's~~ participation requirements should be justified in terms of the safety ~~and efficiency~~ of the ~~FMI~~central counterparty and the markets it serves, be tailored to the ~~FMI's~~central counterparty's specific risks, be imposed in a manner commensurate with such risks, and be set out in the central counterparty's rules and publicly disclosed.<sup>119</sup> The requirements should be objective and should not unnecessarily discriminate against particular classes of participants or introduce competitive distortions.<sup>120</sup> ~~For example, participation requirements based solely on a participant's size are typically insufficiently related to risk and deserve careful scrutiny. Subject to maintaining acceptable risk control standards, an FMI should endeavour to set requirements that have the least restrictive impact on access that circumstances permit. While restrictions on access should generally be based on reasonable risk-related criteria, such restrictions may also be subject to the constraints of local laws and policies of the jurisdiction in which the FMI operates.<sup>121</sup> Requirements should also reflect the risk profile of the activity; an FMI may have different categories of participation based on the type of activity. For example, a participant in the clearing services of a CCP may be subject to a different set of requirements than a participant in the auctioning process of the same CCP. Operational requirements may include reasonable criteria relating to the participant's ability and readiness (for example, its~~ information technology capabilities) to use ~~an FMI's~~a central counterparty's services. Financial requirements may include reasonable risk-related capital requirements, other evidence of financial strength and creditworthiness, and contributions to prefunded default arrangements, ~~and appropriate indicators of creditworthiness~~. Legal requirements may include appropriate licences and authorisations to conduct relevant activities as well as legal opinions or other arrangements that demonstrate that possible ~~conflict of laws issues~~conflicts of law would not impede the ability of an applicant (for example, a foreign entity) to meet its obligations to the ~~FMI. An FMI~~central counterparty. A central counterparty also may require participants to have appropriate risk ~~management expertise. If an FMI~~a central counterparty

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<sup>119</sup> Efficiency considerations may affect open access. For example, in some instances, factors such as minimum transaction volumes are relevant to operational efficiency. However, considerations based solely on efficiency should not be used to justify participation requirements that in fact act as unjustifiable barriers to entry.

<sup>120</sup> A similar principle is set out in the guidance to CCP Standard 12.1, in relation to the proportionality of obligations placed on non-defaulting participants in the event of a default.

<sup>121</sup> For example, certain categories of financial institutions (such as non-deposit-taking institutions) may be excluded from certain FMIs, such as LVPS, because of local banking laws or policies. Conversely, some local laws, such as securities and antitrust laws, may require broader inclusion of classes of participants in certain types of FMIs, such as CCPs.

admits non-regulated entities, it should take into account any additional risks that may arise from their participation and design its participation requirements and risk management controls accordingly.

**17.2.2. 3.18.7.**—To help address the balance between open access and risk, ~~an FMI should~~ a central counterparty should set participation requirements and manage its participant-related risks through the use of real-time binding risk management controls, ~~risk-sharing arrangements,~~ and other operational arrangements that have the least restrictive impact on access ~~and competition~~ that circumstances permit. ~~For example, an FMI~~ One way a central counterparty can manage participant-related risks is to use real-time binding credit limits or collateral requirements ~~to help it manage its credit exposure to a particular participant.~~ The permitted level of participation may be different for participants maintaining different levels of capital. Where other factors are equal, participants holding ~~greater~~ higher levels of capital may be permitted less restrictive risk limits or be able to participate in more functions within the FMI. ~~The effectiveness of central counterparty.~~ Such risk management controls may mitigate the need for ~~an FMI~~ a central counterparty to impose onerous participation requirements that limit access. ~~An FMI~~ a central counterparty could also differentiate its services to provide different levels of access at varying levels of cost and complexity. For example, ~~an FMI~~ a central counterparty may ~~want~~ wish to limit full direct participation to certain types of entities, and to apply limits to the activities of, or provide indirect access to, others.<sup>122</sup> Participation requirements (and other risk controls) can be tailored to each class or tier of participants based on the risks each class or tier poses to the ~~FMI~~ central counterparty and its participants.

**17.2.3.** When clearing on behalf of other market participants, a clearing participant assumes responsibility for the risks those market participants bring to the central counterparty. It is therefore important that the clearing participant has appropriate financial and operational resources and risk management arrangements to fulfil its obligations to the central counterparty arising from this activity. In some markets, there may be relatively few clearing participants with the financial and operational resources to fulfil this role, and therefore the potential concentration of exposures in a small number of direct clearing participants may argue for closer monitoring and perhaps more stringent participation requirements for clearing participants that provide clearing services to other market participants (see also CCP Standard 18 on tiered participation arrangements). Where tiering exists, each class of participation should be clearly defined and the participation requirements should be the same for all applicants of the same class.

**17.2.4.** ~~[3.18.6] For example, participation requirements based solely on a participant's size are typically insufficiently related to risk and deserve careful scrutiny. Subject to maintaining acceptable risk control standards, an FMI should endeavour to set requirements that have the least restrictive impact on access that circumstances permit. While restrictions on access should generally be based on reasonable risk related criteria, such restrictions may also be subject to the constraints of local laws and policies of the jurisdiction in which the FMI operates.<sup>123</sup> Requirements should also reflect the risk profile of the activity; an FMI may have different categories of participation based on the type of activity. For example, a participant in the clearing services of a CCP may be subject to a different set of requirements than a participant in the auctioning process of the same CCP. Notwithstanding that participation requirements based solely on a participant's size or capital may be insufficiently related to risk, and therefore deserve careful scrutiny, some objective threshold metric such as minimum capital is likely to be necessary, perhaps as a backstop to other more risk sensitive requirements. Requirements such as customised~~

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— For example, an FMI may accept direct receipt of settlement instructions from indirect participants, which settle on the books of a direct participant. Indirect participants may or may not be explicitly recognised in an FMI's rules and subject to risk controls. In all cases, an indirect participant has a bilateral agreement with a direct participant.

<sup>123</sup>For example, certain categories of financial institutions (such as non-deposit-taking institutions) may be excluded from certain FMIs, such as LVPS, because of local banking laws or policies. Conversely, some local laws, such as securities and antitrust laws, may require broader inclusion of classes of participants in certain types of FMIs, such as CCPs.

collateralisation of exposures beyond certain limits are typically dependent on real-time monitoring of both a participant's credit standing and the exposures it brings to the central counterparty. Both may be subject to rapid and perhaps unexpected changes. A minimum capital requirement may therefore help to guard against unexpected shocks, which could in some circumstances deliver losses that were not directly related to the magnitude of normal course risks run by the participant. A minimum capital requirement also ensures that a participant is of sufficient scale to justify investment in more comprehensive operational and compliance frameworks. This might be expected to reduce the potential for such shocks. Moreover, a minimum capital requirement may help to ensure that participants commit significant financial resources to the clearing business and assume the responsibility that direct participation entails. Indeed, to the extent that participants have capital allocated to this specific function, they have an incentive to monitor and control the risks they bring to the central counterparty. Nevertheless, an assessment of the appropriate level of minimum capital can only be made in the context of the whole suite of a central counterparty's risk control measures.

