POLICY STATEMENT TO REGULATION 24–503 RESPECTING CLEARING HOUSE, CENTRAL SECURITIES DEPOSITORY AND SETTLEMENT SYSTEM REQUIREMENTS

PART 1
GENERAL COMMENTS

Introduction

1.1. (1) This Policy Statement ("PS") provides explanatory guidance, and sets out the views of the Autorité des marchés financiers (the "Authority", or "we") on various matters relating to *Regulation 24-503 respecting Clearing House, Central Securities Depository and Settlement System Requirements* (the "Regulation") and related securities legislation.

(2) Except for Part 1, the numbering of Parts, sections and subsections in this PS generally corresponds to the numbering in the Regulation. Any guidance for a Part appears immediately after the Part's name. Specific guidance on a section or subsection in the Regulation follows any general guidance. If there is no guidance for a Part, section or subsection, the numbering in this PS will skip to the next provision that does have guidance. Parts 2 and 3 each contain introductory comments on the guidance provided in the Part (see sections 2.0 and 3.0). Part 3 also contains supplemental guidance in text boxes, which has been jointly developed by the Canadian authorities.

(3) Unless otherwise stated, any reference to a Part, section, subsection, paragraph or definition in this PS is a reference to the corresponding Part, section, subsection, paragraph or definition in the Regulation.

Background

1.2. (1) Section 169 of the *Securities Act* (chapter V-1.1), as amended, prohibits clearing houses, central securities depositories and settlement systems ("SS")[1] from carrying on activities in Québec unless they are recognized by the Authority or are exempt from the requirement to be recognized by the Authority. Similarly, section 12 of the *Derivatives Act* (chapter I-14.01) prohibits clearing houses and settlement systems from carrying activities in Québec unless they are recognized as a clearing house or a settlement system.

(2) The Regulation sets out certain requirements in connection with the application process for recognition as a clearing house, a central securities depository or a settlement system or exemption from the recognition requirement. Guidance on the Authority's regulatory approach to such an application is set out in this PS. The Regulation also sets out on-going requirements for recognized clearing houses, central securities depositories and settlement systems which are largely based on international standards developed jointly by the Committee on Payment and Settlement Systems of the Bank for International Settlements and the Board of the International Organization of Securities Commissions ("CPSS-IOSCO Principles") that apply to financial market infrastructures ("FMIs").[2]

(3) The CPSS-IOSCO Principles are international minimum standards for systemically important payment systems ("PSs"), central securities depositories ("CSDs"), securities settlement systems ("SSSs"), central counterparties ("CCPs") and trade repositories ("TRs"), collectively identified as FMIs. The CPSS-IOSCO Principles

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[1] Québec Securities Act and Derivatives Act refer to a "settlement system". See definition of a "settlement system" in section 1.1 of the Regulation

[2] See the CPSS-IOSCO *Principles for Financial Market Infrastructures* Report, published in April 2012, available on the Bank for International Settlements' website (www.bis.org) and the IOSCO website (www.iosco.org).

harmonize and, where appropriate, strengthen previous international standards for FMIs.[3] Part 3 of the Regulation incorporates those principles that are relevant to entities that meet the definition of a "clearing house" in securities legislation and that act as, or perform the services of, a CCP, CSD and SS or to entities that carry on the activity of central securities depository or settlement system, for which services and activities they are recognized by the Authority.

Definitions and interpretation

1.3. (1) Unless otherwise defined in section 1.1 of the Regulation or subsection 1.3(3) of this PS, the terms in the Regulation and this PS have the meaning given to them in the Regulation or securities legislation, including, for greater certainty, in *Regulation 14-101 respecting Definitions* (chapter V-1.1, r. 3) and *Regulation 14-501Q respecting Definitions* (chapter V-1.1, r. 4).

(2) With respect to the terms defined in section 1.1 of the Regulation, for greater clarity,

(a) the purpose of a "concentration limit" is to help avoid concentrated holdings of certain collateral assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects;

(b) a "haircut", when used in relation to collateral received by a clearing house or a settlement system to manage credit risk, is used by a clearing house or a settlement system to protect itself from losses resulting from declines in the market value of the collateral in the event that the clearing house needs to liquidate the collateral.

(3) In this PS,

"Canadian authorities" means the Bank of Canada and applicable Canadian securities regulatory authorities that have regulatory authority over clearing houses[4];

"CPSS" means the Committee on Payment and Settlement Systems of the Bank for International Settlements;

"FMI" means a financial market infrastructure, which the PFMI Report describes as follows: PSs, CSDs, SSSs, CCPs and TRs;

"IOSCO" means the Board of the International Organization of Securities Commissions;

"PFMI Report" means the April 2012 Report *Principles for financial market infrastructures* published by the CPSS and IOSCO, which contains the CPSS-IOSCO Principles;

"principle" means, unless the context otherwise indicates, a principle forming part of the CPSS-IOSCO Principles, as set out in the PFMI Report.

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[3] See the (i) 2001 CPSS report *Core principles for systemically important payment systems*, (ii) 2001 CPSS-IOSCO report *Recommendations for securities settlement systems* (together with the 2002 CPSS-IOSCO report *Assessment methodology for Recommendations for securities settlement systems*); and (iii) 2004 CPSS-IOSCO report *Recommendations for central counterparties*. All of these reports are available on the Bank for International Settlements' website (www.bis.org). The CPSS-IOSCO reports are also available on IOSCO website (www.iosco.org).

[4] Currently, Canadian authorities are comprised of the Bank of Canada, Ontario Securities Commission, British Columbia Securities Commission and the Authority.

Application

1.4. (1) Subsection 1.4(1) of the Regulation specifies that Part 3 of the Regulation applies, unless the context otherwise indicates, to a recognized clearing house that acts as, or performs the services of, any of a CCP, CSD or SS. A securities clearing house can be a CCP, CSD or SS. A securities clearing house that acts as, or performs the services of, any of a CSD or SS must also be recognized as a CSD or a SS to carry on such activities in Québec under section 169 of the *Securities Act*. Where a central securities depository or a settlement system carries on activities separately from a clearing house, it must be recognized distinctly from the clearing house as a CSD or a SS. The term "clearing house" is defined in section 3 of the *Derivatives Act*, which definition must be read jointly with the notion of "derivatives clearing" under section 46 of this Act. A derivatives clearing house is typically a CCP that acts as, or performs the services of, a SS. Such derivatives clearing house must also be recognized as a SS to carry on its activities in Québec, under section 12 of the *Derivatives Act*. The terms CCP, CSD and SS are defined in section 1.1 of the Regulation. PSs and TRs are not clearing houses and therefore are not covered by the Regulation.

The Authority notes that, while Part 3 applies to a recognized clearing house that acts as, or performs the services of, a CCP, CSD or SS, to a recognized central securities depository and to a recognized settlement system, the activities of a clearing house for securities, a central securities depository or a settlement system are broad and may incorporate certain functions that are not necessarily those of a CCP, CSD or SS.

(2) As currently drafted, section 3.14 of the Regulation on segregation and portability applies to all CCPs serving the cash or derivatives markets, whether exchange-traded or over-the-counter (OTC) products. In February 2012, the Canadian Securities Administrators Derivatives Committee (CSA Derivatives Committee) published the Consultation Paper 91-404 entitled *Derivatives: Segregation and Portability in OTC Derivatives Clearing*. The CSA Derivatives Committee is currently developing a proposed CSA model provincial rule (CSA Model Rule) on customer clearing and protection of customer collateral and positions that would implement some of the recommendations made in Consultation Paper 91-404, in line with Principle 14 on segregation and portability. Therefore, a clearing house that acts as a CCP for the clearing and settlement of trades in over-the-counter derivatives may, concurrently with this Regulation, be subject to a provincial regulation derived from the CSA Model Rule on customer clearing and protection of customer collateral and positions. In these circumstances, the provisions of such a provincial regulation applicable to over-the-counter derivatives would prevail over some provisions of Part 3 of the Regulation.

The terms "derivative" and "over-the-counter derivative" are broadly defined in s. 3 of the *Derivatives Act*, but s. 6 of this Act excludes specific listed instruments from its application and further provides that any other instrument can be excluded from the scope of this Act by mean of a regulation.

PART 2
CLEARING HOUSE, CENTRAL SECURITIES DEPOSITORY AND SETTLEMENT SYSTEM RECOGNITION OR EXEMPTION FROM RECOGNITION

Regulatory framework for recognition or exemption of clearing houses, central securities depositories and settlement systems

2.0. (1) Part 2 of the Regulation governs the application process for recognition of a clearing house, a central securities depository or asettlement system that seeks to carry on activities in Québec, or for an exemption from the recognition requirement.

Recognition of a clearing house, central securities depository and sttlement system

(2) A clearing house, a central securities depository or a settlement system that seeks to carry on activities in Québec is required to either apply for recognition or for an exemption under the *Securities Act* or the *Derivatives Act*. Generally, the Authority takes the view that a clearing house, a central securities depository or a settlement system that is systemically important to the Québec capital markets ("local systemic importance"), or that is not subject to regulation by another regulatory body, should be recognized. Recognition by the Authority means that the clearing house, the central securities depository or settlement system would be subject to Part 3 of the Regulation, where the clearing house acts as, or performs any of the services of, a CCP, CSD or SS or where the central securities depository or settlement system carries on its activities distinctly from a clearing house. See also subsection 1.4(1) of this PS.

(3) For the purposes of the Regulation and this PS, the Authority may consider the local systemic importance of a clearing house, a central securities depository or a settlement system to the Québec capital markets based on the following list of guiding factors: value and volume of transactions processed, cleared and settled by the entity, risk exposures of the entity to its participants, complexity and centrality of the entity, with respect to its role in the market, its substitutability, and its relationships, interdependencies and interactions.

(4) In respect of the value and volume of transactions processed, deposited, cleared or settled by an applicant, the Authority may consider the current aggregate monetary values and volumes of such transactions, as well as the entity's potential for growth. Risk exposures, both credit and liquidity-related, may also be considered. In addition, the Authority may look to the nature and complexity of the entity, taking into account an analysis of the various products it processes, clears or settles. Finally, the Authority may assess the centrality or importance of the entity to the particular market or markets it serves, based on the degree to which it critically supports, or that its failure or disruption would affect, such markets.

(5) No single factor described above will be determinative in an assessment of local systemic importance. Further, the list of guiding factors is non-exhaustive. The Authority retains the ability to consider additional quantitative and qualitative factors as may be relevant and appropriate. Additional factors may be based on the characteristics of the entity under review, such as the nature of its operations, its corporate structure, or its business model.

Exemption from recognition

(6) Depending on the circumstances, the Authority may grant a clearing house, a central securities depository or a settlement system an exemption from recognition subject to appropriate terms and conditions where it is not considered locally systemically important or where it does not otherwise pose significant risk to the Québec capital markets. In such cases, the Authority may also impose terms and conditions that would generally be analogous to certain requirements found in Part 3 of the Regulation. In addition, a clearing house, a central securities depository or a settlement system based outside of Québec that is carrying on activities or intends to carry on activities in the province would generally be required to apply either for recognition or for an exemption from recognition.[5] We recognize, however, that such entity may already be subject to a regulatory regime in its home jurisdiction. Accordingly, full regulation may be duplicative and inefficient when imposed in addition to the regulation of the home jurisdiction. The Authority may therefore grant the clearing house, the central securities depository or settlement system an exemption from the recognition requirement. In almost all cases, the exemption will be subject to certain terms and conditions, including reporting requirements.

[5] A clearing house, a central securities depository or a settlement system that offers to provide its services or facilities to a person resident in Québec would be considered to be carrying on activities in Québec.

Where the regulatory regime of the clearing house's, central securities depository's or settlement system's home jurisdiction is not comparable to that of Québec, the Authority may also consider it necessary to impose additional requirements.

Application and initial filing of information

2.1. The application process for both recognition and exemption from recognition as a clearing house, a central securities depository or a settlement system is similar. The entity that applies to be recognized or exempted will typically be the entity that operates the facility or performs the functions of a clearing house, a central securities depository or a settlement system as defined in the *Derivatives Act* and the Regulation. Where an applicant owns and operates more than one facility or performs more than one function (e.g. of CCP, CSD and SS), it may choose to file one set of application materials to cover all of the facilities or functions, or it may file separate application materials in respect of each facility or function.

An application for recognition or for an exemption from the recognition requirement, will require completion of appropriate documentation. This will include an application package consisting of the applicant's most recently completed CPSS-IOSCO FMI Disclosure Framework Document[6], sufficient information to demonstrate the applicant's compliance with securities legislation and any additional information which demonstrates that it is in the public interest for the Authority to recognize or exempt the applicant as a clearing house, a central securities depository or a settlement system under the *Securities Act* or the *Derivatives Act*. Together, the application materials should present a detailed description of the history, regulatory structure (if any), and business operations of the entity. A clearing house that acts as, or performs the service of, a CCP, CSD or SS or a central securities depository or settlement system will need to describe how it meets the requirements of Part 3 of the Regulation, or, if the applicant has its head office or principal place of business located outside of Québec, how the entity meets requirements that are substantively similar to those in Part 3 of the Regulation and in the securities legislation. An applicant located outside of Québec should also provide a detailed description of the regulatory regime of the home jurisdiction and the regulatory requirements imposed on the clearing house, the central securities depository or a settlement system in its home jurisdiction, along with the certification and opinion of legal counsel required under subsection 2.1(2) of the Regulation.

Where specific information items of the CPSS-IOSCO FMI Disclosure Framework Document are not relevant to an applicant because of the nature or scope of its clearing house, depository or settlement activities, its structure, the products it clears, deposits or settles, or its regulatory environment, the application should explain in reasonable detail why the information items are not relevant.

The application package filed by an applicant under the Regulation will generally be kept confidential in accordance with securities legislation but the application for recognition or for exemption from recognition will be made public. The Authority may, if it considers that it is in the public interest to do so, require the applicant to publicly disclose a summary of the information contained in its application materials. Alternatively, the clearing house, the central securities depository or settlement system may publicly disclose its responses to the CPSS-IOSCO FMI Disclosure Framework Document.

Significant changes and other changes in information

2.2. (2) Under subsection 2.2(2) of the Regulation, a recognized clearing house, central securities depository or settlement system must receive prior written approval for implementing a "significant change", as defined in subsection (1), except as otherwise

[6] The CPSS-IOSCO FMI Disclosure Framework Document, as defined in s. 1.1 of the Regulation, entails the *FMI Disclosure Template* found in Annex A of the *Principles for Financial Market Infrastructures; Disclosure framework and Assessment methodology*, published in December 2012. It is available on the Bank for International Settlements' website (www.bis.org) and the IOSCO website (www.iosco.org).

provided in the “notice and approval protocol”[7] or under section 22 of the *Derivatives Act*, as applicable. In Québec, any amendment, and not only material or significant changes, to a recognized derivatives clearing house’s operating rules must follow the self-certification process established in the *Derivatives Regulation* and the required notice be filed with the Authority. Except for amendment to operating rules of a recognized derivatives clearing house or settlement system, the procedures for notifying the Authority of a significant change and for the Authority’s review, approval and publication of the significant change, will be set out in the notice and approval protocol, a term defined in subsection 2.2(1) of the Regulation.

(4) The Authority generally considers a change in a recognized clearing house’s, central securities depository’s or settlement system’s fees or fee structure to be a significant change. However, the Authority recognizes that a recognized clearing house, central securities depository or settlement system may frequently change their fees or fee structure and may need to implement fee changes within tight timeframes. To facilitate this process, subsection 2.2(4) of the Regulation provides that a recognized entity may provide information that describes the change in fees or fee structure in a shorter timeframe (at least 30 days before the expected implementation date of the change in fees or fee structure).

Ceasing to carry on activities

2.3. A recognized or exempt clearing house, central securities depository or settlement system that intends to cease carrying on activities in Québec, either voluntarily or involuntarily, must file a completed Form 24-503F2 *Cessation of Activities Report* within the appropriate timelines.

A recognized clearing house, central securities depository or settlement system intending to cease carrying on activities in Québec must also apply to obtain such authorization from the Authority pursuant to section 88 of *An Act respecting the Autorité des marchés financiers* or section 53 of the *Derivatives Act*. The Authority shall give the authorization on the conditions it determines where it believes the interests of the organization’s members and the public are sufficiently protected.

Legal entity identifiers

2.6. Section 2.6 of the Regulation requires that a clearing house, a central securities depository or settlement system that applies to be recognized or exempted from the recognition requirement possess and utilize a legal entity identifier (“LEI”) for the purposes of any recordkeeping and reporting requirements required under securities legislation . It is envisioned that this identifier be a LEI under the Global LEI System. The Global LEI System is a G20 endorsed initiative[8] that will uniquely identify parties to transactions. It is currently being designed and implemented under the direction of the LEI System Regulatory Oversight Committee (“ROC”), a governance body endorsed by the G20.

(2) The “Global Legal Entity Identifier System” referred to in subsection 2.6(2) and paragraph 2.6(4)(a) of the Regulation is a G20 endorsed system that will serve as a public-good utility responsible for overseeing the issuance of legal entity identifiers globally to counterparties who enter into transactions.