**17.3.** An FMI central counterparty should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.

**17.3.1.** 3.18.8. — An FMI central counterparty should monitor compliance with its participation requirements on an ongoing basis through the receipt of timely and accurate information. Participants should be obligated to report any developments that may affect their ability to comply with ~~an FMI's~~ a central counterparty's participation requirements. An FMI central counterparty should have the authority to impose ~~more stringent restrictions or other additional~~ risk controls on a participant in situations where the ~~FMI~~ central counterparty determines the participant poses heightened risk to the ~~FMI~~ central counterparty. For example, if a participant's ~~creditworthiness declines~~ credit standing comes into doubt, the ~~FMI~~ central counterparty may require the participant to provide additional margin or collateral or ~~reduce~~ may place restrictions on the ~~participant's credit limit~~. ~~An FMI~~ level or types of activities that the participant can undertake (see CCP Standard 4 on credit risk). A central counterparty should consider additional reporting requirements for non-regulated institutions. An FMI central counterparty should also have clearly defined and publicly disclosed procedures for, in extreme cases, facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements of the ~~FMI~~ central counterparty (see CCP Standard 4 on credit risk and CCP Standard 12 on participant default rules and procedures).

**17.3.2.** If a central counterparty has an appeals process for suspending or cancelling participation in the central counterparty, the appeals process should not detract from the central counterparty's ability to suspend or cancel participation. For serious breaches, the preferable approach would be for the suspension or cancellation to persist during an appeal, with reinstatement upon a successful appeal, rather than the suspension or cancellation being put on hold until an appeal is heard.

## **Principle 19** Standard 18: Tiered participation arrangements

An FMI central counterparty should identify, monitor, and manage the material risks to the ~~FMI~~ central counterparty arising from tiered participation arrangements.

## Explanatory noteGuidance

**3.19.1.**—Tiered participation arrangements occur when some firms (indirect participants) rely on the services provided by other firms (direct participants) to use the ~~FMI's central payment, counterparty's clearing, settlement, or recording~~ facilities.<sup>124</sup>

**3.19.2.**—The dependencies and risk exposures (including credit, liquidity, and operational risks) inherent in these tiered arrangements can present risks to the ~~FMI central counterparty~~ and its smooth functioning, as well as to the participants themselves and the broader financial markets.<sup>125</sup> For example, if ~~an FMI a central counterparty~~ has few direct participants but many indirect participants with large values or volumes of transactions, it is likely that a large proportion of the transactions processed by the ~~FMI central counterparty~~ depend on a few direct participants. This will increase the severity of the effect on the ~~FMI central counterparty~~ of a default of a direct participant or an operational disruption at a direct participant. The credit exposures in tiered relationships can also affect the ~~FMI central counterparty~~. If the value of an indirect participant's transactions is large relative to the direct participant's capacity to manage the risks, this may increase the direct participant's default risk. In some cases, for example, ~~CCPs central counterparties~~ offering indirect clearing will face credit exposures to indirect participants (or arising from indirect participants' positions) if a direct participant defaults. There may also be legal or operational risk to the ~~FMI central counterparty~~ if there is uncertainty about the liability for indirect participant transactions and how these transactions will be handled in the event of a default.<sup>126</sup> (see CCP Standard 1 on legal basis).

**3.19.3.**—The nature of these risks is such that they are most likely to be material where there are indirect participants whose business through the ~~FMI central counterparty~~ is a significant proportion of the ~~FMI's central counterparty's~~ overall business or is large relative to that of the direct participant(s) through which they access the ~~FMI's central counterparty's~~ services. ~~Normally~~Typically, the identification, monitoring, and management of risks from tiered participation will therefore be focused on financial institutions that are the immediate customers of direct participants and depend on the direct participant for access to ~~an FMI's a central counterparty's~~ services.<sup>127</sup> In exceptional cases, however, tiered participation arrangements may ~~involve a complex series of financial intermediaries or agents, which may~~ require the ~~FMI central counterparty~~ to look beyond the direct participant and its immediate customer.

**3.19.4.**—There are limits on the extent to which ~~an FMI a central counterparty~~ can, in practice, observe or influence direct participants' commercial relationships with their customers. However, ~~an FMI a central counterparty~~ will often have access to information on transactions undertaken on behalf of indirect participants and can set direct participation requirements that may include criteria relating to how direct participants manage relationships with their customers in-so-far as these criteria are relevant for the safe ~~and efficient~~ operation of the ~~FMI central counterparty~~. At a minimum, ~~an FMI a central counterparty~~ should identify the types of risk that could arise from tiered participation and should monitor concentrations of such risk. If ~~an FMI a central counterparty~~ or its smooth operation is exposed to material risk from tiered participation arrangements, the ~~FMI central counterparty~~ should seek to manage and limit such risk.

**18.1.** ~~An FMI a central counterparty~~ should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the ~~FMI central counterparty~~ arising from such tiered participation arrangements.

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<sup>124</sup>For the purposes of this principle, an FMI can have two types of relationships that affect tiered participation arrangements. This Standard considers tiered participation arrangements that arise from the different relationships that participants may have with the central counterparty. The first type of relationship is with participants in the ~~FMI central counterparty~~ that are bound by the ~~FMI's central counterparty's~~ rules and agreements. Such "direct participants" and the management of the risks they present should be fully covered by the rules and agreements of the ~~FMI central counterparty~~ and are generally dealt with in other principles in this report other CCP Standards. The second type of relationship is with entities that are not bound by the rules of the ~~FMI central counterparty~~, but whose transactions are cleared ~~settled, or recorded by or through the FMI central counterparty~~. In this Standard, these entities are defined as "indirect participants" in the ~~FMI central counterparty~~ principle.

The risk issues will vary depending on the type of FMI. For TRs, only operational risk will be relevant.

— See Principle 1 on legal basis.

CCPs that face credit exposures arising from the positions of indirect participants in the event of a direct participant's default, should identify, monitor, and manage material exposures to non-financial institutions.

**3.19.5.**—~~An FMI~~**A central counterparty** may be able to obtain information relating to tiered participation through its own systems or by collecting it from direct participants. ~~An FMI~~**A central counterparty** should ensure that its procedures, rules, and agreements with direct participants allow it to gather basic information about indirect participants in order to identify, monitor, and manage any material risks to the ~~FMI~~**central counterparty** arising from such tiered participation arrangements. This information should enable the ~~FMI~~**central counterparty**, at a minimum, to identify ~~(a);~~ the proportion of activity that direct participants conduct on behalf of indirect participants, ~~(b);~~ direct participants that act on behalf of a material number of indirect participants, ~~(c);~~ indirect participants with significant volumes or values of transactions in the system; and ~~(d)~~ indirect participants whose transaction volumes or values are large relative to those of the direct participants through which they access the ~~FMI~~**central counterparty**.<sup>128</sup>

**18.2.** ~~An FMI~~**A central counterparty** should identify material dependencies between direct and indirect participants that might affect the ~~FMI~~**central counterparty**.

**18.2.1.** **3.19.6.**—~~An FMI~~**A central counterparty** should identify material dependencies between direct and indirect participants that can affect the ~~FMI~~**central counterparty**. Indirect participants will often have some degree of dependence on the direct participant through which they access the ~~FMI~~**central counterparty**. In the case of ~~an FMI~~**a central counterparty** with few direct participants but many indirect participants, it is likely that a large proportion of the transactions processed by the ~~FMI~~**central counterparty** would depend on the operational performance of those few direct participants. Disruption to the services provided by the direct participants – whether for operational reasons or because of a participant’s default – could therefore present a risk to the smooth functioning of the system as a whole. The ~~FMI~~**central counterparty** should identify and monitor material dependencies of indirect participants on direct participants so that the ~~FMI~~**central counterparty** has readily available information on which significant indirect participants may be affected by problems at a particular direct participant.

**18.2.2.** **3.19.7.**—In some cases, issues at an indirect participant could affect the ~~FMI~~**central counterparty**. This is most likely to occur where a large indirect participant accesses ~~an FMI’s~~**a central counterparty’s** facilities through a relatively small direct participant. ~~(see CCP Standard 18.3).~~ Failure of this significant indirect participant to perform as expected, such as by failing to meet its payment obligations, or stress at the indirect participant, such as that which causes others to delay payments to the indirect participant, may affect the direct participant’s ability to meet its obligations to the ~~FMI~~**FMI central counterparty**. ~~Central counterparties~~ should therefore identify and monitor the material dependencies of direct participants on indirect participants so that the ~~FMI~~**central counterparty** has readily available information on how the ~~FMI~~**central counterparty** may be affected by problems at an indirect participant, including which direct participants may be affected.

**18.3.** ~~An FMI~~**A central counterparty** should identify indirect participants responsible for a significant proportion of transactions processed by the ~~FMI~~**central counterparty** and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the ~~FMI~~**central counterparty** in order to manage the risks arising from these transactions.

## Credit and liquidity risks in tiered participation arrangements

**18.3.1.** **3.19.8.**—Tiered participation arrangements typically create credit and liquidity exposures between direct and indirect participants. The management of these exposures is the responsibility of the participants and, where appropriate, subject to supervision by their regulators. ~~An FMI~~**A central counterparty** is not expected to manage the credit and liquidity

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<sup>128</sup>If satisfying this key consideration Standard requires the collection of sensitive information that may advantage one party over another, the ~~FMI~~**central counterparty** should ensure that the sensitive information is appropriately protected and used only for risk purposes rather than commercial purposes.

exposures between direct and indirect participants, although the FMIcentral counterparty may have a role in applying credit or position limits in agreement with the direct participant. An FMIa central counterparty should, however, have access to information on concentrations of risk arising from tiered participation arrangements that may affect the FMIcentral counterparty, allowing it to identify indirect participants responsible for a significant proportion of the FMI'scentral counterparty's transactions or whose transaction volumes or values are large relative to those of the direct participants through which they access the FMI. An FMIcentral counterparty. A central counterparty should identify and monitor such risk concentrations.

18.3.2. 3.19.9.—In a CCPcentral counterparty, direct participants are responsible for the performance of their customers' financial obligations to the CCP. The CCPcentral counterparty. The central counterparty may, however, face an exposure to indirect participants (or arising from indirect participants' positions) if a direct participant defaults, at least until such time as the defaulting participant's customers' positions are ported to another participant or closed out. If a participant default would leave the FMIcentral counterparty with a potential credit exposure related to an indirect participant's positions, the FMIcentral counterparty should ensure it understands and manages the exposure it would face. For example, the FMIcentral counterparty may set participation requirements that require the direct participant, on the FMI'scentral counterparty's request, to demonstrate that it is adequately managing relationships with its customers to the extent that they may affect the FMI. An FMIcentral counterparty. A central counterparty should also consider establishing concentration limits on exposures to indirect participants, where appropriate.

#### Indirect participation and default scenarios

18.3.3. 3.19.10.—Default scenarios can create uncertainty about ~~whether the status of~~ indirect participants' ~~transactions have been settled or will be settled~~ positions and ~~whether any settled transactions will be unwound~~ exposures. Default scenarios can also raise legal and operational risks for the FMIcentral counterparty if there is uncertainty about whether the indirect or direct participant is liable for ~~completing the transaction. An FMI should ensure that a default, whether by a direct participant or by an indirect participant, does not affect the finality of indirect participants' transactions that have been processed and settled by the FMI. An FMI outstanding obligations to the central counterparty.~~ A central counterparty should ensure that its rules and procedures are clear regarding the status of indirect participants' ~~transactions at each point in the settlement process~~ positions and exposures (including the point at which they become subject to the rules of the system and the point after which the rules of the system no longer apply) ~~and whether such transactions would be settled in the event of an indirect or direct participant default. An FMI).~~ A central counterparty should also ensure that it adequately understands its direct participants' processes and procedures for managing an indirect participant's default. ~~For example, the FMI should know whether the indirect participant's queued payments can be removed or future dated transactions rescinded and whether such processes and procedures would expose the FMI to operational, reputational, or other risks.~~

#### Encouraging direct participation

18.3.4. 3.19.11.—Direct participation in an FMIa central counterparty usually provides a number of benefits, some of which may not be available to indirect participants, ~~such as real time gross settlement, exchange of value settlement, or settlement in central bank money.~~ Moreover, indirect participants are vulnerable to the risk that their access to an FMI, ~~their ability to make and receive payments and their ability to undertake and settle other transactions is lost if the direct participant on whom these indirect participants rely defaults or declines to continue their business relationship~~ a central counterparty is withdrawn or disrupted. If these indirect participants have large values or volumes of business through the FMIcentral counterparty, this may affect the smooth functioning of the FMIcentral counterparty. For these reasons, where an

indirect participant accounts for a ~~large~~**material** proportion of the transactions processed by ~~an FMI's central counterparty~~, it may be appropriate to encourage direct participation. For example, ~~an FMI's central counterparty~~ may in some cases establish objective thresholds above which direct participation would normally be encouraged (provided that the firm satisfies the ~~FMI's central counterparty's~~ access criteria). Setting such thresholds and encouraging direct participation should be based on risk considerations rather than commercial advantage.<sup>129</sup>

**18.4.** ~~An FMI's central counterparty~~ should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.

**18.4.1.** ~~3.19.12.~~ ~~An FMI's central counterparty~~ should regularly review risks to which it may be exposed as a result of tiered participation arrangements. If material risks exist, the ~~FMI's central counterparty~~ should take mitigating action ~~when~~**as** appropriate. The results of the review process should be reported to the board of directors and updated periodically and after substantial amendments to ~~an FMI's central counterparty's~~ rules.

## **Principle 20****Standard 19: FMI links**

*[Key Considerations 3, 4, 5, 6 and 9 not relevant to central counterparties]*

~~An FMI's central counterparty~~ that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.

### **Explanatory note****Guidance**

**3.20.1.**—A link is a set of contractual and operational arrangements between two or more FMIs that connect the FMIs directly or through an intermediary. ~~An FMI's central counterparty~~ may establish a link with ~~a similar type of FMI's central counterparty~~ for the primary purpose of expanding its services to additional financial instruments, markets, or institutions.<sup>130</sup> For example, a ~~CSD (referred to as an investor CSD) central counterparty~~ may establish a link ~~to~~**with** another ~~CSD in which securities are issued or immobilised (referred to as an issuer CSD) to enable a participant in the investor CSD to access the services of the issuer CSD through the participant's existing relationship with the investor CSD.~~<sup>131</sup> ~~A CCP may establish a link with another CCP central counterparty to enable a participant in the first CCP central counterparty to clear trades with a participant in the second CCP through the participant's existing relationship with the first CCP. An FMI's central counterparty without having to maintain two central counterparty relationships. A central counterparty may also establish a link with a different type of FMI. For example, a CCP central counterparty for securities markets must establish and use a link to a CSD central securities depository to receive and deliver securities. This principle Standard covers links between CSDs, CCPs, and TRs, central counterparties as well as CSD-CCP links and links between TRs a central counterparty and other FMI types of FMI, such as securities settlement facilities, central securities depositories and trade repositories.~~<sup>132</sup> If ~~an FMI's central counterparty~~ establishes a link, it should identify, monitor, and manage its ~~links~~-related risks, including legal, operational, credit, and liquidity risks.<sup>133</sup> Further, ~~an FMI's central counterparty~~ that establishes multiple links should ensure that the risks generated ~~in~~**by** one link do not affect the soundness of the other links and linked FMIs. Mitigation of such ~~spill-over~~**spillover** effects

— See CGFS, 'The macrofinancial implications of alternative configurations for access to central counterparties in OTC derivatives markets', November, 2011, which notes that overly tiered arrangements can potentially increase systemic risk because of the concentration of credit and operational risk in direct participants.