(3) If the Global LEI System is not available at the time a clearing house, a central securities depository or a settlement system is required to fulfill its recordkeeping or reporting requirements under securities legislation, it must use a substitute legal entity identifier. The substitute legal entity identifier must be in accordance with the standards established by the LEI System ROC for pre-LEI identifiers. At the time the Global LEI System is operational, a clearing house, a central securities depository or a settlement

[7] The recognition decision can also relieve the clearing house from some of the requirements to seek prior approval for the implementation of a significant change.
[8] See http://www.financialstabilityboard.org/list/fsb_publications/tid_156/index.htm for more information.

system or its affiliates must cease using their substitute LEI and commence using their LEI. It is conceivable that the two identifiers could be identical.

PART 3
ON-GOING REQUIREMENTS APPLICABLE TO RECOGNIZED CLEARING HOUSES, CENTRAL SECURITIES DEPOSITORIES AND SETTLEMENTS SYSTEMS

Introduction

3.0. **(1)** Part 3 of the Regulation contains on-going requirements applicable to recognized clearing houses, central securities depositories or settlement systems. The requirements are primarily derived from the international minimum standards applicable to FMIs set out in the PFMI Report. Those principles that are relevant to clearing houses that act as, or perform the services of, a CCP, CSD or SS or to central securities depositories or settlement systems are adapted here to the Québec and Canadian context.

General drafting and interpretive approaches to Part 3 of the Regulation and PS

(2) Unless the context otherwise requires, the provisions of Part 3 of the Regulation are intended to be interpreted in a manner consistent with the relevant headline principles in the PFMI Report, each principle's key considerations, and the related explanatory notes. In this regard, and unless otherwise specified, Part 3 of the Regulation should be read in concert with the PFMI Report. For provisions in the Regulation that are not based on the PFMI Report, additional guidance is provided in a relevant subsection of this PS. Moreover, where the Canadian authorities have jointly developed supplementary guidance in order to provide additional discussion and clarity on certain aspects of these new standards in the Canadian context that are not dealt with in the PFMI Report, such supplementary guidance is inserted in a separate text box in this PS, to highlight its importance.

The following sections in Part 3 of the Regulation generally correspond to the following CPSS-IOSCO Principles:

Relevant section of the Regulation	**Principle in the PFMI Report**
3.1 – Legal framework	Principle 1: Legal basis
3.2 – Governance	Principle 2: Governance
3.3 – Framework for comprehensive management of risks	Principle 3: Framework for comprehensive management of risks
3.4 – Credit risk	Principle 4: Credit risk
3.5 – Collateral	Principle 5: Collateral
3.6 – Margin	Principle 6: Margin
3.7 – Liquidity risk	Principle 7: Liquidity Risk
3.8 – Settlement finality	Principle 8: Settlement finality
3.9 – Money settlements	Principle 9: Money settlements
3.10 – Physical deliveries	Principle 10: Physical deliveries
3.11 – Central securities depositories	Principle 11: Central securities depositories
3.12 – Exchange-of-value settlement systems	Principle 12: Exchange-of-value-settlement systems
3.13 – Participant default rules and procedures	Principle 13: Participant-default rules and procedures
3.14 – Segregation and portability	Principle 14: Segregation and portability
3.15 – General business risk	Principle 15: General business risk
3.16 – Custody and investment risks	Principle 16: Custody and investment risks
3.17 – Operational risks	Principle 17: Operational risks
3.18 – Access, participation requirements and due process	Principle 18: Access and participation arrangements
3.19 – Tiered participation arrangements	Principle 19: Tiered participation arrangements
3.20 – Links with other financial market infrastructures	Principle 20: FMI links
3.21 – Efficiency and effectiveness	Principle 21: Efficiency and effectiveness
3.22 – Communication procedures and standards	Principle 22: Communication procedures and standards
3.23 – Transparency	Principle 23: Disclosure of rules, key procedures, and market data

In each section of Part 3 of the Regulation, one or more subsections set forth a high-level principle applicable to a recognized clearing house, a central securities depository or a settlement system that generally corresponds to the relevant headline principle in the PFMI Report. Most sections include additional subsections that are intended to set forth, without limiting the general principle in each section, certain detailed aspects of the general principle that correspond to a key consideration in the PFMI Report. In certain other cases, additional subsections set out one or more specific requirements that are related to the general principle or address a matter of a similar nature.

Most of the explanatory notes from the PFMI Report are incorporated in the PS. The explanatory notes discuss each principle's objective and rationale, and provide guidance on how a standard can be implemented. As noted above, supplementary guidance from the Canadian authorities is also included in text boxes in this PS.

Legal framework

General principle

3.1. (1) A clearing house, a central securities depository or a settlement system should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities. Subsection 3.1(1) of the Regulation requires a recognized clearing house, a central securities depository or a settlement system to establish, implement, maintain and enforce appropriate policies and procedures to achieve this legal basis. A robust legal basis for an entity's activities is critical to its overall soundness. The legal basis defines, or provides the foundation for relevant parties to define, the rights and obligations of the entity, its participants, and other relevant parties, such as its participants' customers, custodians, settlement banks, 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 clearing house, the central securities depository or settlement system. Therefore, if risk management is to be sound and effective, the enforceability of rights and obligations relating to the entity and its risk management should be established with a high degree of certainty. If the legal basis for the entity's activities and operations is inadequate, uncertain, or opaque, then the clearing house, the central securities depository or settlement system, its participants, and their customers may face unintended, uncertain, or unmanageable credit or liquidity risks, which may also create or amplify systemic risks.

The legal basis consists of the legal framework and the clearing house's, central securities depository's or settlement system'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 the entity's activities include those governing its authorization and its regulation, supervision, and oversight; rights and interests in financial instruments; settlement finality; netting; immobilization and dematerialization of securities; arrangements for exchange of value settlement systems; collateral arrangements (including margin arrangements); default procedures; and the resolution of the clearing house, the central securities depository or settlement system. The entity should establish rules, procedures, and contracts that are clear, understandable, and consistent with the legal framework and provide a high degree of legal certainty. The entity also should consider whether the rights and obligations of the clearing house, the central securities depository or settlement system, 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.

Comprehensive and enforceable rules

(2) Subsection 3.1(2) of the Regulation articulates the requirement that the clearing house's, central securities depository's or settlement system's rules, procedures and related contracts be clear and comprehensive.

(a) The requirement under paragraph 3.1(2)(a) of the Regulation includes explanatory material that should be written in plain language such that participants (and where relevant, participants' customers) can fully understand the system's design and operations, their rights and obligations, and the risks, fees and other material costs of participating in the system.

(d) The rules, procedures and related contracts must also be enforceable in Québec. In particular, the legal basis should support the enforceability of the participant-default rules and procedures that the clearing house, the central securities depository or settlement system uses to handle a defaulting or insolvent participant, especially any transfers and close-outs of a direct or indirect participant's assets or positions.

(e) Paragraph 3.1(2)(e) of the Regulation requires the rules, procedures and related contracts of the clearing house, the central securities depository or settlement system provide a reasonable degree of certainty that any actions taken under such rules and procedures will not be voided, reversed, or subject to stays. For example, ambiguity about the enforceability of procedures that facilitate the implementation of the entity's plans for recovery, orderly wind-down, or resolution could delay and possibly prevent it or the relevant authorities from taking appropriate actions and hence increase the risk of a disruption to its critical services or a disorderly wind-down. In the case that the entity 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 the clearing house, the central securities depository or settlement system or the transfer of all or parts of the rights and obligations provided in a link arrangement to a new entity.

Articulating legal basis

(3) The clearing house, the central securities depository or settlement system 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 the entity'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 entity's rules and procedures and must provide reasoned support for its conclusions. The clearing house, the central securities depository or settlement system should consider sharing these legal opinions and analyses with its participants in an effort to promote confidence among participants and transparency in the system. In addition, the entity should seek to ensure that its activities are consistent with the legal basis in all relevant jurisdictions. These jurisdictions could include (a) those where the entity is conducting activities (including through linked clearing houses, central securities depositories or settlement systems); (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.

Conflict-of-laws issues

(4) Legal risk due to conflict of laws may arise if the clearing house, the central securities depository or settlement system is, or may reasonably 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, under subsection 3.1(4) of the Regulation, the clearing house, the central securities depository or settlement system is required to identify and analyze potential conflict-of-laws issues and ensure its policies and procedures are designed to mitigate risk. For example, the rules governing its activities should clearly indicate the law that is intended to apply to each aspect of the entity's operations. The entity and its participants should be aware of applicable constraints on their abilities to choose the law that will govern the entity's activities when there is a difference in the substantive laws of the 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 the entity's choice of law in relevant jurisdictions, it should obtain reasoned and independent legal opinions and analysis in order to address properly such uncertainty.

In general, there is no substitute for a sound legal basis and full legal certainty. In some practical situations, however, full legal certainty may not be achievable. In such cases, the clearing house, the central securities depository or settlement system should investigate steps to mitigate its legal risk through the selective use of alternative risk-management tools that do not suffer from legal uncertainty. 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 the clearing house's, central securities depository's or settlement system's exposure if its activities are found to be not supported by relevant laws and regulations. If such controls are insufficient or not feasible, the entity could apply activity limits and, in extreme circumstances, restrict access or not perform the problematic activity until the legal situation is addressed.

Governance

General principle

3.2. (1) Governance is the set of relationships between a clearing house's, a central securities depository's or settlement system's owners, board of directors (or equivalent), management, and other relevant parties, including participants, authorities, and other stakeholders (such as participants' customers, other interdependent clearing houses, central securities depositories or settlement systems and the broader market). Governance provides the processes through which an organization sets its objectives, determines the means for achieving those objectives, and monitors performance against those objectives. Good governance provides the proper incentives for an entity's board and management to pursue objectives that are in the interest of its stakeholders and that support relevant public interest considerations. Under subsection 3.2(1) of the Regulation, a recognized clearing house, central securities depository or settlement system is required to establish, implement and maintain written governance arrangements that meet certain public interest policy objectives. The clearing house, the central securities depository or settlement system should have objectives that place a high priority on the safety and efficiency of the entity and explicitly support financial stability and other relevant public interest considerations. Further guidance by the Canadian authorities is given in Box 1 below.

Box 1:
Additional Joint Guidance from the Canadian Authorities – Financial Stability and Other Public Interest Considerations

Context

This guidance was prepared by the Canadian authorities to provide additional context and clarity on certain aspects of these new standards in the Canadian context.

The PFMI Report defines governance as the set of relationships between an FMI's owners, board of directors (or equivalent), management, and other relevant parties, including participants, 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. This note provides supplementary regulatory guidance for Canadian FMIs on their governance arrangements as it relates to supporting relevant public interest considerations.

Public interest considerations in the context of the PFMI Report

The PFMI Report indicates that FMIs should "explicitly support financial stability and other relevant public interests." However, there may be circumstances where providing explicit support of relevant public interests conflict with other FMI objectives and therefore require appropriate prioritization and balancing. For example, addressing the potential trade-offs between protecting the participants and the FMI while ensuring the financial stability interests are upheld.

Guidance within the PFMI Report

The following text has been extracted directly from the PFMI Report. The pertinent information is in bold.

PFMI Report, paragraph 3.2.2: **Given the importance of FMIs and the fact that their decisions can have widespread impact, affecting multiple financial institutions, markets, and jurisdictions, it is essential for each FMI 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.** For example, in certain over-the-counter derivatives markets, industry standards and market protocols have been developed to increase certainty, transparency, and stability in the market. If a CCP 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 governance arrangements should also include appropriate consideration of the interests of participants, participants' customers, relevant authorities, and other stakeholders. *(...)* For all types of FMIs, governance arrangements should provide for fair and open access (see Principle 18 on access and participation requirements) and for effective implementation of recovery or wind-down plans, or resolution.

PFMI Report, paragraph 3.2.8: **An FMI'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) 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.

The CPSS-IOSCO PFMI Disclosure framework and Assessment methodology provides questions to guide the assessment of the FMI against the PFMI Report. Questions related to public interest considerations are focused on ensuring that the FMI's objectives are clearly defined, giving a high priority to safety, financial stability and efficiency while also ensuring all other public interest considerations are identified and reflected in the FMI's objectives.

Supplementary Guidance for designated Canadian FMIs

- By definition the PFMIs apply to systemically important FMIs, so safety and financial stability objectives should be given a high priority.

- Efficiency is also a high priority that should contribute to (but not supersede) the safety and financial stability objectives.

- Other public interest considerations such as competition and fair and open access should also be considered in the broader safety and financial stability context.

- A framework (objectives, policies and procedures) should be in place for default and other emergency situations. The framework should articulate explicit principles to ensure financial stability and other relevant public interests are considered as part of the decision making process. For example, it should provide guidance on discretionary management decisions, consider the trade-offs between protecting the participants and the FMI while also ensuring the financial stability interests are upheld, and articulate a communication protocol with the board and regulators.

- Practical questions/approaches to assessing the appropriateness of the framework include:

- Does the enabling legislation, articles of incorporation, corporate by-laws, corporate mission, vision statements, corporate risk statements/frameworks/methodology clearly articulate the objectives and are they appropriately aligned and communicated (transparent)?

- Do the objectives give appropriate priority to safety, financial stability, efficiency and other public interest considerations?

- Does the Board structure ensure the right mix of skills/experience and interests are in place to ensure the objectives are clear, appropriately prioritized, achieved and measured?

- What is the training provided to the Board and management to support the objectives?

- Do the service offerings and business plans support the objectives?

- Do the system design, rules, procedures support the objectives?

- Are the inter-dependencies and key dependencies considered and managed in the context of the broader financial stability objectives? For instance, do problem and default management policies and procedures appropriately provide for consideration of the broader financial stability interests and do they engage the key stakeholders and regulators?

- Are there procedures in place to get timely engagement of the Board to discuss emerging/current issues, consider scenarios, provide guidance and make decisions?

- Does the framework ensure that the broader financial stability issues are considered in any actions relating to a participant suspension?

Board of directors and documented governance arrangements

(2) Further to the general principle under subsection 3.2(1) of the Regulation, paragraph 3.2(2)(a) of the Regulation requires that the clearing house, the central securities depository or settlement system have a board of directors. Under subparagraph 3.2(2)(b)(i) of the Regulation, the clearing house, the central securities depository or settlement system is also required to provide clear and direct lines of responsibility and accountability related to its governance arrangements, particularly between management and the board. Under subparagraph (ii), these arrangements must be publicly disclosed. Governance arrangements, which define the structure under which the board and management operate, should include certain key components such as: (i) the role and composition of the board and any board committees, (ii) senior management structure, (iii) reporting lines between management and the board, (iv) ownership structure, (v) internal governance policy, (vi) design of risk management and internal controls, (vii) procedures for the appointment of board members and senior management, and (viii) processes for ensuring performance accountability. Subparagraph 3.2(b)(iii) of the Regulation requires that the roles of the clearing house's, central securities depository's or settlement system's board of directors be clearly specified. These roles and responsibilities should include: (i) establishing clear strategic aims for the entity; (ii) ensuring effective monitoring of senior management (including selecting its senior managers, setting their objectives, evaluating their performance, and, where appropriate, removing them); (iii) 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 entity); (iv) establishing and overseeing the risk-management function and material risk decisions; (v) overseeing internal control functions (including ensuring independence and adequate resources); (vi) ensuring compliance with all supervisory and oversight requirements; (vii) ensuring consideration of financial stability and other relevant public interests; and (viii) providing accountability to the owners, participants, and other relevant stakeholders. Finally, subparagraph 3.2(b)(iv) of the Regulation requires that the documented governance arrangements ensure sufficient independence for key functions such as risk management, internal control, and audit.

Depending on its ownership structure and organizational form, the clearing house, the central securities depository or settlement system may need to focus particular attention on certain aspects of its governance arrangements. If the entity is part of a larger organization, for example, it 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 organization's structure. The clearing house's, central securities depository's or settlement system's governance arrangements should also be adequate to ensure that decisions of affiliated organizations are not detrimental to the entity. If the clearing house, the central securities depository or settlement system is, or is part of, a for-profit entity, it may need to place particular emphasis on managing any conflicts between income generation and safety. Where relevant, cross-border issues should be appropriately identified, assessed, and dealt with in the governance arrangements, both at the clearing house level and at the level(s) of its parent entity(ies).

Where the clearing house, the central securities depository or settlement system is part of a larger organization, additional guidance has been given by the Canadian authorities in Box 2.

Box 2:
Additional Joint Guidance from the Canadian authorities – Vertically and Horizontally Integrated FMIs

Context

This guidance was prepared by the Canadian authorities to provide additional context and clarity on certain aspects of these new standards in the Canadian context.

Consolidation, or integration, of FMI services may bring about benefits for merging FMIs; however it may also create new governance challenges. The PFMI Report contains some general guidance regarding how FMIs should manage governance issues that arise in integrated entities. This note provides supplementary regulatory guidance for Canadian FMIs that either belong to an integrated entity or are considering consolidating with another entity to form one. The guidance applies to both vertically and horizontally integrated entities.