— FMIs in all link arrangements should meet the requirement in key consideration 1 of Principle 18. Open access to other FMIs can be a pre-condition for the establishment of links between FMIs of the same type.

<sup>131</sup> The term CSD in this principle generally refers to a CSD that also operates an SSS. The use of this broader definition for CSD in this principle mirrors market convention in the discussion of FMI links.

<sup>132</sup> Links to payment systems are not addressed by this principle because these links are addressed in Principle on money settlements. ~~Links to payment systems are not addressed by this Standard because these links are addressed in CCP Standard 9 on money settlements.~~

<sup>133</sup> Prior to entering **into** a link arrangement, ~~an FMI's central counterparty~~ should inform its participants of the expected effects on the ~~FMI's central counterparty's~~ risk profile. See also **Principle 23-CCP Standard 20** on disclosure of rules, key **policies and** procedures, and market data.

requires the use of effective risk -management controls, including additional financial resources or the harmonisation of risk -management frameworks across linked FMIs.

**19.1.** Before entering into a link arrangement, and on an ongoing basis once the link is established, ~~an FMI~~a central counterparty should identify, monitor, and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that ~~each FMI is able to observe the other principles in this report~~the central counterparty is able to comply with these CCP Standards.

### Identifying link-related risks

**19.1.1.** ~~3.20.2.~~ Before entering into a link arrangement, and on an ongoing basis once the link is established, ~~an FMI~~a central counterparty should identify and assess all potential sources of risk arising from the link arrangement. The type and degree of risk varies according to the design and complexity of the central counterparty and linked FMIs and the nature of the relationship between them. In a simple case of a vertical link, for example, ~~an FMI~~a central counterparty may provide basic services to another FMI, ~~such as a CSD that provides securities transfer services to an SSS~~or vice versa. Such links typically pose only operational and custody risks. Other links, such as an arrangement in which a ~~CCP~~central counterparty provides clearing services to another ~~CCP~~central counterparty may be more complex and may pose additional risks to ~~FMI~~the central counterparty, such as credit and liquidity risk.<sup>134</sup> risks. Cross-margining by two or more ~~CCPs~~central counterparties may also pose additional risk because the ~~CCPs~~central counterparties may rely on each other's risk -management systems to measure, monitor, and manage credit and liquidity risks (see Principle CCP Standard 6 on margin). In addition, links between ~~different types of a central counterparty and other~~ FMIs may pose specific risks to ~~one~~the central counterparty or ~~all of the other~~ FMIs in the link arrangement. ~~For example, a CCP may have a link with a CSD that operates an SSS for the delivery of securities and settlement of margins. If the CCP poses risks to the CSD, the CSD should manage those risks.~~ In all cases, link arrangements should be designed such that ~~each FMI~~the central counterparty is able to observe the ~~other principles in this report~~CCP Standards.

### Managing operational risk

**19.1.2.** ~~3.20.4.~~ ~~Linked FMIs~~A central counterparty should ~~provide~~obtain an appropriate level of information about ~~their~~each linked FMI's operations ~~to each other~~ in order for ~~each FMI~~the central counterparty to perform effective periodic assessments of the operational risk associated with the link. In particular, ~~FMI~~central counterparties should ensure that risk -management arrangements and processing capacity are sufficiently scalable and reliable to operate the link safely for both the current and projected peak volumes of activity processed over the link (see ~~Principle 17~~CCP Standard 16 on operational risk). Systems and communication arrangements between the central counterparty and linked FMIs also should be reliable and secure so that the link does not pose significant operational risk to the central counterparty and the linked FMIs. Any reliance by a ~~linked FMI~~central counterparty on a critical service provider should be disclosed as appropriate to the ~~other FMI~~linked FMI and the central counterparty should require reciprocal disclosure from the linked FMI. In addition, a linked ~~FMI~~central counterparty should identify, monitor, and manage operational risks due to complexities or inefficiencies associated with differences in time zones, particularly as these affect staff availability. Governance arrangements and change -management processes should ensure that changes in ~~one~~the central counterparty or a linked FMI will not inhibit the smooth functioning of the link, related risk -management arrangements, or non-discriminatory access to the link

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<sup>134</sup> A link between two or more CCPs may enable participants in a CCP in one market to clear transactions in another market through their existing arrangements. By broadening trading opportunities for market participants, without imposing all of the costs normally associated with establishing clearing relationships, links can deepen the liquidity in the affected markets. A link may also reduce the costs of systems development and operation faced by CCPs because it enables them to share these expenses.

(see [Principle CCP Standard 2](#) on governance and [Principle CCP Standard 17](#) on access and participation requirements).

## Managing financial risk

**19.1.3. 3.20.5.**—~~FMI~~ A central counterparty in a link arrangement should effectively measure, monitor, and manage ~~their~~ its financial risk, including custody risk, arising from the link arrangement. ~~FMI~~ A central counterparty should ensure that ~~they~~ it and ~~their~~ its participants have adequate protection of assets in the event of the insolvency of a linked FMI or a participant default in a linked FMI. ~~Specific guidance on mitigating and managing these risks in CSD-CSD links and CCP-CCP links is provided below.~~

**19.2.** A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the [central counterparty and other](#) FMIs involved in the link.

**19.2.1. 3.20.3.**—A link [involving a central counterparty](#) should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the ~~FMI~~ [involved in the link central counterparty](#). Cross-border links may present legal risk arising from differences between the laws and contractual rules governing the linked FMIs and their participants, including those relating to rights and interests, collateral arrangements, settlement finality, and netting arrangements (see [Principle CCP Standard 1](#) on legal basis). For example, differences in law and rules governing settlement finality ~~may~~ could lead to a scenario ~~wherein which~~ a transfer is regarded as final in ~~one FMI~~ [the central counterparty](#) but not final in the linked FMI, ~~or vice versa~~. In some jurisdictions, differences in laws may create uncertainties regarding the enforceability of ~~CCP~~ [central counterparty](#) obligations assumed by novation, open offer, or other similar legal device. ~~For instance, in the case of a link between two central counterparties,~~ differences in insolvency laws may unintentionally give a participant in one ~~CCP~~ [central counterparty](#) a claim on the assets or other resources of the linked ~~CCP~~ [central counterparty](#) in the event of the first ~~CCP's~~ [central counterparty's](#) default. To limit ~~these~~ such uncertainties, the respective rights and obligations of the linked FMIs and, where necessary, their participants should be clearly defined in the link agreement. ~~In a cross-jurisdictional context,~~ the terms of the link agreement should also set out, ~~in cross-jurisdictional contexts,~~ an unambiguous choice of law that will govern each aspect of the link.

~~3.20.6.~~—As part of its activities, an investor CSD may choose to establish a link with another CSD. If such a link is improperly designed, the settlement of transactions across the link could subject participants to new or increased risks. In addition to legal and operational risks, linked CSDs and their participants could also face credit and liquidity risks. For example, an operational failure or default in one CSD may cause settlement failures or defaults in a linked CSD and expose participants in the linked CSD, including participants that did not settle transactions across the link, to unexpected liquidity pressures or outright losses. A CSD's default procedures, for example, could affect a linked CSD through loss sharing arrangements. Linked CSDs should identify, monitor, and manage the credit and liquidity risks arising from the linked entity. In addition, any credit extensions between CSDs should be covered fully by high-quality collateral and be subject to limits.<sup>135</sup> Further, some practices deserve particularly rigorous attention and controls. In particular, provisional transfers of securities between linked CSDs should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.

~~3.20.7.~~—An investor CSD should only establish links with an issuer CSD if the link arrangement provides a high level of protection for the rights of the investor CSD's participants. In particular, the investor CSD should use issuer CSDs that provide adequate protection of assets in the event that the issuer CSD becomes insolvent (see Principle 11 on CSDs). In some cases, securities held by an investor CSD can be subject to attachment by the creditors of the CSD or its participants and, as such, can also be subject to

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<sup>135</sup> ——— In exceptional cases, other adequate collateral may be used to secure credit extensions between CSDs subject to the review and assessment by the relevant authorities. See also principle 4 on credit risk; principle 5 on collateral; and principle 7 on liquidity risk.

~~freezing or blocking instructions from local courts or other authorities. Further, if an investor CSD maintains securities in an omnibus account at an issuer CSD and a participant at the investor CSD defaults, the investor CSD should not use the securities belonging to other participants to settle subsequent local deliveries of the defaulting participant. The investor CSD should have adequate measures and procedures to avoid effects on the use of securities belonging to non-defaulting participants in a participant default scenario.~~

~~3.20.8. Furthermore, linked CSDs should have robust reconciliation procedures to ensure that their respective records are accurate and current. Reconciliation is a procedure to verify that the records held by the linked CSDs match for transactions processed across the link. This process is particularly important when three or more CSDs are involved in settling transactions (that is, the securities are held in safekeeping by one CSD or custodian while the seller and the buyer participate in one or more of the linked CSDs) (see also Principle 11 on CSDs).~~

~~3.20.9. If an investor CSD uses an intermediary to operate a link with an issuer CSD, the investor CSD should measure, monitor, and manage the additional risks (including custody, credit, legal, and operational risks) arising from the use of the intermediary. In an indirect CSD-CSD link, an investor CSD uses an intermediary (such as a custodian bank) to access the issuer CSD. In such cases, the investor CSD faces the risk that the custodian bank may become insolvent, act negligently, or commit fraud. Although an investor CSD may not face a loss on the value of the securities, the ability of the investor CSD to use its securities might temporarily be impaired. The investor CSD should measure, monitor, and manage on an ongoing basis its custody risk (see also Principle 16 on custody and investment risks) and provide evidence to the relevant authorities that adequate measures have been adopted to mitigate this custody risk. In addition, the investor CSD should ensure that it has adequate legal, contractual, and operational protections to ensure that its assets held in custody are segregated and transferable (see Principle 11 on CSDs). Similarly, an investor CSD should ensure that its settlement banks or cash correspondents can perform as expected. In that context, the investor CSD should have adequate information on the business continuity plans of its intermediary and the issuer CSD to achieve a high degree of confidence that both entities will perform as expected during a disruptive event.~~

19.3. Where relevant to its operations in Australia, a central counterparty should consult with the Reserve Bank prior to entering into a link arrangement with another FMI.

19.3.1. Prior to entering into a link arrangement with another FMI that is relevant to its operations in Australia, a central counterparty should consult with the Reserve Bank. As part of this consultation, the central counterparty should provide the Reserve Bank with a comprehensive description of the link arrangement. This description should include details of the legal basis of the link, and any financial obligations or operational interdependencies created by the link, including obligations created for both the central counterparty and the linked FMI. A central counterparty should provide sufficient detail to demonstrate that the link arrangement will not adversely affect its compliance with the CCP Standards. Where the Reserve Bank identifies aspects of the proposal that may create unacceptable risks for the central counterparty, the central counterparty should make any necessary changes to the proposal to control or mitigate these risks prior to implementation. These changes may be necessary to ensure that the central counterparty continues to comply with the CCP Standards and equivalent standards in other relevant jurisdictions.

19.3.2. Where a linked FMI's principal place of business is not in Australia, the Reserve Bank may also consult with the regulator of the linked FMI in its principal place of business, in order to understand the overseas regulator's assessment of the link arrangement and to ensure that all relevant legal, regulatory, operational and financial risk issues have been considered and addressed.

19.4. Before entering into a link with another CCP central counterparty, a CCP central counterparty should identify and manage the potential ~~spill-over~~ spillover effects from the default of the linked CCP central counterparty. If a link has three or more CCPs central counterparties, each CCP a central counterparty should identify, assess, and manage the risks of the collective link arrangement.

- ~~19.4.1. 3.20.10. A CCP may establish links with one or more other CCPs. A central counterparty may establish links with one or more other central counterparties.~~ Although the details of individual link arrangements among ~~CCPs~~central counterparties differ significantly because of the varied designs of ~~CCPs~~central counterparties and the markets they serve, there are ~~currently~~ two basic types of ~~CCP~~central counterparty links: peer-to-peer links and participant links.
- ~~19.4.2. 3.20.11.~~ In a peer-to-peer link, a ~~CCP~~central counterparty maintains special arrangements with another ~~CCP~~central counterparty and is not subject to normal participant rules. Typically, however, the ~~CCPs~~central counterparties exchange margin and other financial resources on a reciprocal basis. The linked ~~CCPs~~central counterparties face current and potential future exposures to each other as a result of the process whereby they each net the trades cleared between their participants so as to create novated (net) positions between the ~~CCPs~~central counterparties. Risk management between the ~~CCPs~~central counterparties is based on a bilaterally approved framework, which is different from that applied to a normal participant.
- ~~19.4.3. 3.20.12.~~ In a participant link, one ~~CCP~~central counterparty (the participant ~~CCP~~central counterparty) is a participant in another ~~CCP~~central counterparty (the host ~~CCP~~central counterparty) and is subject to the host ~~CCP's~~central counterparty's normal participant rules. In such cases, the host ~~CCP~~central counterparty maintains an account for the participant ~~CCP~~central counterparty and would typically require the participant ~~CCP~~central counterparty to provide margin, as would be the case for a participant that is not a ~~CCP~~central counterparty. A participant ~~CCP~~central counterparty should mitigate and manage its risk from the link separately from the risks in its core clearing and settlement activities. For example, if the host ~~CCP~~defaultcentral counterparty were to default, the participant ~~CCP~~central counterparty may not have adequate protection because the participant ~~CCP~~central counterparty does not hold collateral from the host ~~CCP~~central counterparty to mitigate the counterparty risk posed to it by the host ~~CCP~~central counterparty. Risk protection in a participant link is one-way, unlike in a peer-to-peer link. ~~The~~A participant ~~CCP~~central counterparty that provides margin but does not collect margin from another linked ~~CCP~~central counterparty should therefore hold additional financial resources to protect itself against the default of the host ~~CCP~~central counterparty.
- ~~19.4.4. 3.20.13.~~ Both types of links – peer-to-peer and participant links – may present new or increased risks that should be measured, monitored, and managed by the ~~CCPs~~central counterparties involved in the link. ~~The most challenging issue, particularly~~ with respect to ~~CCP links is~~ the risk management of the financial exposures that potentially arise from the link arrangement. Before entering into a link with another ~~CCP~~central counterparty, a ~~CCP~~central counterparty should identify and assess the potential spillover effects from the default of the linked ~~CCP~~central counterparty. If a link has three or more ~~CCPs~~, ~~each~~ ~~CCP~~central counterparties, a ~~central counterparty~~ should identify and assess the risks of the collective link arrangement. A network of links between ~~CCPs~~central counterparties that does not properly acknowledge and address the inherent complexity of multi-~~CCP~~central counterparty links could have significant implications for systemic risk.
- ~~19.4.5. 3.20.15.~~ Because of the different possible types of link arrangements, different types of ~~CCPs~~central counterparties, and differences in the legal and regulatory frameworks in which ~~CCPs~~central counterparties may operate, different combinations of risk management tools may be used by the ~~CCP~~central counterparty. When linked ~~CCPs~~central counterparties have materially different risk management frameworks, the risks stemming from the link are more complex. In this case, ~~the linked CCPs~~a ~~central counterparty~~ should carefully assess the effectiveness of ~~their~~its risk management models and methodologies, including ~~their~~its default procedures, in order to determine whether and to what extent ~~their~~ inter-~~CCP~~central counterparty risk management frameworks should be harmonised or whether additional risk mitigation measures would be sufficient to mitigate risks arising from the link.
- ~~3.20.16. A CCP (the first CCP) will usually have to provide margin to a linked CCP for open positions. In some cases, the first CCP may not be able to provide margin that it has collected from its participants to the linked CCP because the first CCP's rules may prohibit the use of its participants' margin for any purpose~~