Vertical and horizontal integration in the context of FMIs

CPSS defines a vertically integrated FMI group as one that brings together post-trade infrastructure providers under common ownership with providers of other parts of the value chain (for example, one entity owning and operating an exchange, central counterparty (CCP) and securities settlement system (SSS)) and a horizontally integrated group as one that provides the same post-trade service offerings across a number of different products(for example, one entity offering CCP services for derivatives and cash markets).[9]

Guidance within the PFMI Report

The following text has been extracted directly from the PFMI Report. The pertinent information is in bold.

PFMI Report, paragraph 3.2.5: Depending on its ownership structure and organisational form, an FMI 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.[10] An FMI 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.**

PFMI Report, paragraph 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.** The ownership structure and organisational form may also need to be considered in the preparation and implementation of the FMI's recovery or wind-down plans or in assessments of the FMI's resolvability.

Supplementary guidance for designated Canadian FMIs

An FMI that is part of a larger entity faces additional risk considerations compared to stand-alone FMIs. While there are potential benefits from integrating services into one large entity, including potential risk reduction benefits, integrated entities could face additional risks such as a greater degree of general business risk. Examples of how this could occur include the following:

- losses in one function may spill-over to the entity's other functions;
- the consolidated entity may face high combined exposures across its functions; and
- the consolidated entity may face exposures to the same participants across its functions.

[9] CPSS-IOSCO 2010. "Market structure developments in the clearing industry: implications for financial stability." CPSS-IOSCO Paper No 92. Available at: http://www.bis.org/publ/cpss92.htm.
[10] 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.

For a more extensive discussion of potentially heightened risks that integrated FMIs may face, see CPSS-IOSCO, "Market structure developments in the clearing industry: implications for financial stability" (2010).

If an FMI belongs to a larger entity, or is considering consolidating with another entity, it should consider how its risk profile differs as part of the consolidated entity, and take appropriate measures to mitigate these risks.

In addition, FMIs that either belong to an integrated entity or are considering merging to form one should meet the following conditions.

1) Measures to protect critical FMI functions

- FMIs fulfill critical functions for the markets they serve. Therefore, FMI functions should be legally separated from other functions performed by the consolidated entity in order to maximize bankruptcy remoteness of the FMI functions.

- If an FMI performs multiple functions with distinct risk profiles, the operator should effectively manage the additional risks that may result. The FMI should hold sufficient financial resources to manage the risks in all services it offers, including the combined or compounded risks that would be associated with offering the services through a single legal entity. If the FMI provides multiple services, it should disclose information about the risks of the combined services to existing and prospective participants to give an accurate understanding of the risks they incur by participating in the FMI. The FMI should carefully consider the benefits of offering critical services with distinct risk profiles through separate legal entities.

- Central counterparties (CCPs) take on more risk than other FMIs, and are inherently at higher risk of failure. Therefore, the FMI must either legally separate its CCP functions from other critical (non-CCP) FMI functions, or will need to satisfy its regulators that additional risks are managed appropriately to ensure the FMI's financial and operational viability.

- Legal separation of critical functions is intended to maximize their bankruptcy remoteness and would not necessarily preclude integration of common organizational management activities such as IT and legal services across functions as long as any related risks are appropriately identified and mitigated.

2) Independence of governance and risk management

- FMIs and non-FMIs may have different corporate objectives and risk management appetites which could conflict at the parent level. For example, non-FMI functions, such as trading venues, are generally more focused on profit generation than risk management and do not have the same risk profile as FMI functions. A trading venue in a vertically integrated entity may benefit from increased participation in its service if its associated clearing function lessens its participation requirements.

- To mitigate potential conflicts, in particular the ability of other functions to negatively influence the FMI's risk controls, each FMI subsidiary should have a governance structure and risk management decision-making process that is separate and independent from the other functions and should maintain an appropriate level of autonomy from the parent and other functions to ensure efficient decision making and effective management of any potential conflicts of interest. In addition, the consolidated entity's broad governance arrangements should be reviewed to ensure they do not impede the FMI function's observance of the CPSS-IOSCO principle on governance.

3) Comprehensive management of risks

- Although risk management governance and decision-making should remain independent, it is nonetheless necessary that the consolidated entity is able to manage risk appropriately across the entity. At a consolidated level, the entity should have an appropriate risk management framework that considers the risks of each subsidiary and the additional risks related to their interdependencies.

- An FMI should identify and manage the risks it bears from and poses to other entities as a result of interdependencies. Consolidated FMIs should also identify and manage the risks they pose to one another as a result of their interdependencies. Consolidated FMIs may have exposures to the same participants, liquidity providers, and other critical service providers across products, markets and/or functions. This may increase the entity's dependence on these providers and may heighten the systemic risk associated with the consolidated entity compared to a stand-alone FMI. Where possible, the consolidated entity and its FMIs should consider ways to mitigate risks arising from shared dependencies. The consolidated entity and its FMIs should also consider conducting entity-wide operational risk testing related to identifying and mitigating these risks.

4) Sufficient capital to cover potential losses

- Consolidated entities face the risk that a single participant defaults in more than one subsidiary simultaneously. This could result in substantial losses for the consolidated entity which will then also need to replenish resources for the FMIs to continue to operate. FMIs should consider such risks in developing their resource replenishment plan.

- Consolidated entities may face higher or lower business risk than individual FMIs depending on size, complexity and diversification across affiliates. Consolidated entities should consider these impacts in their general business risk profiles and in determining the appropriate level of liquid assets needed to cover their potential general business losses.[11]

(3) Subsection 3.2(3) of the Regulation requires the clearing house, the central securities depository or settlement system to have clear and comprehensively documented procedures for its functioning.

(a) As part of its governance procedures, the clearing house, the central securities depository or settlement system must include those which ensure performance accountability, through the regular review of the overall performance of the board and of the performance of its individual board members and senior management, as well as, potentially, periodic independent assessments of performance.

(b) Governance procedures documenting the functioning of the board and management must also identify, address, and manage potential conflicts of interest. Conflicts of interest include, for example, circumstances in which a board member or member of management has material competing business interests with the clearing house, the central securities depository or settlement system.

(c) Finally, the clearing house, the central securities depository or settlement system may also need to focus particular attention on certain aspects of its risk-management arrangements as a result of its ownership structure or organizational form. Accordingly, if the entity provides services that present a distinct risk profile from, and potentially pose significant additional risks to its depository, clearing and settlement functions, the clearing house's, central securities depository's or settlement system's governance procedures must address and manage those additional risks adequately. This may include legally separating the additional services that the entity provides, or taking equivalent action. The ownership structure and organizational form may also need to be considered in the preparation and implementation of the entity's recovery or wind-down plans or in assessments of the entity's resolvability.

Board member skills and composition

(4) (a) Governance arrangements should clearly document policies for the appointment of members to its board of directors, and for its composition. Pursuant to paragraph 3.2(4)(a) of the Regulation, the board must be composed of suitable members with the appropriate mix of skills (including strategic and relevant technical skills), experience and knowledge (including an understanding of the entity's interconnectedness with other parts of the financial system and of relevant law) to effectively and efficiently fulfill the board's multiple roles and responsibilities. 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 fulfill their roles. Members should be able to exercise objective and independent judgment. Independence from the views of management typically requires the inclusion of non-executive board members, including independent board members, as further required by paragraph 3.2(4)(b) of the Regulation.

(b) Paragraph 3.2(4)(b) of the Regulation requires that an appropriate number of board members be independent of the clearing house, the central securities depository or settlement system. We generally view individuals as independent if they have no direct or indirect material relationships with the entity (for example, clearing members), its officers or employees, its shareholders who hold a significant interest in the entity, and

[11] Liquid assets held for general business losses must be funded by equity (such as common stock, disclosed reserves, or retained earnings) rather than debt.

those with cross-directorships. While generally also excluded, parties with significant business relationship with the entity may, depending on the circumstances, also be considered independent. Members should be able to exercise objective and independent judgment after fair consideration of all relevant information and views and without undue influence from internal or external parties or interests. The clearing house, the central securities depository or settlement system should publicly disclose which board members it regards as independent. The Authority would expect that independent members of a clearing house, a central securities depository or settlement system would represent the public interest by ensuring that regulatory and public objectives are fulfilled and that the interests of participants are considered.

Management roles, responsibilities and skills

(5) (a) Paragraph 3.2(5)(a) of the Regulation requires that the roles and responsibilities of the management of the clearing house, the central securities depository or settlement system should be clearly specified and documented. The clearing house, the central securities depository or settlement system should also have clear and direct reporting lines between its board of directors and its management, in order to promote accountability.

(i) Under subparagraph 3.2(5)(a)(i) of the Regulation, management is required to be actively involved in the risk-control processes of the clearing house, the central securities depository or settlement system as directed by the board.

(ii) Under subparagraph 3.2(5)(a)(ii) of the Regulation, management should ensure that internal controls and related procedures are appropriately designed and executed in order to promote the entity's objectives. These procedures should include a sufficient level of management oversight. With board direction, management should ensure that the entity's activities are consistent with its objectives, strategy, and risk tolerance, as determined by the board. Internal controls and related procedures should be subject to regular review and testing by well-trained and staffed risk-management and internal-audit functions.

(b) As with the clearing house's, central securities depository's or settlement system's board of directors, management should have the appropriate experience and mix of skills, as well as the integrity necessary to suit their roles and discharge their responsibilities for the operation and risk management of the entity.

(c) Under paragraph 3.2(5)(c) of the Regulation, the management of the clearing house, the central securities depository or settlement system is required to appoint both a chief risk officer and a chief compliance officer, and to entitle them to report directly the board of directors, unless the board determines that the chief risk officer or chief compliance officer should report to the chief executive officer of the entity. These roles are further elaborated on in subsections 3.2(6) and (7) of the Regulation, respectively.

The reference to "harm to the broader financial system" in subparagraph 3.2(7)(c)(ii) of the Regulation may be in relation to the local or international financial system.

Risk management governance

(8) The board is ultimately responsible for managing the clearing house's, the central securities depository's or settlement system's risks. Under subsection 3.2(8) of the Regulation, the clearing house, the central securities depository or settlement system is required to establish a clear, documented risk-management framework. Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources, and access to the board. The board should also ensure that the entity's design, rules, overall strategy, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public. The board should regularly monitor the clearing house's, central securities depository's or settlement system's risk profile to ensure that it is consistent with its business strategy and risk-tolerance policy. In addition, the board should ensure that the entity has an effective system of controls and oversight, including adequate governance and project management processes, over the models used to quantify, aggregate, and manage its 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 over-the-counter ("OTC") derivatives markets, clearing houses that act as a CCP 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 has reasonable grounds not to do so and that do not conflict with the market's wider interest. In this regard, where a CCP supports a market and is expected to fully adhere to market-wide protocols and related decisions, it 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 in the market. The arrangements adopted by a CCP should be transparent to its participants and regulators.

The board and governance arrangements, generally, should support the use of clear and comprehensive rules and key procedures, including detailed and effective participant-default rules and procedures. The board should have procedures in place to support its capacity to act appropriately and immediately if any risks arise that threaten the clearing house's, central securities depository's or settlement system'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 entity.

In addition, the governance of the risk-management function is particularly important. It is essential that the clearing house's, central securities depository's or settlement system's risk-management personnel have sufficient independence, authority, resources, and access to the board to ensure that the operations of the entity 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 entity, 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, the clearing house, the central securities depository or settlement system should establish a risk committee, responsible for advising the board on the entity's overall current and future risk tolerance and strategy. The committee should have a clear and public mandate and operating procedures and, where appropriate, have access to external expert advice.

(9) Subsection 3.2(9) of the Regulation requires that the clearing house, the central securities depository or settlement system validate, on an ongoing basis, the models and their methodologies used to quantify, aggregate, and manage its risks. The validation process should be independent of the development, implementation, and operation of the models and their methodologies. Validation should include (i) an evaluation of the conceptual soundness of (including developmental evidence supporting) the models, (ii) an ongoing monitoring process that includes verification of processes and benchmarking, and (iii) an analysis of outcomes that includes backtesting.

(10) An independent review may include a review carried out by qualified individuals who are independent of the development, implementation and operation of the models and their methodologies, as well as the development, implementation and operation of a validation process for these models.

(11) Under subsection 3.2(11) of the Regulation, the clearing house's, central securities depository's or settlement system's board is required to consider 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. In particular, where the entity has cross-border operations, it 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 process 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 clearing house, the central securities depository or settlement system should have clear processes for identifying and appropriately managing the diversity of stakeholder views and any conflicts of interest between stakeholders and the entity. Without prejudice to local requirements on confidentiality and disclosure, the entity 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.

Board and advisory committees

(12) Subsection 3.2(12) of the Regulation requires the board of directors of the clearing house, the central securities depository or settlement system to establish and maintain one or more board or advisory committees on risk management, finance and audit functions. All such committees should have clearly assigned responsibilities and procedures.

A clearing house's, central securities depository's or settlement system's internal audit function should have sufficient resources and independence from management to provide, among other activities, a rigorous and independent assessment of the effectiveness of its risk-management and control processes. A board will 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 through an additional reporting line.

Under paragraph 3.2(12)(d) of the Regulation, where the committee is a board committee, it will be required to have an appropriate composition of sufficiently knowledgeable independent individuals, including independent directors. With respect to independence, policies and procedures related to committees should include processes to identify, address, and manage potential conflicts of interest. Conflicts of interest include, for example, circumstances in which a board member has material competing business interests with the entity.

Framework for comprehensive management of risks

General principle

3.3. **(1)** Subsection 3.3(1) of the Regulation requires a recognized clearing house, central securities depository or settlement system to have a clear and documented risk-management framework for comprehensively managing its various risks. As further discussed in subsection 3.3(2), the clearing house, the central securities depository or settlement system 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 clearing houses, central securities depositories or settlement systems, settlement banks, liquidity providers, and service providers (for example, matching and portfolio compression service providers). The entity should consider how various risks relate to, and interact with, each other. It 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 entity. The clearing house's, central securities depository's or settlement system's framework should include the identification and management of interdependencies. The entity 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 entity. The board of directors plays a critical role in establishing and maintaining a sound risk-management framework.

Policies, procedures and systems, etc.

(2) Under paragraphs 3.3(2)(a) and (b) of the Regulation, the clearing house's, central securities depository's or settlement system's risk management framework must have appropriate risk-management policies, procedures, and systems that are subject to periodic review. To establish a sound risk-management framework, the clearing house, the central securities depository or settlement system should first identify the range of risks that arise within the clearing house, the central securities depository or settlement system 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. The clearing house, the central securities depository or settlement system 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 entity and may undermine its financial soundness as well as the stability of the broader financial markets. In identifying risks, the clearing house, the central securities depository or settlement system should take a broad perspective and identify the risks that it bears from other entities, such as other clearing houses, central securities depositories or settlement systems, settlement banks, liquidity providers, service providers, and any entities that could be materially affected by the clearing house's, central securities depository's or settlement system's inability to provide services.

The clearing house's, central securities depository's or settlement system's board is ultimately responsible for managing the entity's risks. The board should determine an appropriate level of aggregate risk tolerance and capacity for the entity. The board and senior management should establish policies, procedures, and controls that are consistent with the entity's risk tolerance and capacity. The clearing house's, central securities depository's or settlement system's policies, procedures, and controls serve as the basis for identifying, measuring, monitoring, and managing the entity's risks and should cover routine and non-routine events, including the potential inability of a participant, or the entity itself, to meet its obligations. The clearing house's, central securities depository's or settlement system's policies, procedures, and controls should address all relevant 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 relevant authorities.

In establishing risk-management policies, procedures, and systems, the clearing house, the central securities depository or settlement system is required under paragraph 3.3(2)(c) to encourage participants and, where relevant, their customers to manage and contain the risks they pose to the entity. Doing so 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) (a) Under paragraph 3.3(3)(a) of the Regulation, the clearing house, the central securities depository or settlement system is expected to regularly review, and develop risk-management tools, to address the material risks it bears from and poses to other entities (such as other clearing houses, central securities depositories or settlement systems, settlement banks, liquidity providers, and service providers). In particular, the entity 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, liquidity risk-management techniques, and recovery or orderly wind-down plans (as further discussed under paragraph 3.3(3)(c). Because of the interdependencies between and among systems, the clearing house, the central securities depository or settlement system 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.

(b) In respect of recovery and orderly wind-down, the clearing house, the central securities depository or settlement system must identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern. These scenarios should take into account the various independent and related risks to which the entity is exposed. The clearing house, the central securities depository or settlement system must also assess the effectiveness of a full range of options for recovery or orderly wind-down

(c) Using the analysis required under paragraph 3.3(3)(b) of the Regulation (and taking into account any constraints potentially imposed by domestic legislation), the clearing house, the central securities depository or settlement system is required to prepare appropriate plans for its recovery or orderly wind-down. The plan should contain, among other elements, a substantive summary of the key recovery or orderly wind-down strategies, the identification of the entity's critical operations and services, and a description of the measures needed to implement the key strategies. The clearing house, the central securities depository or settlement system should have the capacity to identify and provide to related entities the information needed to implement the plan on a timely basis during stress scenarios. In addition, these plans should be reviewed and updated regularly.

(e) Moreover, the clearing house, the central securities depository or settlement system should employ robust information and risk-control systems to provide it 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 entity, 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 entity. Information systems should also enable the clearing house, the central securities depository or settlement system to monitor its credit and liquidity exposures, overall credit and liquidity limits, and the relationship between these exposures and limits. These information systems should permit, where practicable, the provision of real time information to enable participants to manage risks. If the clearing house, the central securities depository or settlement system 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.

Where appropriate, the clearing house, the central securities depository or settlement system should also provide its participants and its participants' customers with the relevant information to manage and contain their credit and liquidity risks. The clearing house, the central securities depository or settlement system 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 clearing house, the central securities depository or settlement system permits participants' customers to create exposures in the entity that are borne by the participants, the clearing house, the central securities depository or settlement system should provide participants with the capacity to limit such risks.

(f) Under paragraph 3.3(3)(f), the clearing house, the central securities depository or settlement system is required to have comprehensive internal processes to help the board and senior management monitor and assess the adequacy and effectiveness of the clearing house's, central securities depository's or settlement system'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 audits. Audits should be performed by qualified and independent individuals who did not participate in the creation of the control mechanisms. At times the clearing house, the central securities depository or settlement system may find it necessary to engage a team of external auditors. A robust internal audit function can provide an independent assessment of the effectiveness of the entity'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, clearing houses, central securities depositories or settlement systems 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.

Credit risk

General principle

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 to a clearing house or a settlement system, its other participants, and the financial markets more broadly. In meeting the requirement of subsection 3.4(1) of the Regulation, a recognized clearing house that acts as, or performs the services of, a CCP or SS or a recognized settlement system is required to measure, monitor and manage its credit exposures. Credit exposure may arise from current exposures, potential future exposures, or both. Current exposure, in this context, is defined as the loss that a clearing house or a settlement system (or in some cases, its participants) would face immediately if a participant were to default. Potential future exposure is broadly defined as any potential credit exposure that a clearing house or a settlement system could face at a future point in time. The type and level of credit exposure faced by a clearing house will vary based on its design and the credit risk of the counterparties concerned. The clearing house or the settlement system should also identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.

(2) An SS may face a number of credit risks from its participants or its settlement processes. An SS 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 SS accepts collateral to secure the credit. An SS 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 SS, leaving a residual exposure. In addition, an SS 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, depending on the settlement mechanism, the SS 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. If the clearing house provides the services of an SS or if the entity is a settlement system, it 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 (see also the Regulation's section 3.5 on collateral requirements).

(3) A CCP 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 and its participants. 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 following an event of default. For example, during the period in which a CCP neutralizes 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 credit exposure, potentially significantly. A CCP can also face potential future exposure due to the potential for collateral (initial margin) to decline significantly in value over the close-out period. If the clearing house is operating as a CCP, it 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 also the Regulation's sections 3.5 on collateral requirements and 3.6 on margin requirements).

(4) Subsection 3.4(4) of the Regulation sets out the requirement that if the clearing house acts as a CCP, it must maintain, in addition to the financial resources described in paragraph 3.4(3) of the Regulation, financial resources sufficient to meet a so-called "Cover 1" threshold.

(5) The Regulation also requires that the clearing house that acts as a CCP and that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions to 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 (otherwise known as a "Cover 2" threshold).

The Authority is of the view that a CCP will be involved in activities with a more-complex risk profile where it is clearing, for example, credit default swaps, credit default futures, any derivatives that reference either credit default swaps or credit default futures, and any other products the characteristics of which include jump-to-default price changes or high correlations with potential participant defaults.

In determining whether a CCP is systemically important in multiple jurisdictions, the Authority will consider, among other factors, (i) the location of its participants, (ii) the aggregate volume and value of transactions that originate in each jurisdiction in which it operates, (iii) the proportion of its total volume and value of transactions that originate in each jurisdiction in which it operates, (iv) the range of currencies in which the instruments it clears are cleared or settled, (v) any links it has with other clearing houses, payment systems or trade repositories located in other jurisdictions, and (vi) the extent to which it clears instruments that are subject to mandatory clearing obligations in multiple jurisdictions. The Authority will also consider whether the CCP has been designated as systemically important by a regulatory authority both in Canada and outside Canada.

Identifying, measuring and monitoring credit exposures

(6) Under subsection 3.4(6), the clearing house or settlement system must establish a robust framework to manage its credit exposures to its participants and those arising from its clearing and settlement processes. Credit exposure may arise from current exposures, potential future exposures, or both. The clearing house or settlement system must also routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.

If the clearing house provides the services of an SS or if the entity is a settlement system, it should frequently and regularly measure and monitor its credit risks throughout the day using timely information. The SS 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 SS 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 modeling or estimation. In order to monitor its risks associated with current exposure, an SS 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 SS should model possible changes in collateral values and market conditions over an appropriate liquidation period. An SS, where appropriate, should monitor the existence of large exposures to its participants and their customers. Additionally, it should monitor any changes in the creditworthiness of its participants. If a financial exposure is a liquidity exposure, section 3.7 would apply.

The SS should mitigate its credit risks to the extent possible. The SS should, for example, eliminate its or its participants' principal risk associated with the settlement process by employing an exchange-of-value settlement system. The use of a system that settles securities and funds on a gross, obligation-by-obligation basis would further reduce credit and liquidity exposures among participants and between participants and the SS. In addition, the SS should limit its current exposures by limiting intraday credit extensions and, where relevant, overnight credit extensions. Such limits should balance the usefulness of credit to facilitate settlement within the system against the SS's credit exposures.

In order to manage the risk from a participant default, the SS should consider the impact of participant defaults and use robust techniques for managing collateral. The SS 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). By requiring collateral to cover the credit exposures, an SS 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 SS or other participants. Further, this collateralization allows an SS that employs certain settlement mechanisms 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 SS needs to establish prudent haircuts to mitigate the resulting potential future exposures.

If the clearing house is acting as a CCP or if the entity is a settlement system, it should frequently and regularly measure and monitor its credit risks throughout the day using timely information. The CCP or the settlement system should ensure that it has access to adequate information to allow it to measure and monitor its current and potential future exposures. 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, the CCP or the settlement system 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. The CCP or the settlement system should monitor the existence of large exposures to its participants and, where appropriate, their customers. Additionally, it should monitor any changes in the creditworthiness of its participants.

The CCP or the settlement system should mitigate its credit risk to the extent possible. For example, to control the build-up of current exposures, the entity 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, the entity should have the authority and operational capacity to make intraday margin calls, both scheduled and unscheduled, from participants. Further, the entity may choose to place limits on credit exposures in some cases, even if collateralised. Limits on concentrations of positions or additional collateral requirements may also be warranted.

A CCP 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 entity's own funds, and other participants' contributions to a prefunded default arrangement. Initial margin is used to cover a CCP's potential future exposures, as well as current exposures not covered by variation margin, to each participant with a high degree of confidence. However, a CCP 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 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, the CCP should maintain additional financial resources, such as additional collateral or a prefunded default arrangement, to cover a portion of the tail risk.

Stress testing

(8) If the clearing house is operating as a CCP, subsection 3.4(8) of the Regulation sets out requirements governing routine stress testing of the adequacy of the clearing house's total financial resources. The CCP must determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default of one or more participants in extreme but plausible market conditions through rigorous stress testing. The CCP must 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 are to be performed at least daily, using standard and predetermined parameters and assumptions. On at least a monthly basis, the CCP must 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 full validation of the CCP's risk-management model must be performed at least annually.

Moreover, the CCP should 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 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 extreme market conditions can help a CCP determine the limits of its current model and resources. However, it requires the CCP to exercise judgment when modelling different markets and products. The CCP should develop hypothetical 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 determination of the appropriate level of financial resources.

(10) Extreme but plausible conditions should not be considered a fixed set of conditions, but rather, conditions that evolve. Stress tests should quickly incorporate emerging risks and changes in market assumptions (for example, departures from usual patterns of co-movements in prices among the products the CCP clears). If the CCP proposes to clear new products, it should consider movements in prices of any relevant related products.

Uncovered credit losses

(11) As required by subsection 3.4(11) of the Regulation, the clearing house or the settlement system 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 entity. The rules and procedures of the entity should expressly set out a waterfall, including the circumstances in which specific resources of the clearing house or settlement system can be used in a participant default. For the purposes of subsection 3.4(12) of the Regulation, the clearing house or the settlement system 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 activities in which the clearing house or settlement system is engaged. In addition, if the clearing house or settlement system 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 the clearing house's or settlement system'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.

(12) In certain extreme circumstances, the post-liquidation value of the collateral and other financial resources that secure the clearing house's or settlement system's credit exposures may not be sufficient to cover credit losses resulting from those exposures fully. The clearing house or settlement system should analyze and plan for how it would address any uncovered credit losses. The entity 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 clearing house or settlement system. The clearing house's or settlement system's rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an entity may borrow from liquidity providers. These rules and procedures should also indicate the entity's process to replenish any financial resources that the clearing house or settlement system may employ during a stress event, so that it can continue to operate in a safe and sound manner.

Collateral

General principle

3.5. (1) (a) Collateralizing credit exposures protects a clearing house and a settlement system, and where relevant, its participants, against potential losses in the event of a participant default. Besides mitigating a clearing house's or settlement system's own credit risk, the use of collateral can provide participants with incentives to manage the risks they pose to a clearing house or settlement system or other participants. Paragraph 3.5(1)(a) of the Regulation sets out the general principle that a recognized clearing house that acts as, or performs the services of, a CCP or SS or a recognized settlement system must limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks. Prudent collateral acceptance and valuation practices are further required under subsection 3.5(2) of the Regulation.

(b) While the clearing house or settlement system is required to generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks, in the normal course of activities, it 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 be acceptable collateral for credit purposes if an appropriate haircut is applied. Where the entity accepts collateral with credit, liquidity, and market risks above minimum levels, it should demonstrate that it sets and enforces appropriately conservative haircuts and concentration limits. The entity must 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. Additionally, the clearing house or settlement system should have the capacity to use the collateral promptly when needed.

Valuation practices and haircuts

(2) In order to have adequate assurance of the collateral’s value in the event of liquidation, subsection 3.5(2) of the Regulation requires the clearing house or settlement system to establish, implement and maintain collateral acceptance and valuation practices. The entity should regularly adjust its requirements for acceptable collateral in accordance with changes in underlying risks. When evaluating types of collateral, the entity 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 to post their own debt or equity securities, or debt or equity of companies closely linked to them, as collateral, as further required under paragraph 3.5(3)(a) of the Regulation. More generally, the clearing house or settlement system should mitigate specific wrong-way risk, as further required under paragraph 3.5(3)(b) of the Regulation. The clearing house or settlement system 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, as otherwise required by this subsection and under paragraph 3.5(1)(b) and subsection 3.5(4) of the Regulation.

If the clearing house or settlement system plans to use assets held as collateral to secure liquidity facilities in the event of a participant default, the entity will also need to consider, in determining acceptable collateral, what will be acceptable as security to lenders offering liquidity facilities.

Additionally, the clearing house or settlement system is required to apply prudent haircuts to the value of the collateral, in order 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, as well as to reduce the need for procyclical adjustments. Haircuts should reflect the potential for asset values and liquidity to decline over the interval between their last revaluation and the time by which the clearing house or settlement system 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.

(3) (a) Under paragraph 3.5(3)(a) of the Regulation, the clearing house or settlement system is required to prohibit participants from posting collateral that is their own debt or equity securities, or debt or equity of their affiliates. 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 section.

(b) Specific wrong-way risk refers to the risk that an exposure to a counterparty is highly likely to increase when the creditworthiness of that counterparty is deteriorating. Generally, the entity must 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.

(c) The clearing house or settlement system must, at a minimum, mark its collateral to market daily. “Marking to market” is the practice if revaluing securities and other financial instruments, including collateral, using current market prices. If market prices do not fairly represent the true value of the assets, the clearing house or settlement system should have the authority to exercise discretion in valuing assets according to predefined and transparent methods.

(d) The clearing house’s or settlement system’s haircut procedures must be validated at least annually. Validation should be performed by personnel of sufficient expertise who are independent of the personnel that created and applied the haircut procedures. These expert personnel could be drawn from within the clearing house or settlement system. However, a review by personnel external to the entity may also be necessary at times.

Limiting procyclicality

(4) Subsection 3.5(4) of the Regulation requires that the clearing house or settlement system appropriately address procyclicality in its collateral arrangements. To the extent practicable and prudent, the entity 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. 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, the clearing house or settlement system may require the posting of additional collateral both because of the decline of 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 clearing houses, settlement systems 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.

Concentrations limits or charges

(5) Under subsection 3.5(5) of the Regulation, the clearing house or settlement system is required to avoid concentrated holdings of certain assets, as they can significantly impair the ability to liquidate such assets quickly without significant adverse price effects. High concentrations within holdings can be avoided by establishing concentration limits, thereby restricting participants' ability to provide certain collateral assets above a specified threshold. High concentrations can also be avoided by imposing concentration charges, which would penalize participants for maintaining holdings of certain assets beyond a specified threshold. 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.

Cross-border collateral

(7) Subsection 3.5(7) requires the clearing house or settlement system, if it accepts cross-border (or foreign) collateral, to identify and mitigate any additional risks associated with its use and ensure that it can be used in a timely manner. 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 significant interdependencies and risks to the clearing house or settlement system that should be evaluated and managed. For example, the entity 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. The entity 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 entity 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 or custodians.

Collateral management systems

(8) Under subsection 3.5(8) of the Regulation, the clearing house or settlement system is required to use a well-designed and operationally flexible collateral management system. Such a system should accommodate changes in the on-going 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 the clearing house or settlement system to the collateral provided to it by its counterparties. The clearing house's or settlement system's collateral management system should also have functionality to accommodate the timely deposit, withdrawal, substitution, and liquidation of collateral. The entity 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 entity'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.

Additionally, the clearing house or settlement system should have clear and transparent rules regarding the reuse of collateral. Reuse of collateral refers to the clearing house's or settlement system's subsequent use of collateral that has been provided by participants in the normal course of activities. This differs from the entity's use of collateral in a default scenario during which the defaulter's collateral, which has become the property of the entity, can be used to access liquidity facilities or can be liquidated to cover losses. In particular, the rules should clearly specify when a clearing house or settlement system may reuse its participant collateral and the process for returning that collateral to participants. In general, clearing house or settlement system should not rely on the reuse of collateral as an instrument for increasing or maintaining its profitability. However, it may invest any cash collateral received from participants on their behalf.

Margin

General principle

3.6. **(1)** An effective margining system is a key risk-management tool for a CCP to manage the credit exposures posed by its participants' open positions. Accordingly, a CCP will typically collect margin (i.e. collateral) to assure performance and to mitigate its credit exposures for all products that it clears if a participant defaults. Subsection 3.6(1) of the Regulation sets out the general requirement that where a recognized clearing house is operating as a CCP, it must cover its credit exposures to its participants for all products through an effective risk-based margin system. The balance of section 3.6 of the Regulation also has application to such a CCP.

Margin systems typically differentiate between initial margin and variation margin. 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 modeling 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.

The CCP's margin system should be regularly reviewed. Validation of the margin system should be performed by personnel of sufficient expertise who are independent of the personnel that created and apply the margin system. These expert personnel could be drawn from within the CCP. However, a review by personnel external to the CCP may also be necessary at times.

Margin system

(2) When setting margin requirements, the CCP 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 (for example, where some derivatives, such as options, provide payoff functions that are not linear as compared to the payoff of the underlying asset), jump-to-default risk (i.e. the risk of a default that would result in significant financial payment obligations, such as for credit default swap protection sellers), 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. 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 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 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 should continue to margin positions for which a participant fails to deliver the required security (or other relevant instrument) on the settlement date.

Price information

(3) (a) The CCP is required to have a reliable source of timely price data for its margin system, as such data is critical for the system to operate accurately and effectively. In most cases, the CCP should rely on market prices from continuous, transparent, and liquid markets. If the CCP acquires pricing data from third-party pricing services, it should continually evaluate the data's reliability and accuracy.

(b) The CCP 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. The valuation models should be 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 should adjust its calculation of initial margin to reflect any identified model risk. The CCP should address all pricing and market liquidity concerns on an ongoing basis in order to conduct daily measurement of its risks.

Initial margin methodology

Subsections 3.6(4) to 3.6(6) of the Regulation set out requirements relating to the initial margin methodology of the CCP. Under subsection 3.6(4) of the Regulation, the CCP is required to 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. Under paragraph 3.6(5)(a) of the Regulation, initial margin is required to meet an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure.[12] Under paragraph 3.6(6)(a) of the Regulation, where the CCP calculates margin at the portfolio level, the above requirement applies to each portfolio's distribution of future exposure. If the CCP calculates margin at more-granular levels, such as at the sub-portfolio level or by product, the requirement under paragraph 3.6(5)(a) of the Regulation must be met for the corresponding distributions of future exposure at a stage prior to margining among sub-portfolios or products, as specified by paragraph 3.6(6)(b) of the Regulation. Under paragraph 3.6(5)(b) of the Regulation, the initial margin model should (i) 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 (including in stressed market conditions), (ii) have an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products, and (iii) to the extent practicable and prudent, limit the need for destabilizing, procyclical changes.

[12] A single-tailed (also known as one-tailed or one-sided) confidence interval of at least 99% means that the initial margin should cover estimated future loss over an appropriate time horizon at least 99% of the time.