~~other than to cover losses from a default of a participant in the first CCP, or the first CCP's legal or regulatory requirements may not permit such reuse of its participants' collateral. As such, the CCP would need to use alternative financial resources to cover its counterparty risk to the linked CCP, which is normally covered by margin. If a CCP is allowed to reuse its participants' collateral to meet an inter-CCP margin requirement, such collateral provided by the first CCP must be unencumbered and its use by the linked CCP in the event of the default of the first CCP must not be constrainable by actions taken by the participants of the first CCP. The credit and liquidity risk arising from the reuse of margin should be adequately mitigated by the CCPs. This can be achieved through segregation, protection, and custody of margin exchanged between CCPs in a manner that allows for its swift and timely return to the CCP in case of a decrease in the exposures and that allows for supplemental margin (and, if necessary, supplemental default fund contributions) needed to cover the counterparty risk between the linked CCPs to be charged directly to the participants who use the link service, if applicable.~~

19.4.6. 3.20.17. Linked CCPs~~A central counterparty linked to one or more other central counterparties~~ should maintain arrangements that are effective in managing the risks arising from the link; such arrangements often involve a separate default fund to cover that risk. In principle, the risk-management measures related to the link should not reduce the resources that a CCP central counterparty holds to address other risks. The most direct way to achieve this outcome is for CCPs a central counterparty not to participate in ~~each other's~~another central counterparty's default fund, which may in turn mean that the CCP central counterparty will need to provide additional margin. However, in arrangements in which CCPs central counterparties have agreed, consistent with their regulatory framework, to contribute to each other's default funds, the linked CCPs central counterparty should assess and mitigate the risks of making such contributions via specific conditions. In particular, funds used by a CCP central counterparty to contribute to another CCP's central counterparty's default fund must represent prefunded additional financial resources and must not include resources used by the CCP central counterparty to satisfy its regulatory requirements to hold sufficient capital or participant margin funds (or any other funds, including independent default fund resources) held by the CCP central counterparty to mitigate the counterparty risk presented by its participants. Nor should it include funds held by the central counterparty to fund its plans for recovery or orderly wind-down (see CCP Standard 14 on general business risk). The contributing CCP central counterparty should further ensure that any consequent exposure of its own participants to the risk of a participant default in the linked CCP central counterparty is fully transparent to and understood by its participants. The contributing CCPs central counterparty may, for example, consider it appropriate ~~to ensure that~~ the default fund contribution is made only by those of its participants that use the link, if applicable. Moreover, the resources provided by one CCP central counterparty to another should be held in such a way that they are ring fenced from other resources provided to that CCP central counterparty. For example, securities could be held in a separate account at a custodian. Cash would need to be held in segregated accounts to be considered ~~as~~ acceptable collateral in this case.<sup>136</sup> Finally, in case of a participant default in the first CCP central counterparty, the use of the linked CCP's central counterparty's contribution to the default fund of the first CCP central counterparty could be restricted or limited. For example, the linked CCP's central counterparty's contribution to the default fund could be put at the bottom of the first CCP's central counterparty's default waterfall.

19.4.7. 3.20.18. Link arrangements between CCPs central counterparties will expose each CCP central counterparty to sharing in potentially uncovered credit losses if the linked CCP's central counterparty's default waterfall has been exhausted. For example, a CCP central counterparty may be exposed to loss mutualisation from defaults of a linked CCP's central counterparty's participants. This risk will be greater to the extent that the first CCP central counterparty is unable directly to monitor or control the other CCP's central counterparty's participants. Such contagion risks can be even more serious in cases where more than two CCPs central

counterparties are linked, directly or indirectly, and a CCPcentral counterparty considering such a link should satisfy itself that it can manage such risks adequately. Each CCPA central counterparty should ensure that the consequent exposure of its own participants to a share in these uncovered losses is fully understood and disclosed to its participants. CCPsA central counterparty may consider it appropriate to devise arrangements to avoid sharing in losses that occur in products other than those cleared through the link and to confine any loss sharing to only participants that clear products through the link. Depending on how losses would be shared, CCPsA central counterparty may need to increase financial resources to address this risk.

19.4.8. 3.20.19. Any A central counterparty should ensure that default fund contributions or allocation of uncovered losses should be structured to ensure that (a) no linked CCP; the central counterparty is not treated less favourably than the participants of the other CCPcentral counterparty; and (b) each CCP's the central counterparty's contribution to the loss sharing arrangements of the other is no more than proportionatecentral counterparty is proportional to the risk that the first CCPcentral counterparty poses to the linked CCPcentral counterparty.

19.5. Each CCP in a CCPA central counterparty in a central counterparty link arrangement should be able to cover, at least on a daily basis, its current and potential future exposures to the linked CCPcentral counterparty and its participants, if any, fully with a high degree of confidence without reducing the CCP'scentral counterparty's ability to fulfil its obligations to its own participants at any time.

19.5.1. 3.20.14. Exposures faced by one CCPa central counterparty from a linked CCPcentral counterparty should be identified, monitored, and managed with the same rigour as exposures from a CCP'scentral counterparty's participants to prevent a default at one CCPcentral counterparty from triggering a default at a linked CCPcentral counterparty. Such exposures should be covered fully, primarily through the use of margin or other equivalent financial resources. In particular, each CCPcentral counterparty in a CCPcentral counterparty link arrangement should be able to cover, at least on a daily basis, its current and potential future exposures to the linked CCPcentral counterparty and its participants, if any, fully with a high degree of confidence without reducing the CCP'scentral counterparty's ability to fulfil its obligations to its own participants at any time (see PrincipleCCP Standard 6 on margin). Financial resources used to cover inter-CCPcentral counterparty current exposures should be prefunded with highly liquid assets that exhibit low credit risk. Best practice is for CCPsA central counterparty to have near real-time inter-CCPcentral counterparty risk management. However, at a minimum, financial exposures among linked CCPscentral counterparties should be marked to market and covered on a daily basis. CCPsA central counterparty also needs to consider and address the risks arising from links in designing theirits stress tests and calibrating theirits prefunded default arrangements. Linked CCPsA central counterparty should also take into account the potential effects that possibleon its risk management framework of contributions to each other'sother central counterparties' prefunded default arrangements, exchange of margin, common participants, major differences in their risk management tools, and other relevant features may have on their risk management frameworks, especially in relation to the legal, credit, liquidity, and operational risks they face.