In respect of close-out periods, the CCP should select an appropriate period for each product that it clears and document the close-out periods and related analysis for each product type. The CCP 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 the CCP'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. The CCP should also consider and address position concentrations, which can lengthen close-out timeframes and add to price volatility during close outs.

The CCP 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, the CCP may need to determine margin levels using a shorter historical period to reflect new or current volatility in the market more effectively. Conversely, the CCP may need to determine margin levels based on a longer historical period in order to reflect past volatility. The CCP 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.

The CCP 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 CCP 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. The CCP 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.

The CCP should appropriately address procyclicality in its margin arrangements. 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, the CCP 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, the CCP should adopt forward-looking and relatively stable and conservative margin requirements that are specifically designed to limit the need for destabilizing, procyclical changes. To support this objective, the CCP could consider increasing the size of its prefunded default arrangements to limit the need and likelihood of large or unexpected margin calls in times of market stress. These procedures may create additional costs for central 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.

Variation margin

(7) (a) A CCP 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's exposures to its participants (although some markets may impose trading limits or position limits that reduce this risk). Under paragraph 3.6(7)(a) of the Regulation, the CCP is required to ascertain its current exposure to each participant by marking each participant's outstanding positions to current market prices (i.e. to mark participant positions to market) and collect variation margin at least daily to limit the build-up of current exposures; such a requirement limits the accumulation of current exposures and therefore mitigates potential future exposures.

(b) In addition, the CCP is required to have the authority and operational capacity to make intraday margin calls, both scheduled and unscheduled, to participants. The CCP 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. Further, the CCP may choose to place limits on credit exposures in some cases, even if collateralized. Limits on concentrations of positions or additional collateral requirements may also be warranted.

Portfolio margining and cross-margining

(8) Subsection 3.6(8) of the Regulation sets out requirements for the CCP, if it offers portfolio margining, subject to the segregation and portability requirements under section 3.14. The offsets the CCP may allow, where the risk of one product is significantly and reliably correlated with the risk of another product, should be based on an economically meaningful methodology that reflects the degree of price dependence between the products. Often, price dependence is modeled through correlations, but more complete or robust measures of dependence should be considered, particularly for non-linear products. In any case, the CCP should consider how price dependence can vary with overall market conditions, including in stressed market conditions. Following the application of offsets, the CCP needs to ensure that the margin meets or exceeds the single-tailed confidence level of at least 99 percent with respect to the estimated distribution of the future exposure of the portfolio. If the CCP 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.

(9) If authorized, two or more CCPs may enter into a cross-margining arrangement, which is an agreement among the CCPs to consider positions and supporting collateral at their respective organizations as a common portfolio for participants that are members of two or more of the organizations. 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 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.

CCPs that participate in cross-margining arrangements must share information frequently and ensure that they have appropriate safeguards, such as joint monitoring of positions, margin collections, and price information. Each CCP must thoroughly understand the others' respective risk-management practices and financial resources. The CCPs are also required to have harmonized overall risk-management systems and should regularly monitor possible discrepancies in the calculation of their exposures, especially with regard to monitoring how price correlations perform over time. This harmonization 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 apply to cross-margining regimes between or among CCPs. CCPs operating a cross-margining arrangement should also analyze fully the impact of cross-margining on prefunded default arrangements and on the adequacy of overall financial resources. The CCPs must have in place arrangements that are legally robust and operationally viable to govern the cross-margining arrangement.

Testing model coverage and validation of margin methodology

(10) (a) Under paragraph 3.6(10)(a) of the Regulation, in order to validate its margin models and parameters, the CCP is required to analyze and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting of its initial margin models against identified targets. Backtesting is an ex-post comparison of observed outcomes with the outputs of the margin models. The CCP 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. 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 percent with respect to the estimated distribution of future exposure over an appropriate close-out period. 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), the CCP should have clear procedures for recalibrating its margining system, such as by making adjustments to parameters and sampling periods. Further, the CCP should evaluate the source of 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.

In addition, the CCP, at least monthly, and more-frequently as appropriate, should conduct a sensitivity analysis which assesses the coverage of the margin methodology under various 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 CCP should conduct sensitivity analysis 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. The CCP should evaluate the potential losses in individual participants' positions and, where appropriate, their customers' positions. Furthermore, for a CCP clearing credit instruments, parameters reflective of the simultaneous default of both participants and 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.

The results of both the backtesting and sensitivity analyses should be disclosed to participants.

(c) Under paragraph 3.6(10)(c) of the Regulation, the CCP is required to regularly review and validate its margin system. The CCP'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 developments. Any material revisions or adjustments to the methodology or parameters should be subject to appropriate governance processes and validated prior to implementation. CCPs operating a cross-margining arrangement should also analyze the impact of cross-margining on prefunded default arrangements and evaluate the adequacy of overall financial resources. Additionally, the margin methodology, including the initial margin models and parameters used by the CCP, 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, the CCP would make details of its margin methodology available to its participants for use in their individual risk-management efforts.

(11) Further to subparagraph 3.6(10)(a)(ii) of the Regulation, subsection 3.6(11) of the Regulation requires the CCP to 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 CCP 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 of products it clears.

Timeliness of margin payments

(12) The CCP should establish and rigorously enforce timelines for margin collections and payments and set appropriate consequences for failure to pay on time. A CCP 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.

Liquidity risk

General principle

3.7. Liquidity risk arises in a clearing house or a settlement system 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 a clearing house or settlement system, liquidity risk can arise between it and its participants, between it and other entities, such as its settlement banks, *nostro* agents (i.e. those agents who facilitate the settlement of foreign exchange and trade transactions through the use of a bank account held in a foreign country by a domestic bank, denominated in the currency of that country), custodian banks, and liquidity providers, or between participants in a clearing house or settlement system. It is particularly important for a clearing house or settlement system to manage carefully its liquidity risk if, as is typical in many systems, it 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 clearing house or the settlement system, the latter may not have sufficient funds to meet its payment obligations to other participants. In such an event, the clearing house or settlement system would need to rely on its own liquidity resources to cover the funds shortfall and complete settlement. Subsections 3.7(1) and (2) of the Regulation, sets out the general principle that a recognized clearing house that acts as, or performs the services of a CCP or SS or a recognized settlement system is required to effectively measure, monitor, and manage its liquidity risk, as well as maintain sufficient liquid resources.

Sources of, and managing, liquidity risk

(3) Subsection 3.7(3) of the Regulation requires the clearing house or settlement system to manage its liquidity risk from a variety of sources. Within its framework for managing its liquidity risks, the clearing house or settlement system must therefore clearly identify its sources of liquidity risk and assess its current and potential future liquidity needs on a daily basis. A clearing house or a settlement system can face liquidity risk from the default of a participant, or from its settlement banks, *nostro* agents, custodian banks, and liquidity providers, as well as linked clearing houses or settlement systems and service providers, if they fail to perform as expected. Moreover, a clearing house or settlement system may face additional risk from entities that have multiple roles within the clearing house or settlement system (for example, a participant that also serves as the clearing house’s settlement bank or liquidity provider). These interdependencies and the multiple roles that an entity may serve within the entity should be considered in determining the entity’s liquidity needs.

A clearing house or settlement system that employs a deferred net settlement (“DNS”) mechanism, which is a mechanism that settles on a net basis at the end of a pre-defined settlement cycle, may create direct liquidity exposures between participants. A long-standing concern is that these types of systems may address a potential settlement failure by unwinding transfers involving the defaulting participant. 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.

After identification of its liquidity risks, the clearing house or settlement system is required to have a robust framework for their management. The entity should regularly assess its design and operations to manage liquidity risk in the system. Where the entity employs a DNS mechanism, it may be able to reduce its or its participants’ liquidity risk by using alternative settlement designs, such as new real-time gross settlement 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, the entity should ensure that it is operationally ready to manage the liquidity risk caused by participants’ or other entities’ financial or operational problems. Among other things, the entity should have the operational capacity to reroute payments, where feasible, on a timely basis in case of problems with a correspondent bank.

The clearing house or settlement system may employ other risk-management tools to manage its or, where relevant, its participants’ liquidity risk. To mitigate and manage liquidity risk stemming from a participant default, the entity 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, the entity could adopt rules or financial incentives for timely submission. To mitigate and manage liquidity risk stemming from a service provider or a linked clearing house or settlement system, the entity could use, individually or in combination, selection criteria, concentration or exposure limits, and collateral requirements. For example, the entity 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 a clearing house or settlement system to manage its credit risk.

Measuring and monitoring liquidity risk

(4) Pursuant to subsection 3.7(4) of the Regulation, the clearing house or settlement system should, in particular, understand and assess the value and concentration of its daily settlement and funding flows through its settlement banks, *nostro* agents, and other intermediaries. The entity should also 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. The entity should be able to determine the value of its available liquid assets, taking into account the appropriate haircuts on those assets. Where appropriate, the entity should provide sufficient information and analytical tools to help its participants measure and monitor their liquidity risks in the clearing house or settlement system.

If the clearing house or settlement system maintains prearranged funding arrangements, it should also identify, measure, and monitor its liquidity risk from the liquidity providers of those arrangements. The entity should obtain a high degree of confidence through rigorous due diligence that each liquidity provider, whether or not it is a participant in the entity, 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.

Maintaining sufficient liquid resources

(5) If the clearing house performs the services of an SS or if the entity is a settlement system (including one that employs a DNS mechanism), it 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. The SS, 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, the SS 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 clearing house's participant-default procedures.

(6) Similarly, if the clearing house acts as a CCP, it 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. The CCP should carefully analyse its liquidity needs, and the analysis is expected to be reviewed by the relevant authorities. In many cases, the CCP may need to maintain sufficient liquid resources to meet payments to settle required margin and other payment obligations over multiple days to account for multiday hedging and close-out activities as directed by the CCP's participant-default procedures.

(7) Subsection 3.7(7) of the Regulation provides the added requirement that if the clearing house, which acts as a CCP, is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions, it must maintain 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 Authority will consider the factors discussed in subsection 3.4(5) of this PS in determining whether the clearing house is involved in activities with a more complex risk profile or is systemically important in multiple jurisdictions.

Qualifying liquid resources

(8) For the purpose of meeting the requirements to maintain sufficient liquid resources, the clearing house's or settlement system's qualifying liquid resources in each currency may include only those listed in subsection 3.7(8) of the Regulation. 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.

Other liquid resources

(10) The clearing house or settlement system may supplement its qualifying liquid resources with other forms of liquid resources. If the clearing house or settlement system does so, then these liquid resources must be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repurchase agreements ("repos") on an ad hoc basis following a default, even if this saleability or acceptability as collateral cannot be reliably prearranged or guaranteed in extreme market conditions. The clearing house or settlement system may consider using such 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 clearing house's or settlement system's participants and the financial system as a whole. Even if the entity 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, the clearing house or settlement system should not assume the availability of emergency central bank credit as a part of its liquidity plan, as is specified under subsection 3.7(11) of the Regulation.

Due diligence of liquidity providers

(12) Under subsection 3.7(12) of the Regulation, if the clearing house or settlement system has prearranged funding arrangements, it must obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources 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. Additionally, the clearing house or settlement system should adequately plan for the renewal of prearranged funding arrangements with liquidity providers in advance of their expiration.

(14) Under subsection 3.7(14) of the Regulation, the clearing house or settlement system is required to 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.

In addition, the clearing house or settlement system should have detailed procedures for using its liquid resources to complete settlement during a liquidity shortfall. The entity's procedures should clearly document the sequence for using each type of liquid resource (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.

Central bank services

(15) If the clearing house or settlement system has access to central bank accounts, payment services, securities services, or collateral management services, it is required under subsection 3.7(15) to 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.

Stress testing of liquidity needs and resources

(16) Under subsection 3.7(16) of the Regulation, the clearing house or settlement system is required to determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing, and have clear procedures for reporting results and evaluating the adequacy of and adjusting its liquidity risk-management framework.

Further, the clearing house or settlement system should conduct, as appropriate, reverse stress tests aimed at identifying the extreme default scenarios and extreme market conditions for which the entity's liquid resources would be insufficient. In other words, these tests identify how severe stress conditions would be covered by the entity's liquid resources. The clearing house or settlement system should assess whether it would be prudent to prepare for these severe conditions and various combinations of factors influencing these conditions. Reverse stress tests require the entity 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 extreme market conditions can help the entity determine the limits of its current model and resources; however, it requires exercising judgment when modelling different markets and products. The entity should develop hypothetical extreme scenarios and market conditions tailored to the specific risks of the markets and of the products it serves. Reverse stress tests should be considered a helpful risk-management tool but they need not, necessarily, drive the clearing house's or settlement system's determination of the appropriate level of liquid resources.

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, the clearing house or settlement system 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 entity's identified liquidity needs and resources in light of current and evolving market conditions. The clearing house or settlement system 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 the entity's liquidity risk-management model should be performed at least annually.

Contingency planning for uncovered liquidity shortfalls

(20) In certain extreme circumstances, the liquid resources of the clearing house, the settlement system or its participants may not be sufficient to meet the payment obligations of the entity to its participants or the payment obligations of participants to each other within the entity. In a stressed environment, for example, normally liquid assets held by the entity may not be sufficiently liquid to obtain same-day funding, or the liquidation period may be longer than expected. In this regard, the contingency planning requirements of subsection 3.7(20) of the Regulation apply. Under subsection 3.7(20) of the Regulation, the clearing house or settlement system is required to establish explicit rules and procedures that enable it 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 clearing house's or settlement system'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.

If the clearing house or settlement system allocates potentially uncovered liquidity shortfalls to its participants, it should have clear and transparent rules and procedures for the allocation of shortfalls. These procedures could involve a funding arrangement between the entity and its participants, the mutualization 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, the entity 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.

Settlement finality

General principle

3.8. (1) A clearing house or settlement system should be designed to provide clear and certain final settlement of payments, transfer instructions, or other obligations. Under subsection 3.8(1) of the Regulation, a payment, transfer instruction, or other obligation that a recognized clearing house (which acts as, or performs the services of a CCP or SS) or a recognized settlement system accepts for settlement in accordance with its rules and procedures must therefore be settled with finality no later than the end of the intended value date, as further required under subsection 3.8(3) of the Regulation. "Final settlement" is a legal defined moment, and refers to the irrevocable and unconditional transfer of an asset or financial instrument, or the discharge of an obligation by the entity or its participants in accordance with the terms of the underlying contract. "Value date" refers to 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 in a trade or other transaction. 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 the clearing house's or settlement system's participants and other stakeholders, and potentially be a source of systemic risk. 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.

(2) Depending on the type of obligations that the clearing house or settlement system settles, the use of intraday settlement, either in multiple batches or in real time, may be necessary or desirable to reduce settlement risk. As such, some types of entities should consider adopting real time gross settlement ("RTGS") or multiple-batch settlement to complete final settlement intraday. RTGS is the real-time settlement of payments, transfer instructions, or other obligations individually on a transaction-by-transaction basis. Batch settlement is the 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 time between the acceptance and final settlement of transactions should be kept short. To speed up settlements, the entity should encourage its participants to submit transactions promptly. To validate the finality of settlement, the clearing house or settlement system 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.

Final settlement

(3) Under subsection 3.8(3) of the Regulation, the clearing house or settlement system is required to define the point at which settlement is final. The clearing house's or settlement system's legal framework and rules should generally determine the finality of settlement. The legal basis governing the entity, including the insolvency law, must acknowledge the discharge of a payment, transfer instruction, or other obligation between the entity and system participants, or between or among participants, for the transaction to be considered final. The entity 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 relevant authorities 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 harmonized, a well-reasoned legal opinion is generally necessary to establish the point at which finality takes place.

As required by subsection 3.8(1), the clearing house's or settlement system's processes must be designed to complete 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 the clearing house or settlement system in accordance with its risk management and other relevant acceptance criteria should be settled on the intended value date. If the clearing house or settlement system is not designed to provide final settlement on the value date (or same-day settlement), it would not satisfy section 3.8 of the Regulation, 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 SS or CCP 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 entity and its other participants.

Subsection 3.8(3) also requires the clearing house or settlement system to clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant. In general, the clearing house or settlement system 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, cutoff 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, the entity may want to permit extensions for reasons connected with the implementation of monetary policy or widespread 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.

Money settlements

General principle

3.9. (1) A clearing house or settlement system typically needs to conduct money settlements with or between its participants for a variety of purposes. To conduct such money settlements, a clearing house or settlement system might use central bank money or commercial bank money, or a combination of both. Refer to subsection 1.1 of the Regulation for definitions of "central bank money" and "commercial bank money". Subsection 3.9(1) of the Regulation requires a recognized clearing house that acts as, or performs the services of a CCP or SS or a recognized settlement system to conduct its money settlements using central bank money, where practical and available, to avoid credit and liquidity risks.

Credit risk may arise when a settlement bank has the potential to default on its obligations (for example, if the settlement bank becomes insolvent). Liquidity risk may arise in money settlements if, after a payment obligation has been settled, participants or the clearing house or settlement system itself are unable to transfer readily their assets at the settlement bank into other liquid assets, such as claims on a central bank. The requirement under subsection 3.9(1) of the Regulation thus arises given that 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. With the use of central bank money, a payment obligation is typically discharged by providing the clearing house, the settlement system or its participants with a direct claim on the central bank, that is, the settlement asset is central bank money.

(2) The use of central bank money, however, may not always be practical or available. For example, the clearing house, the settlement system or its participants may not have direct access to all relevant central bank accounts and payment services. Further, a multicurrency clearing house or settlement system 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. In this regard, the use of commercial bank money may be a necessity.

Pursuant to subsection 3.9(2), where central bank money is not used, the clearing house or settlement system must conduct its money settlements using a settlement asset with little or no credit or liquidity risk. The use of commercial bank money (or a combination of central bank and commercial bank monies) to settle payment obligations, however, can create additional credit and liquidity risks for the entity and its participants. Accordingly, the clearing house or settlement system must minimize and strictly control the credit and liquidity risks arising from the use of commercial bank money, as further described in subsections 3.9(3) and (4).

Settlement in commercial bank money typically occurs on the books of a commercial bank. In this model, a clearing house or settlement system establishes an account with one or more commercial settlement banks and requires each of its participants to establish an account with one of them. In some cases, the clearing house or settlement system itself can serve as the settlement bank. Money settlements are then effected through accounts on the books of the clearing house or settlement system.

Commercial bank money

(3) (a) Where commercial bank money is used in lieu of central bank money, paragraph 3.9(3)(a) of the Regulation requires that the clearing house or settlement system monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement bank. For example, the entity should limit both the probability of being exposed to a commercial settlement bank's failure and limit the potential losses and liquidity pressures to which it would be exposed in the event of such a failure. The entity should establish and monitor adherence to strict criteria for its commercial settlement banks that take into account, among other things, their regulation and supervision, creditworthiness, capitalization, access to liquidity, and operational reliability.

(b) In addition, the clearing house or settlement system should take steps to limit its credit exposures and liquidity pressures by diversifying the risk of a commercial settlement bank failure, where reasonable, through use of multiple commercial settlement banks. The clearing house or settlement system must monitor and manage the full range and concentration of exposures to its commercial settlement banks and assess its potential losses and liquidity pressures as well as those of its participants in the event that the commercial settlement bank with the largest share of activity were to fail.

Settlement on books of clearing house

(5) Settlement in commercial bank money typically occurs on the books of a commercial bank. In this model, a clearing house or settlement system will typically establishes an account with one or more commercial settlement banks and requires each of its participants to establish an account with one of them. In some cases, the clearing house or settlement system itself can serve as the settlement bank. Money settlements are then effected through accounts on the books of the clearing house or settlement system. Where money settlement does not occur in central bank money and the clearing house or settlement system conducts money settlements on its own books, subsection 3.9(5) of the Regulation requires that it minimize and strictly control its credit and liquidity risks. In such an arrangement, the entity offers cash accounts to its participants, and a payment or settlement obligation is discharged by providing the clearing house's or settlement system's participants with a direct claim on the entity itself. The credit and liquidity risks associated with a claim on the entity are therefore directly related to its overall credit and liquidity risks. One way the entity could minimize these risks is to limit its activities and operations to clearing and settlement and closely related processes. Further, to settle payment obligations, the clearing house or settlement system could limit the provision of cash accounts to only participants. In some cases, the entity can further mitigate risk by having participants fund and defund their cash accounts at the clearing house or settlement system using central bank money. In such an arrangement, the entity is able to back the settlements conducted on its own books with balances that it holds in its account at the central bank.

Finality of funds transfers between settlement accounts

(6) 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. To this end, the clearing house's or settlement system's legal agreements with any commercial settlement banks should state clearly when transfers on the books of individual settlement banks 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 clearing house, the settlement system and its participants to manage credit and liquidity risks. If the clearing house or settlement system conducts intraday money settlements (for example, to collect intraday margin), the arrangement should provide real-time finality or intraday finality at the times when the entity wishes to effect money settlement.

Physical deliveries

General principle

3.10. (1) Where a recognized clearing house, a central securities depository or a settlement system settles transactions using physical delivery, which is the delivery of an asset, such as an instrument or a commodity in physical form, paragraph 3.10(1)(a) of the Regulation requires that the clearing house, the central securities depository or settlement system have rules and procedures that clearly state its obligations with respect to the delivery of those physical instruments or commodities. The obligations that the entity may assume with respect to physical deliveries vary based on the types of assets that it settles. In this regard, the entity should clearly state which asset classes it accepts for physical delivery and the procedures surrounding the delivery of each. As well, it should be clearly stated whether the entity's obligation is to make or receive physical deliveries or to indemnify participants for losses incurred in the delivery process.

In addition, the clearing house, the central securities depository or settlement system is required under paragraph 3.10(1)(b) of the Regulation to identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments and commodities. Issues relating to delivery may arise, for example, when a derivatives contract requires physical delivery of an underlying instrument or commodity. The entity should plan for and manage physical deliveries by 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 the entity 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).

Further, the clearing house, the central securities depository or settlement system 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. The entity's policies and procedures should ensure that its record of physical assets accurately reflects its holdings of assets, for example, by separating duties between handling physical assets and maintaining records. The entity should also have appropriate employment policies and procedures for personnel that handle physical assets and should include appropriate pre-employment checks and training. As well, the entity should consider other measures, such as insurance coverage and random storage facility audits, to mitigate its storage and delivery risks (other than principal risk).

In some instances, entities 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, it should be clear whether the receiving participant should seek compensation from the clearing house or the delivering participant in the event of a loss. Additionally, the clearing house holding margin should not release the margin of the matched participants until it confirms that both have fulfilled their respective obligations. The clearing house, central securities depository or settlement system 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.

Central securities depositories

General principle

3.11. (1) (a) In general, a CSD is an entity that provides securities accounts and, in many countries, performs the services of an SS. A CSD also provides central safekeeping and asset services, which may include the administration of corporate actions and redemptions, and plays an important role in helping to ensure the integrity of securities issues. See the definition of CSD under s. 1.1 of the Regulation. Under paragraph 3.11(1)(a) of the Regulation, where a recognized clearing house acts as a CSD or where the entity is a recognized central securities depository, it must have clear and comprehensive rules, procedures and controls to ensure that the securities it holds on behalf of its participants are appropriately accounted for on its books and protected from risks, including those associated with the other services that the CSD may provide.

(b) Securities can be held at a CSD either in physical (but immobilized) form or in dematerialized form (that is, as electronic records). Securities held in physical form may be transferred via physical delivery or immobilized and transferred via book entry. Book entry refers to the transfer of securities or other financial assets without physical movement of paper documents or certificates. The safekeeping and transferring of securities in physical form, however, creates additional risks and costs, such as the risk of destruction or theft of certificates, increased processing costs, and increased time to clear and settle securities transactions. By immobilizing securities and transferring them via book entry, a CSD can improve efficiency through increased automation and reduce the risk of errors and delays in processing. Dematerializing securities also eliminates the risk of destruction or theft of certificates. Under paragraph 3.11(1)(b), the CSD is therefore required to maintain securities in an immobilized or dematerialized form for their transfer by book entry. To facilitate the immobilization of all physical securities of a particular issue, a global note representing the whole issue can be issued. In certain cases, however, immobilization or dematerialization within a CSD may not be legally possible or practicable. In such cases, the CSD should provide incentives to immobilize or dematerialize securities.

Safeguarding integrity of securities issuers

(2) The preservation of the rights of issuers and holders of securities is essential for the orderly functioning of a securities market. Therefore, subsection 3.11(2) of the Regulation requires the CSD to (a) safeguard the rights of securities issuers and holders, (b) prevent the unauthorized creation or deletion of securities, and (c) conduct periodic and at least daily reconciliation of the securities issues that it maintains, in order to ensure that the securities it holds on behalf of its participants are appropriately accounted for on its books and protected from risks associated with the other services that the CSD may provide. The CSD should, in particular, maintain robust accounting practices and perform end-to-end auditing to verify that its records are accurate and provide a complete accounting of its securities issues. If the CSD records the issuance of securities (alone or in conjunction with other entities), it should verify and account for the initial issuance of securities and ensure that newly issued securities are delivered in a timely manner. To further safeguard the integrity of the securities issues, the CSD is required to conduct periodic and at least daily reconciliation of the totals of securities issues in the CSD for each issuer (or its issuing agent), and ensure that the total number of securities recorded in the CSD for a particular issue is equal to the amount of securities of that issue held on its books. Reconciliation may require coordination with other entities if the CSD does not (or does not exclusively) record the issuance of the security or is not the official registrar of the security. For instance, if the issuer (or its issuing agent) is the only entity that can verify the total amount of an individual issue, it is important that the CSD and the issuer cooperate closely to ensure that the securities in circulation in a system correspond to the volume issued into that system. If the CSD is not the official securities registrar for the securities issuer, reconciliation with the official securities registrar should be required. Finally, the CSD is required to (d) prohibit overdrafts and debit balances in securities accounts to avoid credit risk and reduce the potential for the creation of securities. If the CSD were to allow overdrafts or a debit balance in a participant's securities account in order to credit another participant's securities account, it would effectively be creating securities and would affect the integrity of the securities issue.

Protection of assets

(3) Subsection 3.11(3) requires that the CSD protect assets against custody risk, including the risk of loss because of negligence, misuse of assets, fraud, poor administration, inadequate recordkeeping, or failure to protect a participant's interests in securities or because of the CSD's insolvency or claims by its creditors. The CSD should have rules and procedures consistent with its legal framework and robust internal controls to achieve these objectives. Where appropriate, it should consider insurance or other compensation schemes to protect participants against misappropriation, destruction, and theft of securities.

(4) Moreover, the CSD must employ a robust system that ensures segregation between its own assets and the securities of its participants, and segregation among the securities of participants through the provision of separate accounts. While the title to securities is typically held in a CSD, often the beneficial owner, or the owner depending on the legal framework, of the securities does not participate directly in the system. Rather, the owner establishes relationships with CSD participants (or other intermediaries) that provide safekeeping and administrative services related to the holding and transfer of securities on behalf of customers. Where supported by the legal framework, the CSD must also support operationally the segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings to another participant. Where relevant, the segregation of accounts typically helps provide appropriate protection against the claims of a CSD's creditors or the claims of the creditors of a participant in the event of its insolvency.

Other activities

(5) If the CSD provides services other than central safekeeping and administration of securities, it must identify, measure, monitor, and manage the risks associated with those activities, particularly credit and liquidity risks, consistent with the respective requirements of the Regulation. Additional tools may be necessary to address these risks, including the need for the CSD to separate legally the other activities. For example, a CSD that performs the services of an SS may provide a centralized securities lending facility to help facilitate timely settlement and reduce settlement fails or may otherwise offer services that support the bilateral securities lending market. If the CSD acts as a principal in a securities lending transaction, it should identify, monitor, and manage its risks, including potential credit and liquidity risks. For example, the securities lent by the CSD may not be returned when needed because of a counterparty default, operational failure, or legal challenge. The CSD would then need to acquire the lent securities in the market, perhaps at a cost, thus exposing the CSD to credit and liquidity risks.

Exchange-of-value settlement systems

General principle

3.12. (1) The settlement of a financial transaction by a recognized clearing house or settlement system 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. In this context, principal risk – the risk that a counterparty will lose the full value involved in a transaction, such as the risk that a seller of a financial asset will irrevocably deliver the asset but not receive payment – may be created when one obligation is settled, but the other obligation is not. Under subsection

3.12(1) of the Regulation, principle risk must be eliminated by clearing houses that act as, or perform the services of a CCP or SS or settlement systems which settle transactions that involve the settlement of two linked obligations through the use of a delivery versus payment (DvP),[13] delivery versus delivery (DvD),[14] or payment versus payment (PvP)[15] settlement mechanism. These mechanisms ensure 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 entity settles on a gross or net basis and when finality occurs.

The final settlement of two linked obligations can be achieved either on a gross basis or on a net basis. For example, an SS can settle the transfers of both securities and funds on a gross basis throughout the settlement day. Alternatively, an SS can settle securities transfers on a gross basis throughout the day but settle funds transfers on a net basis at the end of the day or at certain times during the day. An SS can also settle both securities and funds transfers on a net basis at the end of the day or at certain times during the day. Regardless of whether the clearing house or the settlement system settles on a gross or net basis, the legal, contractual, technical, 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.

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 a SS does not itself provide cash accounts for settlement, it may first block the underlying securities in the account of the seller. The system 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 system 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. Further, blocked securities must not be subject to a claim by a third party (for example, other creditors, tax authorities, or even the system itself) because these claims would give rise to principal risk.

Participant default rules and procedures

General principle

3.13. Participant-default rules and procedures facilitate the continued functioning of a clearing house, a central securities depository or a settlement system in the event that a participant fails to meet its obligations. These rules and procedures help limit the potential for the effects of a participant's failure to spread to other participants and undermine the viability of the entity. Under subsections 3.13(1) and (2) of the Regulation, a recognized clearing house, central securities depository or settlement system is required to have default rules and procedures that enable it to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default. The entity should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules. Key objectives of default rules and procedures should include (i) ensuring timely completion of settlement, even in extreme but plausible market conditions; (ii) minimizing losses for the entity and for non-defaulting participants; (iii) limiting disruptions to the market; (iv) providing a clear framework for accessing entity liquidity facilities as needed; and (v) managing and closing

[13] "Delivery versus payment" is defined in the PFMI Report as "a securities settlement 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".
[14] "Delivery versus delivery" is defined in the PFMI Report as "a securities settlement mechanism that links two 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 occurs".
[15] "Payment versus payment" is defined in the PFMI Report as "a settlement mechanism that 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".

out the 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. The clearing house, the central securities depository or settlement system may also decide to auction or allocate open positions to its participants. To the extent consistent with these objectives, the entity should allow non-defaulting participants to continue to manage their positions as normal.

Use and sequencing of financial resources

(3) The clearing house’s, central securities depository’s or settlement system’s default rules and procedures should enable it to take timely action to contain losses and liquidity pressures, before, at, and after the point of participant default. Accordingly, the entity’s rules and procedures must allow the prompt use of any financial resources that it maintains for covering losses and containing liquidity pressures arising from default, including liquidity facilities, in a specified order. This information enables participants to assess their potential future exposures from using the entity’s services. Typically, the entity 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 the entity. The application of previously provided collateral should not be subject to prevention, stay, or reversal under applicable law and the rules of the entity. The clearing house, the central securities depository or settlement system 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, its rules and procedures should define the 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.

Default rules and procedures

(4) Further to subsections 3.13(1) to (3) of the Regulation, under subsection 3.13(4) of the Regulation, the clearing house, the central securities depository or settlement system is required to clearly describe the items listed, in its default rules and procedures. These elements of the default rules and procedures will enable the clearing house, the central securities depository or settlement system to continue to meet its obligations to non-defaulting participants in the event of a participant default. The clearing house, central securities depository or settlement system should involve its participants, relevant authorities, and other relevant stakeholders in developing its default rules and procedures.

In addition, if the clearing house acts as a CCP, it 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, the larger the CCP’s potential credit exposures resulting from changes in market prices or other factors will be. The CCP 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 the CCP has the authority to act promptly to contain its exposure, while having regard for overall market effects, such as sharp declines in market prices. The CCP should have the information, resources, and tools to close out positions promptly. In circumstances where prompt close out is not practicable, the CCP should have the tools to hedge positions as an interim risk-management technique. In some cases, the CCP may use seconded personnel from non-defaulting participants to assist in the close-out or hedging process. The CCP’s rules and procedures should clearly state the scope of duties and term of service expected from seconded personnel. In other cases, the CCP may elect to auction positions or portfolios to the market. The CCP’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 clearing house.

In general, the clearing house, central securities depository or settlement system 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 entity has the operational capacity, including sufficient well-trained personnel, to implement its procedures in a timely manner. The clearing house's, central securities depository's or settlement system'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 entity or authority is involved. In addition, timely communication with stakeholders, in particular with relevant authorities, is of critical importance. The clearing house, central securities depository or settlement system, 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 clearing house's, central securities depository's or settlement system's arrangements.

(5) To provide certainty and predictability regarding the measures that a clearing house, a central securities depository or settlement system may take in a default event, a recognized clearing house, central securities depository or settlement system is required under subsection 3.13(5) of the Regulation to publicly disclose on its Website key aspects of its default rules and procedures. This disclosure should include: (i) the circumstances in which action may be taken; (ii) who may take those actions; (iii) the scope of the actions which may be taken, including the treatment of both proprietary and customer positions, funds, and other assets; (iv) the mechanisms to address the entity's obligations to non-defaulting participants; and (v) where direct relationships exist with participants' customers, the mechanisms to help address the defaulting participant's obligations to its customers. This transparency fosters the orderly handling of defaults, enables participants to understand their obligations to the entity and to their customers, and gives market participants the information they need to make informed decisions about their activities in the market. The clearing house, the central securities depository or settlement system should ensure that its participants and their customers, as well as the public, have appropriate access to the default rules and procedures and should promote their understanding of those procedures in order to foster confidence in the market.