3.20.20. A TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources. A TR can establish links with another TR or with another type of FMI. Such links may expose the linked FMIs to additional risks if not properly designed. Besides legal risks, a link to either another TR or to another type of FMI may involve the potential spillover of operational risk. The mitigation of operational risk is particularly important because the information maintained by a TR can support bilateral netting and be used to provide services directly to market participants, service providers (for example, portfolio compression service providers), and other linked FMIs. FMIs establishing a link to a TR should ensure that the system and communication arrangements between the linked entities are reliable and secure such that the operation of the link does not pose significant reliability and security risks. Moreover, given the role that a TR may play at the beginning of the clearing and settlement process for derivatives transactions, a TR should have governance arrangements that ensure the management of the linked entities would not inhibit the smooth functioning of the link,

~~related risk management arrangements, and non-discriminatory access to the link. Therefore, the scalability of IT and related resources may be especially important.~~

*[Principle 21 on efficiency and effectiveness not directly relevant to financial stability]*

*[Principle 22 on communication procedures and standards not directly relevant to financial stability]*

## **Principle 23 Standard 20: Disclosure of rules, key policies and procedures, and market data**

*[Key Consideration 4 not directly relevant to financial stability]*

~~An FMI~~A central counterparty should have clear and comprehensive rules, policies and procedures and should provide sufficient information and data to enable participants to have an accurate understanding of the risks, ~~fees, and other material costs~~ they incur by participating in the ~~FMI~~central counterparty. All relevant rules and key policies and procedures should be publicly disclosed.

### **~~Explanatory note~~Guidance**

~~3.23.1. An FMI~~A central counterparty should provide sufficient information to its participants and prospective participants to enable them to identify clearly and understand fully the risks and responsibilities of participating in the system. To achieve this objective, ~~an FMI~~a central counterparty should adopt and disclose written rules, policies and procedures that are clear and comprehensive and that include explanatory material written in plain language so that participants can fully understand the system's design and operations, their rights and obligations, and the risks of participating in the system. ~~An FMI's~~A central counterparty's rules, policies, procedures, and explanatory material need to be accurate, up -to -date, and readily available to all current and prospective participants. Moreover, ~~an FMI~~a central counterparty should disclose to participants and the public ~~information on its fee schedule~~, basic operational information, and responses to the CPSS-IOSCO Disclosure Framework for Financial Market Infrastructures.

20.1. An FMIa central counterparty should adopt clear and comprehensive rules, policies and procedures that are fully disclosed to participants. Relevant rules and key policies and procedures should also be publicly disclosed (including specific requirements relating to CCP Standards 1.4, 2.2, 12.3, 13.4, 15.4, 17.2 and 17.3).

20.1.1. 3.23.2. An FMIa central counterparty should adopt clear and comprehensive rules, policies and procedures that are fully disclosed to participants. Relevant rules and key policies and procedures should also be publicly disclosed. ~~An FMI~~A central counterparty's rules, policies and procedures are typically the foundation of the ~~FMI~~central counterparty and provide the basis for participants' understanding of the risks they incur by participating in the ~~FMI~~central counterparty.

20.2. A central counterparty's rules, policies and procedures should clearly identify the nature and scope of the risk exposure assumed by the central counterparty, such as by novation, open offer or other similar legal devices. A central counterparty's rules, policies and procedures should clearly identify the point in the clearing process at which the central counterparty assumes the risk exposure.

20.2.1. A central counterparty should clearly communicate to all its participants the nature and scope of its assumption of risk exposure through novation, open offer or other similar legal devices. This should be clearly set out in the central counterparty's rules, policies and procedures, including identification of the point in the clearing process at which the central counterparty assumes the risk exposure. Clear disclosure of the legal device through which the central counterparty assumes risk exposure will assist participants in identifying and managing their own risks arising from the trading, clearing and settlement process (see CCP Standard 1 on legal basis).

20.3. An FMI/A central counterparty should disclose clear descriptions of the system's design and operations, as well as the central counterparty's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the FMIcentral counterparty (see CCP Standards 2.8 and 9.5).

20.3.1. [3.23.2] As such, relevant Relevant rules, policies and procedures should include clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations of the central counterparty and its participants, so that participants can assess the risk they would incur by participating in the central counterparty.<sup>137</sup> They should clearly outline the respective roles of participants and the FMIcentral counterparty as well as the rules, policies and procedures that will be followed in routine operations and non-routine, though foreseeable, events, such as a participant default (see Principle 13 CCP Standard 12 on participant default rules and procedures). In particular, an FMIa central counterparty should have clear and comprehensive rules, policies and procedures for addressing financial and operational problems within the system. For example, rules, policies and procedures should identify which parties are to be notified of specific events and the timetables for decision-making and notification. They should make clear the degree of discretion parties are able to exercise in taking decisions that can have a direct effect on the operation of the system.

20.3.2. 3.23.3.—In addition to disclosing all relevant rules and key policies and procedures, an FMIa central counterparty should have a clear and fully disclosed process for proposing and implementing changes to its rules, policies and procedures and for informing participants, and the Reserve Bank and other relevant authorities, of these changes. Similarly, the rules, policies and procedures should clearly disclose the degree of discretion that an FMIa central counterparty can exercise over key decisions that directly affect the operation of the system, including in crises and emergencies (see also Principle CCP Standard 1 on legal basis and Principle CCP Standard 2 on governance). For example, an FMI'sa central counterparty's procedures may provide for discretion regarding the extension of operating hours to accommodate unforeseen market or operational problems. An FMI/A central counterparty also should have appropriate procedures to minimise any conflict of interest issues that may arise when authorised to exercise its discretion.

20.4. An FMI/A central counterparty should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the FMI'scentral counterparty's rules, policies and procedures and the risks they face from participating in the FMIcentral counterparty.

20.4.1. 3.23.4.—Participants bear primary responsibility for understanding the rules, policies, procedures, and risks of participating in an FMIa central counterparty as well as the risks they may incur when the FMIcentral counterparty has links with other FMIs. An FMI/A central counterparty, however, should provide all documentation, training, and information necessary to facilitate participants' understanding of the FMI'scentral counterparty's rules, policies and procedures and the risks they face from participating in the FMI participation. New participants should receive training, before using the system, and existing participants should receive, as needed, additional periodic training. An FMI/A central counterparty should disclose to each individual participant stress test scenarios used, individual results of stress tests, and other data to help each participant understand and manage the potential financial risks stemming from participation in the FMIcentral counterparty.<sup>138</sup> Other relevant information that should be disclosed to participants, but typically not to the public, includes key highlights relevant aspects of the FMI'scentral counterparty's business continuity arrangements.<sup>139</sup>

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<sup>137</sup> Information should be disclosed to the extent it would not risk prejudicing the security and integrity of the FMIcentral counterparty or divulging commercially sensitive information, such as trade secrets or other intellectual property.

<sup>138</sup> In disclosing stress-test information to individual participants, central counterparties should avoid revealing information regarding the positions of other individual participants.