Testing of default procedures

Under subsections 3.13(6) and (7) of the Regulation, the clearing house, the central securities depository or settlement system is required to involve its participants and other stakeholders in the testing and review of its default rules and procedures, including any close-out procedures. The testing and review must be conducted at least annually or following material changes to the entity's default rules and procedures. The periodic testing and review of default procedures is important to help the clearing house, the central securities depository or settlement system and its participants understand fully the rules and 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 clearing houses, central securities depositories or settlement systems relevant authorities, and any related service providers. This is particularly important where the clearing house, the central securities depository or settlement system relies on non-defaulting participants or third parties to assist in the close-out process and where the default rules and procedures have never been tested by an actual default. The results of these tests and reviews should be shared with the entity's board of directors, risk committee, and relevant authorities.

Furthermore, part of the clearing house's, central securities depository's or settlement system's participant-default testing should facilitate the implementation of a resolution regime for its participants, as relevant. The clearing house, the central securities depository or settlement system should be able to take appropriate steps to assist the resolution process of a participant; specifically, the entity, 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.

Use of own capital

(8) Under subsection 3.13(8) of the Regulation, in applying its "waterfall" of prefunded financial resources in a default situation, the CCP is required to include a reasonable portion of its own capital to cover losses resulting from one or more participant defaults, prior to applying the collateral of the non-defaulting participants (i.e. a "skin-in-the-game" requirement). The Authority is of the view that a CCP should be required to participate in the default waterfall with its own capital contribution, to be used immediately after a defaulting participant's contribution and prior to non-defaulting participants' contributions. Such equity should be in reasonable proportion to the size of the CCP's default fund.

Segregation and portability

General principle

3.14. Segregation refers to a method of protecting customer collateral and contractual positions by holding or accounting for them separately. 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 positions and related collateral. Segregation also protects a customer's 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.

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 minimizes 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.

Under subsection 3.14(1) to (2) of the Regulation, a recognized clearing house that acts as a CCP must have rules and procedures that provide for the segregation and portability of positions of a participant's customers and the collateral provided to it with respect to those positions. In this regard, customer collateral should be segregated from the assets of the participant through which the customers clear. In addition, individual customer collateral may be held separately from the collateral of other customers of the same participant to protect customers from each other's default. The CCP should also 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.

The PFMI Report notes that in certain jurisdictions, cash market CCPs operate in legal regimes that facilitate segregation and portability to achieve protection of customer assets by alternate means that offer the same degree of protection as the approach required by Principle 14 as adopted in section 3.14. Features of such a regime are that if a participant fails, (i) the customer positions can be identified timely, (ii) customers will be protected by an investor protection scheme designed to move customer accounts from the failed or failing participant to another participant in a timely manner, and (iii) customer assets can be restored. The Authority is currently conducting further policy work on the application of section 3.14 to the CCPs serving the cash markets in Québec. Accordingly, in cases where it is determined by the Authority that cash market CCPs are operating in a manner, and within a framework, that achieves the same degree of protection and efficiency for customers that would otherwise be achieved by segregation and portability arrangements at the CCP level required by section 3.14, the Authority may provide an exemption from the application of this section.

Where the CCP is clearing over-the-counter derivatives transactions, it will be required to have rules and procedures that enable the segregation and portability of positions of a participant's customers and the collateral provided to it with respect to those positions, in accordance with the requirements set out in a provincial regulation on customer clearing and protection of customer collateral and positions. See section 1.4(2) for greater clarity on the terms "derivative" and "over-the-counter derivative" as well as the interaction of a provincial regulation on customer clearing and protection of customer collateral and positions and the Regulation.

(4) Under subparagraph 3.14(4)(a)(ii) of the Regulation, omnibus customer accounts refers to an account structure where securities or collateral belonging to some or all customers of a particular participant is comingled and held in a single account segregated from that of the participant.

General business risk

General principle

3.15. General business risk refers to the risks and potential losses arising from a clearing house's, central securities depository's or settlement system's administration and operation as a business enterprise that are neither related to participant default nor separately covered by financial resources under the credit or liquidity risk requirements. General business risk includes any potential impairment of a clearing house's, central securities depository's or settlement system'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 principles, for example, legal risk (in the case of legal actions challenging an entity's custody arrangements), investment risk affecting a clearing house's, a central securities depository's or settlement system's resources, and operational risk (in the case of fraud, theft, or loss). In these cases, general business risk may cause an entity to experience an extraordinary one-time loss as opposed to recurring losses. Under subsections 3.15(1) and (2) of the Regulation, a recognized clearing house, central securities depository or settlement system is required to have robust management and control systems to identify, monitor, and manage general business risk. The entity must also hold 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 the entity should hold must 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. Further specificity to these general principles is also provided under subsection 3.15(3) of the Regulation.

As part of the general principles of subsections 3.15(1) and (2), the clearing house, the central securities depository or settlement system should identify and assess the sources of business risk and their potential impact on its operations and services by taking into account past loss events and financial projections. The entity 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, the entity 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 clearing house, the central securities depository or settlement system. Sensitivity analysis should test how changes in one risk affect the entity's financial standing, for example, conducting the analysis of how the loss of a key customer or service provider might impact its existing business activities. In some cases, the clearing house, the central securities depository or settlement system may want to consider an independent assessment of specific business risks.

The clearing house, the central securities depository or settlement system should clearly understand its general business risk profile so that it is able to assess its ability 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 entity may use in response to changes in its business environment. When planning an expansion of activity, the entity should conduct a comprehensive enterprise risk assessment. In particular, when considering any major new product, service, or project, the clearing house, the central securities depository or settlement system should project potential revenues and expenses as well as identify and plan how it will cover any additional capital requirements. Further, the clearing house, the central securities depository or settlement system may eliminate or mitigate some risks by instituting appropriate internal controls or by obtaining insurance or indemnity from a third party.

Once the clearing house, the central securities depository or settlement system 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 risk-management program. Key components of a robust enterprise risk-management program include: establishing strong financial and internal control systems so that the entity can monitor, manage, and control its cash flows and operating expenses and mitigate any business-related losses. In particular, the entity should minimize 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. The clearing house, the central securities depository or settlement system should also ensure that it has rigorous and appropriate investment guidelines and monitoring procedures.

Determining sufficiency of liquid net assets

(3) As required by subsections 3.15(1) and (2) of the Regulation, a clearing house, a central securities depository or settlement system must hold a sufficient amount of liquid net assets funded by equity so that it can continue operations and services as a going concern if it incurs general business losses, or for the purposes of an orderly wind-down of its critical operations and services, where necessary. Equity allows the clearing house, the central securities depository or settlement system to absorb losses and should be permanently available for this purpose. Further to the requirements under paragraphs 3.3(3)(b) to (d) of the Regulation, subsection 3.15(3) of the Regulation requires the entity to maintain a viable recovery or orderly wind-down plan that is approved by the board of directors, as well as sufficient liquid net assets funded by equity to implement this plan.

A determination of 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 clearing house, the central securities depository or settlement system, the scope of its activities, the types of actions included in the plan, and the length of time needed to implement them. The clearing house, the central securities depository or settlement system 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, the entity should hold liquid net assets funded by equity equal to at least six months of current operating expenses.

In order to estimate the amount of liquid net assets funded by equity that a particular clearing house, central securities depository or settlement system would need, it should regularly analyze 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 entity's business model or because of external changes. The clearing house, the central securities depository or settlement system 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 to cover general business risk.

Assets held by the entity to cover risks or losses other than business risk (for example, the financial resources required under the credit and liquidity risk principles) or to cover losses from other business lines that are unrelated to its activities as clearing house, central securities depository or settlement system should not be included when accounting for liquid net assets available to cover business risk. However, equity held under international risk-based capital standards should be included where relevant and appropriate to avoid duplicate capital requirements.

(4) To ensure the adequacy of its own resources, the clearing house, the central securities depository or settlement system should regularly assess and document its liquid net assets funded by equity relative to its potential business risks.

(5) Under subsection 3.15(5) of the Regulation, the clearing house, the central securities depository or settlement system is required to provide a viable capital plan for maintaining an appropriate level of equity which includes detail regarding how the entity would raise new capital if its equity capital were to fall close to or below the amount needed. This plan must be approved by the board of directors and updated regularly. The entity may also need to consult its participants and others during the development of its plan.

In developing such a capital plan, the clearing house, the central securities depository or settlement system should consider a number of factors, including its ownership structure and any insured business risks. For example, the entity should determine if and to what extent specific business risks are covered by (i) explicit insurance from a third party or (ii) explicit indemnity agreements from a parent, owners, or participants (for example, general loss-allocation provisions and parent guarantees), which would be realizable within the recovery or orderly wind-down time frame. Given the contingent nature of these resources, the clearing house, the central securities depository or settlement system 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 entity's capital adequacy.

Custody and investment risks

General principle

3.16. (1) Custody risk is the risk of loss on assets held in custody in the event of a custodian's (or sub-custodian's) insolvency, negligence, fraud, poor administration, or inadequate recordkeeping. Under subsection 3.16(1) of the Regulation, a recognized clearing house, central securities depository or settlement system has the responsibility to safeguard its assets, such as cash and securities, as well as the assets that its participants have provided to the entity. Assets that are used by a clearing house, a central securities depository or settlement system to support its operating funds or capital funds or that have been provided by participants to secure their obligations to the clearing house, the central securities depository or settlement system should be held at supervised or regulated entities that have strong processes, systems, and credit profiles, including other clearing houses (for example, CSDs). In addition, assets should generally be held in a manner that assures the entity of prompt access to those assets in the event that it needs to draw on them.

(2) Investment risk refers to the risk of loss faced by a clearing house, a central securities depository or settlement system when it invests its own or its participants' assets.

Under subsection 3.16(2) of the Regulation, the entity is required to invest its own and its participants' assets in instruments with minimal credit, market, and liquidity risks, as further specified by subsection 3.16(4) of the Regulation.

Use of custodians

(3) (a) The clearing house, the central securities depository or settlement system is required to mitigate its custody risk by using only supervised or regulated banks or custodians 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. The custodian also should have a strong financial position to be able to sustain losses from operational problems or non-custodial activities.

(b) The clearing house, the central securities depository or settlement system is required to 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 entity should confirm it has prompt access to the assets in the event of a default of a participant.

(c) The clearing house, the central securities depository or settlement system is required to evaluate and understand its exposures to its banks and custodians, 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 the clearing house, the central securities depository or settlement system as well as a settlement bank and liquidity provider to the clearing house, the central securities depository or settlement system. The custodian bank also might be a participant in the clearing house, the central securities depository or settlement system and offer clearing services to other participants. The entity 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, the entity could consider using multiple custodians for the safekeeping of its assets to diversify its exposure to any single custodian. For example, if the clearing house acts as a CCP, it may want to use one custodian for its margin assets and another custodian for its prefunded default arrangement. Such a CCP, 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, the clearing house, the central securities depository or settlement system should monitor the concentration of risk exposures to, and financial condition of, its custodian banks on an ongoing basis.

Investment strategy

(4) Under paragraph 3.16(4)(a) of the Regulation, the clearing house's, central securities depository's or settlement system's strategy for investing its own and its participants' assets must be consistent with its overall risk-management strategy and fully disclosed to its participants. When making its investment choices, the entity should not allow pursuit of profit to compromise its financial soundness and liquidity risk management. Paragraph 3.16(4)(c) of the Regulation requires that investments be secured by, or be claims on, high-quality obligors to mitigate the credit risk to which the entity is exposed. Also, because the value of the entity's investments may need to be realized quickly, investments are to allow for quick liquidation with little, if any, adverse price effect pursuant to paragraph 3.16(4)(d). For example, the clearing house, the central securities depository or settlement system could invest in overnight reverse repo agreements backed by liquid securities with low credit risk. The clearing house, the central securities depository or settlement system should carefully consider its overall credit risk exposures to individual obligors, including other relationships with the obligor that create additional exposures such as an obligor that is also a participant or an affiliate of a participant in the entity. In addition, the clearing house, the central securities depository or settlement system should not invest participant assets in the participant's own securities or those of its affiliates. If the entity'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 entity's ability to use them when needed.

Operational risks

General principle

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 a clearing house, a central securities depository or settlement system. Operational failures can damage an entity's reputation or perceived reliability, lead to legal consequences, and result in financial losses incurred by the entity, participants, and other parties. In certain cases, operational failures can also be a source of systemic risk. Accordingly, subsection 3.17(1) of the Regulation requires that a recognized clearing house, central securities depository or settlement system establish a robust framework to manage its operational risks with appropriate systems, policies, procedures, and controls.

As part of the clearing house's, central securities depository's or settlement system's robust risk-management framework under the general principle of section 3.3 of the Regulation, the entity 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. The entity should take a holistic approach when establishing its operational risk-management framework.

(2) Under the general principle of subsection 3.17(2) of the Regulation, the systems of a recognized clearing house, central securities depository or settlement system must be designed to ensure a high degree of security and operational reliability. Accordingly, the entity should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives. As well, the clearing house, the central securities depository or settlement system is required to have scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.

(3) Under the general principle of subsection 3.17(3) of the Regulation, the clearing house, the central securities depository or settlement system must have a business continuity plan that has clearly stated objectives as well as 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. Business continuity management is a key component of the entity's operational risk-management framework.

Identifying sources of operational risk, operational risk management, and operational reliability

(4) (a) Paragraph 3.17(4)(a) of the Regulation provides greater specificity regarding the need for a robust operational risk management framework which allows the clearing house, the central securities depository or settlement system to actively identify, monitor, and manage the plausible sources of operational risk and establish clear policies and procedures to address them.

In identifying sources of operational risk, the clearing house, the central securities depository or settlement system should take into account that 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 (i) errors or delays in message handling, (ii) miscommunication, (iii) service degradation or interruption, (iv) fraudulent activities by staff, and (v) disclosure of confidential information to unauthorized entities. If the entity provides services in multiple time zones, it may face increased operational risk due to longer operational hours and less downtime for maintenance. The clearing house, the central securities depository or settlement system should identify all potential single points of failure in its operations. Additionally, the clearing house, the central securities depository or settlement system 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 analyze its potential vulnerabilities and implement appropriate defence mechanisms.

The various sources of operational risk should then be monitored, mitigated and managed, according to clear policies, procedures, and controls. 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 the clearing house, central securities depository or settlement system accepting, mitigating, or avoiding risks consistent with its operational reliability objectives. The entity's governance arrangements are pertinent to its operational risk-management framework.

To ensure the proper functioning of its risk controls, the clearing house, the central securities depository or settlement system should have sound internal controls. For example, the entity should have adequate management controls, such as setting operational standards, measuring and reviewing performance, and correcting deficiencies. There are many relevant international, national, and industry-level standards, guidelines, or recommendations that the entity may use in designing its operational risk-management framework. Conformity with commercial standards can help the clearing house, the central securities depository or settlement system reach its operational objectives. For example, commercial standards exist for information security, business continuity, and project management. The entity should regularly assess the need to integrate the applicable commercial standards into its operational risk-management framework. In addition, the clearing house, the central securities depository or settlement system should seek to comply with relevant commercial standards in a manner commensurate with the entity's importance and level of interconnectedness.

The clearing house's, central securities depository's or settlement system'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 the entity'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.

(b) Under paragraph 3.17(4)(b) of the Regulation, the clearing house's, central securities depository's or settlement system's board must explicitly define the roles and responsibilities for addressing operational risk and endorse the entity's operational risk-management framework.

Because the proper performance of the clearing house's, central securities depository's or settlement system's employees is a core aspect of any operational risk-management framework, the entity should employ sufficient, well-qualified personnel. The entity's personnel should be able to operate the system safely and efficiently and consistently follow operational and risk-management procedures during normal and abnormal circumstances. The clearing house, the central securities depository or settlement system 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, the clearing house, the central securities depository or settlement system should have appropriate human resources and risk-management policies to address fraud prevention.

(c) Under paragraph 3.17(4)(c) of the Regulation, the clearing house's, settlement system's or central securities depository's systems, policies, procedures and controls, including arrangements with participants, must be periodically, and whenever necessary, tested and reviewed, especially after significant changes occur to the system or a major incident occurs. In order to minimize 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 the entity's operational risk-management framework should be audited periodically and whenever necessary. In addition to periodic internal audits, external audits may be necessary, depending on the entity's importance and level of interconnectedness. Consistent with the evolving nature of operational risk management, the clearing house's, central securities depository's or settlement system's operational objectives should be periodically reviewed to incorporate new technological and business developments.

(d) Under paragraph 3.17(4)(d) of the Regulation, the clearing house, the central securities depository or settlement system must 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 the entity to evaluate its efficiency and effectiveness and evaluate its performance against expectations. These objectives should be designed to promote confidence among the entity's participants. Operational reliability objectives should include the entity'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 clearing house, the central securities depository or settlement system is intending to meet. The entity 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, and authorities. In addition, the clearing house's, central securities depository's or settlement system's operational objectives should be periodically reviewed to incorporate new technological and business developments.

Operational capacity, systems requirements, and incident management

(5) (c) Under paragraph 3.17(5)(c) of the Regulation, the clearing house, the central securities depository or settlement system is required to develop and maintain an adequate system of internal controls that support the entity's operations and services. As well, the entity is required to develop and maintain adequate information technology general controls. These are the controls which are implemented to support information technology planning, acquisition, development and maintenance, computer operations information systems support, and security. Recognized guides as to what constitutes adequate information technology controls include 'Information Technology Control Guidelines' from the Canadian Institute of Chartered Accountants (CICA) and 'COBIT' from the IT Governance Institute.