<sup>139</sup> Information on business continuity that can undermine an FMI'sa central counterparty's safety and soundness, such as the locations of

~~20.4.2. 3.23.5.—An FMIA central counterparty~~ is well placed to observe the performance of its participants and should promptly identify those participants whose behaviour demonstrates a lack of understanding of, or compliance with, applicable rules, ~~policies, procedures,~~ and risks of participation. In such cases, ~~an FMIA central counterparty~~ should take steps to rectify any perceived lack of understanding by the participant and take other remedial action necessary to protect the ~~FMIcentral counterparty~~ and its participants. This may include notifying senior management within the participant institution. In cases in which the participant's actions present significant risk or present cause for the participant's suspension, the ~~FMIcentral counterparty~~ should notify the ~~appropriate regulatory, supervisory, Reserve Bank and oversight~~~~other relevant~~ authorities.

~~3.23.6.—An FMI should publicly disclose its fees at the level of the individual services it offers as well as its policies on any available discounts. The FMI should provide clear descriptions of priced services for comparability purposes. In addition, an FMI should disclose information on the system design, as well as technology and communication procedures, that affect the costs of operating the FMI. These disclosures collectively help participants evaluate the total cost of using a particular service, compare these costs to those of alternative arrangements, and select only the services that they wish to use. For example, large-value payment systems typically have higher values and lower volumes than retail payment systems, and, as a result, processing costs can be less important to participants than the costs of providing liquidity to fund payments throughout the day. The FMI's design will influence not only how much liquidity participants need to hold in order to process payments but also opportunity costs of holding such liquidity. An FMI should provide timely notice to participants and the public of any changes to services and fees.~~

~~20.5. An FMIA central counterparty~~ should complete regularly and disclose publicly responses to the CPSS-IOSCO Disclosure Framework for Financial Market Infrastructures. ~~An FMIA central counterparty~~ also should, at a minimum, disclose basic ~~data on transaction volumes and values~~~~risk and activity data, as directed by the Reserve Bank from time to time.~~

## Disclosure framework and other information

~~20.5.1. 3.23.7.—An FMIA central counterparty~~ should complete regularly, and disclose publicly, responses to the CPSS-IOSCO Disclosure Framework for Financial Market Infrastructures. The ~~FMIcentral counterparty~~ should provide comprehensive and appropriately detailed disclosures to ~~improvesupport~~ the overall transparency of the ~~FMIcentral counterparty~~, its governance, operations, and risk ~~-management~~ framework. In order for the disclosures to reflect correctly the ~~FMI'scentral counterparty's~~ current rules, ~~policies, procedures,~~ and operations, the ~~FMIcentral counterparty~~ should update its responses following material changes to the system or its environment. At a minimum, ~~an FMIA central counterparty~~ should review its responses to the CPSS-IOSCO Disclosure Framework for Financial Market Infrastructures ~~every two years~~~~each year~~ to ensure continued accuracy and usefulness.

~~20.5.2. 3.23.8.—Other relevant information for participants and, more generally, the public could include general information on the FMI'scentral counterparty's full range of activities and operations, such as the names of direct participants in the FMIcentral counterparty, key times and dates in FMIits operations, and its overall risk -management framework (including its margin methodology and assumptions).<sup>140</sup> An FMI alsoA central counterparty should also disclose its financial condition, financial resources to withstand potential losses, timeliness of settlements, and other performance statistics. With respect to data, an FMIA central counterparty~~ should, at a minimum, disclose basic data on transaction volumes and values.<sup>141</sup>

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~~back-up sites,~~ should not be disclosed to the public. However, this information should be disclosed to the ~~Reserve Bank and other~~ relevant authorities.

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140 A clear description of the typical ~~life cycle~~~~life cycle~~ of the transaction clearing and settlement process under normal circumstances may also be useful for participants and the public. This information would highlight how the ~~FMIcentral counterparty~~ processes a transaction, including the timeline of events, the validation and checks to which a transaction is subjected, and the responsibilities of the parties involved.

~~FRs should also disclose data consistent with Principle 24.~~

margin and collateral holdings, prefunded default resources, and liquid resources. The central counterparty should also disclose any additional data that the Reserve Bank may direct it to disclose from time to time.

## Forms of disclosure

20.5.3. 3.23.9.—An FMI. A central counterparty should make the relevant information and data it discloses as set forth in ~~this report~~these CCP Standards readily available through generally accessible media, such as the internet, in ~~a language commonly used in financial markets~~English in addition to ~~the any other domestic language(s) of~~relevant to the jurisdiction in which the is located~~scope of its operations~~. The data should be accompanied by robust explanatory documentation that enables users to understand and interpret the data correctly.

*[Principle 24 on disclosure of market data by trade repositories not relevant to central counterparties]*

## Standard 21: Regulatory reporting

A central counterparty should inform the Reserve Bank in a timely manner of any events or changes to its operations or circumstances that may materially impact its management of risks or ability to continue operations. A central counterparty should also regularly provide information to the Reserve Bank regarding its financial position and risk controls on a timely basis.

### Guidance

The Corporations Act 2001 and the CCP Standards impose requirements for notification to the Reserve Bank in certain circumstances. This Standard sets out some of these requirements and imposes additional reporting requirements.

Oral notification to the Reserve Bank may be appropriate, particularly in circumstances where timely communication is needed. In practice, this should be followed by notification in writing.

To assist in meeting this Standard, formal points of liaison will be agreed upon between the central counterparty and the Reserve Bank.

21.1. A central counterparty should inform the Reserve Bank as soon as reasonably practicable if:

- (a) it breaches, or has reason to believe that it will breach:
  - (i) a CCP Standard; or
  - (ii) its broader legislative obligation to do, to the extent that it is reasonably practicable to do so, all things necessary to reduce systemic risk;
- (b) it becomes subject to external administration, or has reasonable grounds for suspecting that it will become subject to external administration;
- (c) a related body to the central counterparty becomes subject to external administration, or if the central counterparty has reasonable grounds for suspecting that a related body will become subject to external administration;
- (d) a participant becomes subject to external administration, or if the central counterparty has reasonable grounds for suspecting that a participant will become subject to external administration;
- (e) a participant fails to meet its obligations under the central counterparty's risk control requirements or has its participation suspended or cancelled because of a failure to meet the central counterparty's risk control requirements;
- (f) it fails to enforce any of its own risk control requirements;

- (g) it plans to make significant changes to its risk control requirements or its rules, policies and procedures;
- (h) it or a service it relies on from a third party or outsourced provider experiences a significant operational disruption, including providing the conclusions of its post-incident review;
- (i) any internal audits or independent external expert reviews are undertaken of its operations, risk management processes or internal control mechanisms, including providing the conclusions of such audits or reviews;
- (j) its operations or risk controls are affected, or are likely to be affected, by distress in financial markets;
- (k) it has critical dependencies on utilities or service providers, including providing a description of the dependency and an update if the nature of this relationship changes;
- (l) it proposes to grant a security interest over its assets (other than a lien, right of retention or statutory charge that arises in the ordinary course of business);
- (m) it proposes to incur or permit to subsist any loans from participants or members unless such loans are subordinated to the claims of all other creditors of the central counterparty; or
- (n) any other matter arises which has or is likely to have a significant impact on its risk control arrangements (see also CCP Standards 1.6, 16.10 and 19.3).

21.2. A central counterparty should also provide to the Reserve Bank, on a timely basis:

- (a) audited annual accounts;
- (b) management accounts on a regular basis, and at least quarterly;
- (c) risk management reports, including detailed information on margining and stress testing, on a regular basis, and at least quarterly;
- (d) periodic activity, risk and operational data, as agreed with the Reserve Bank; and
- (e) any other information as specified by the Reserve Bank from time to time.