As part of its information technology general controls, the clearing house, the central securities depository or settlement system should have comprehensive physical and information security policies that address all potential vulnerabilities and threats. In particular, the entity should have policies effective in assessing and mitigating vulnerabilities in its physical sites from attacks, intrusions, and natural disasters. The clearing house, the central securities depository or settlement system should also have sound and robust information security policies, standards, practices, and controls to ensure an appropriate level of confidence and trust in the entity by all stakeholders. These policies, standards, practices, and controls should include the identification, assessment, and management of security threats and vulnerabilities for the purpose of implementing appropriate safeguards into its systems. Data should be protected from loss and leakage, unauthorized access, and other processing risks, such as negligence, fraud, poor administration, and inadequate recordkeeping. The entity's information security objectives and policies should conform to commercially reasonable standards for confidentiality, integrity, authentication, authorization, non-repudiation, availability, and auditability (or accountability).

(d) Under paragraph 3.17(5)(a) of the Regulation, the clearing house, the central securities depository or settlement system is required to ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives. Capacity management requires that the clearing house, the central securities depository or settlement system monitor, review, and test (including stress test) the actual capacity and performance of the system on an ongoing basis. Accordingly, under paragraph 3.17(5)(d) of the Regulation, the clearing house, the central securities depository or settlement system is required to meet certain systems capacity, performance and disaster recovery standards for testing. These standards are consistent with prudent business practice. The activities and tests required in this paragraph are to be carried out at least once a year. In practice, continuing changes in technology, risk management requirements and competitive pressures will often result in these activities being carried out or tested more frequently.

As part of its activities and test, the clearing house, the central securities depository or settlement system 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. Further, the entity should determine a required level of redundant capacity, taking into account its 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.

(e) Paragraph 3.17(5)(e) of the Regulation requires the clearing house, the central securities depository or settlement system to notify the Authority of any material system failure, malfunction or delay or other incident disruptive to the entity's operations, or any breach of data security, integrity or confidentiality. A failure, malfunction or delay or other disruptive incident is considered to be "material" if the clearing house, the central securities depository or settlement system would in the normal course of operations escalate the matter to or inform its senior management ultimately accountable for technology. It is also expected that, as part of this notification, the clearing house, the central securities depository or settlement system will provide updates on the status of the failure and the resumption of service. Further, the entity should have comprehensive and well-documented procedures in place to record, report, analyze, and resolve all operational incidents. In this regard, the entity should undertake a "post-incident" review to identify the causes and any required improvement to the normal operations or business continuity arrangements, as further discussed within section 3.17. Such reviews should, where relevant, include the clearing house's, central securities depository's or settlement system's participants. The results of such internal reviews are required to be communicated to the Authority as soon as practicable.

(6) Subsection 3.17(6) of the Regulation requires the clearing house, the central securities depository or settlement system to engage a qualified party to conduct an annual independent assessment of its systems and related internal controls and information technology general controls and prepare a report in accordance with established audit standards. A qualified party is a person or company or a group of persons or companies with relevant experience in both information technology and in the evaluation of related internal systems or controls in a complex information technology environment. Qualified persons may include external auditors or third party information system consultants, as well as employees of the entity, but may not be persons responsible for the development or operation of the systems or capabilities being tested.

(11) Subsection 3.17(11) of the Regulation holds that if the clearing house, the central securities depository or settlement system must make a change to its technology requirements regarding interfacing with or accessing the entity to immediately address a failure, malfunction or material delay of its systems or equipment, it will immediately notify the Authority. We expect the amended technology requirements to be made publicly available as soon as practicable, either while the changes are being made or immediately after.

Business continuity plan

(12) Business continuity management is a key component of a clearing house's, central securities depository's or settlement system's operational risk-management framework. Under subsection 3.17(12), the clearing house, the central securities depository or settlement system is required to have a business continuity plan, with clearly stated objectives. Paragraph 3.17(12)(a) of the Regulation specifies that this plan must address events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. 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, the entity'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. The clearing house, the central securities depository or settlement system should explicitly assign responsibility for business continuity planning and devote adequate resources to this planning.

As part of its business continuity plan, under paragraph 3.17(12)(b), the clearing house, the central securities depository or settlement system is required to 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. 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 geographical distance from the primary site that is sufficient to have a distinct risk profile. A comparative risk analysis should be conducted on a selected secondary site. The need and possibility of a third site could be considered, in particular to provide sufficient confidence that the entity's business continuity objectives will be met in all scenarios. The clearing house, the central securities depository or settlement system should also consider alternative arrangements (for example, manual paper-based procedures) to allow for the processing of time-critical transactions in extreme circumstances.

The objectives of the business continuity plan should include a system's recovery time and recovery point. Under subparagraph 3.17(12)(c)(i), the clearing house's, central securities depository's or settlement system's business continuity plan, including its disaster recovery plan, must be designed to ensure that critical information technology systems can resume operations within two hours following disruptive events. Ideally, backup systems should commence processing immediately. Under subparagraph 3.17(12)(c)(ii), the plan must also be designed to enable the entity to complete settlement by the end of the day even in case of extreme circumstances. Depending on their recovery-time objectives and designs, some entities may be able to resume operations with some data loss; however, contingency plans should ensure that the status of all transactions at the time of the disruption can be identified with certainty in a timely manner.

The clearing house's, central securities depository's or settlement system'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 crisis and event-management team as well as procedures to consult and inform participants, interdependent clearing houses, central securities depositories or settlement systems, authorities, and others (such as service providers and, where relevant, the media) quickly. Communication with regulators, supervisors, and overseers is critical in case of a major disruption to the entity's operations or a wider market distress that affects the clearing house, the central securities depository or settlement system, particularly where relevant authorities might rely on data held by the entity 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 the clearing house, central securities depository or settlement system has global importance or critical linkages to one or more interdependent clearing houses, central securities depositories or settlement systems it should set up, test, and review appropriate cross-system or cross-border crisis-management arrangements.

The clearing house's, central securities depository's or settlement system's business continuity plan and its associated arrangements should be subject to frequent review and testing. At a minimum, under paragraph 3.17(12)(d), such tests must be conducted annually. Tests should address various scenarios that simulate wide-scale disasters and inter-site switchovers. The entity's employees should be thoroughly trained to execute the business continuity plan and participants, critical service providers, and linked clearing houses, central securities depositories or settlement systems should be regularly involved in the testing and be provided with a general summary of the testing results. The Authority expects that the entity will also facilitate and participate in industry-wide testing of the business continuity plan. The clearing house, the central securities depository or settlement system should make appropriate adjustments to its business continuity plan and associated arrangements based on the results of the testing exercises.

(13) A single point of failure is any point in a system, whether a service, activity, or process, that, if it fails to work correctly, leads to the failure of the entire system.

Interdependencies, including outsourcing

(14) As a clearing house, a central securities depository or settlement system may be connected directly and indirectly to its participants, other clearing houses, central securities depositories or settlement systems and service and utility providers, it is incumbent on the entity to identify, monitor, and manage any risks that may be posed to its operations. Subsection 3.17(14) of the Regulation sets out the requirements for identifying, monitoring and managing the risks of the interdependencies of any of the key services or systems of the clearing house, the central securities depository or settlement system.

The clearing house, the central securities depository or settlement system 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 stem from an external operational failure of connected entities. These effects include those transmitted through its participants, which may participate in multiple clearing houses, central securities depositories or settlement systems. In addition, the entity should also identify, monitor, and manage the risks it faces from and poses to other clearing houses, central securities depositories or settlement systems (refer also to section 3.20). To the extent possible, interdependent entities should coordinate business continuity arrangements. The clearing house, the central securities depository or settlement system also should consider the risks associated with its service and utility providers and the operational effect on the entity if service or utility providers fail to perform as expected. The clearing house, the central securities depository or settlement system 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.

To manage the operational risks associated with its participants, the clearing house, the central securities depository or settlement system should consider establishing minimum operational requirements for its participants (see also section 3.18 on access, participation and process requirements). For example, the entity may want to define operational and business continuity requirements for participants in accordance with the participant's role and importance to the system. In some cases, the entity may want to identify critical participants based on the consideration of transaction volumes and values, services provided to the entity 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 entity itself. The clearing house, the central securities depository or settlement system should have clear and transparent criteria, methodologies, or standards for critical participants to ensure that their operational risks are managed appropriately.

(15) Where a clearing house, a central securities depository or settlement system relies upon or outsources some of its operations to a service provider, it should generally ensure that those operations meet the same requirements they would need to meet if they were provided internally. Under subsection 3.17(15) of the Regulation, the clearing house, the central securities depository or settlement system must meet various requirements in respect of the outsourcing of critical services or systems to a service provider. The requirements under the subsection 3.17(15) apply regardless of whether the outsourcing arrangements are with third-party service providers, or with affiliates of the clearing house.

Generally, the clearing house, the central securities depository or settlement system is required to establish, implement, maintain and enforce policies and procedures to evaluate and approve outsourcing agreements to critical service providers. Such policies and procedures should include assessing the suitability of potential service providers and the ability of the entity to continue to comply with securities legislation in the event of the service provider's bankruptcy, insolvency or termination of business. The clearing house, the central securities depository or settlement system is also required to monitor and evaluate the on-going performance of the service provider to which they outsourced critical services, systems or facilities. Further, the entity should have robust arrangements for the substitution of such providers, timely access to all necessary information, and the proper controls and monitoring tools.

Under subsection 3.17(15) of the Regulation, a contractual relationship should be in place between the clearing house, central securities depository or settlement system and the critical service provider allowing it and relevant authorities to have full access to necessary information. The contract should ensure that the entity's approval is mandatory before the critical service provider can itself outsource material elements of the service provided to the clearing house, the central securities depository or settlement system 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 entity and the critical service provider to facilitate the flow of functions and information between parties in both ordinary and exceptional circumstances.

Where the clearing house, the central securities depository or settlement system outsources operations to critical service providers, it should disclose the nature and scope of this dependency to its participants. It should also identify the risks from its outsourcing and take appropriate actions to manage these dependencies through appropriate contractual and organisational arrangements. The clearing house, the central securities depository or settlement system should inform the Authority about any such dependencies and the performance of these critical service providers. To that end, the clearing house, the central securities depository or settlement system can contractually provide for direct contacts between the critical service provider and the Authority, contractually ensure that the Authority can obtain specific reports from the critical service provider, or the entity may provide full information to the Authority.

Access, participation and due process requirements

General principle

3.18. (1) Access refers to the ability to use a clearing house's, central securities depository's or settlement system's services and includes the direct use of the services by participants, including other market infrastructures and, where relevant, service providers. In some cases, access also includes indirect participation. Under subsection 3.18(1) of the Regulation, a recognized clearing house, central securities depository or settlement system is required to allow for fair and open access to its services, while also having objective, risk-based and publicly disclosed criteria for participation. Fair and open access to the entity's services encourages competition among market participants and promotes efficient and low-cost clearing and settlement.

Basic access standards

(2) A clearing house, a central securities depository or settlement system should always consider the risks that an actual or prospective participant may pose to itself and other participants. Accordingly, subsection 3.18(2) specifically requires the clearing house, the central securities depository or settlement system to control the risks to which it is exposed by its participants by setting out risk-related requirements for participation in its services. The clearing house, the central securities depository or settlement system should ensure that its participants and any linked entity have the requisite operational capacity, financial resources, legal powers, and risk-management expertise to prevent unacceptable risk exposure for the clearing house, the central securities depository or settlement system and other participants. Where participants act for other entities (indirect participants), it may be appropriate for the clearing house, the central securities depository or settlement system, to impose additional requirements to ensure that the direct participants have the capacity to do so. Operational requirements may include reasonable criteria relating to the participant's ability and readiness (for example, its IT capabilities) to use the entity's services. Financial requirements may include reasonable risk-related capital requirements, 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 would not impede the ability of an applicant (for example, a foreign entity) to meet its obligations to the clearing house, the central securities depository or settlement system. The entity also may require participants to have appropriate risk-management expertise. If the clearing house, the central securities depository or settlement system 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.

The clearing house's, central securities depository's or settlement system's participation requirements must be clearly stated and publicly disclosed on its Website so as to eliminate ambiguity and promote transparency. In addition, the clearing house's, central securities depository's or settlement system's participation requirements should be justified in terms of its safety and efficiency as well as that of the markets it serves, be tailored to the entity's specific risks, and be imposed in a manner commensurate with such risks.

Subject to maintaining acceptable risk control standards, the clearing house, the central securities depository or settlement system 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 entity operates. Requirements should also reflect the risk profile of the activity; the clearing house, the central securities depository or settlement system 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.

To help address the balance between open access and risk, the clearing house, the central securities depository or settlement system should manage its participant-related risks through the use of 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, the clearing house, the central securities depository or settlement system can use 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 levels of capital may be permitted lessrestrictive risk limits or be able to participate in more functions within the entity. The effectiveness of such risk-management controls may mitigate the need for the clearing house, the central securities depository or settlement system to impose onerous participation requirements that limit access. The clearing house, the central securities depository or settlement system could also differentiate its services to provide different levels of access at varying levels of cost and complexity. For example, the clearing house, central securities depository or settlement system may want to limit direct participation to certain types of entities and provide indirect access to others. Participation requirements (and other risk controls) can be tailored to each tier of participants based on the risks each tier poses to the entity and its participants.

(3) Under subsection 3.18(3) of the Regulation, the clearing house, the central securities depository or settlement system is prohibited from unreasonably limiting access to its services, permitting unreasonable discrimination among its participants or the customers of its participants, or introducing competitive distortions. For example, requirements based solely on a participant's size are typically insufficiently related to risk and deserve careful scrutiny. In addition, the clearing house, the central securities depository or settlement system is prohibited from unreasonably requiring the use or purchase of another service to utilize the entity's functions, or impose unfair or inequitable fees or material costs. For instance, the entity should not develop closed, proprietary interfaces that result in vendor lock-in or barriers to entry with respect to competing service providers. Also, the Authority is of the view that a requirement on participants of a CCP serving the derivatives markets to use an affiliated trade repository to report derivatives trades would be unreasonable.

Participant monitoring

(6) Under subsection 3.18(6), the clearing house, the central securities depository or settlement system is required to 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 the entity's participation requirements. The clearing house, the central securities depository or settlement system should also have the authority to impose more-stringent restrictions or other risk controls on a participant in situations where it is determined that the participant poses heightened risk to the entity. For example, if a participant's creditworthiness declines, the clearing house, the central securities depository or settlement system may require the participant to provide additional collateral or reduce the participant's credit limit. Finally, the clearing house, the central securities depository or settlement system should 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. The methodology of monitoring compliance and non-compliance should be fully documented.

Tiered participation arrangements

General principle

3.19. (1) (a) Section 3.19 of the Regulation discusses a recognized clearing house's, central securities depository's or settlement system's requirements in respect of tiered participation arrangements. Tiered participation arrangements occur when firms (indirect participants) rely on the services provided by other firms (direct participants) to use a clearing house's, central securities depository's or settlement system's facilities. In such arrangements, tiered participants may not be bound by the rules of the clearing house, the central securities depository or settlement system even though its transactions are cleared or settled by or through the entity. The dependencies and risk exposures (including credit, liquidity, and operational risks) inherent in these tiered arrangements can present risks to the entity and its smooth functioning as well as to the participants themselves and the broader financial markets. Under paragraph 3.19(1)(a) of the Regulation, the clearing house, the central securities depository or settlement system must identify, monitor, and manage any material risks to the entity arising from such tiered participation arrangements.

The nature of the risks posed by tiered participation arrangements is such that they are most likely to be material where there are indirect participants whose business through a clearing house, a central securities depository or settlement system is a significant proportion of the entity's overall activities or is large relative to that of the direct participant through which they access the clearing house's, central securities depository's or settlement system's services. A clearing house, a central securities depository or a settlement system should therefore identify indirect participants responsible for a significant proportion of transactions processed by the entity and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants, through which they access the clearing house, the central securities depository or settlement system in order to manage the risks arising from these transactions.

Normally, the identification, monitoring, and management of risks from tiered participation will be focused on financial institutions that are the immediate customers of direct participants and depend on the direct participant for access to a clearing house's, central securities depository's or settlement system's services. In exceptional cases, however, tiered participation arrangements may involve a complex series of financial intermediaries or agents, which may require the entity to look beyond the direct participant and its immediate customer. The clearing house, the central securities depository or settlement system should therefore identify all material dependencies between direct and indirect participants that might affect the clearing house, the central securities depository or settlement system.

There are limits on the extent to which the clearing house, the central securities depository or settlement system can, in practice, observe or influence direct participants' commercial relationships with their customers. However, a clearing house, a central securities depository or a settlement system 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 entity. At a minimum, the clearing house, the central securities depository or settlement system should identify the types of risk that could arise from tiered participation and should monitor concentrations of such risk. If the entity or its smooth operation is exposed to material risk from tiered participation arrangements, it should seek to manage and limit such risk.

(b) The clearing house, the central securities depository or settlement system should regularly review risks to which it may be exposed as a result of tiered participation arrangements. If material risks exist, the entity should take mitigating action when appropriate. The results of the review process should be reported to the board of directors and updated periodically and after substantial amendments to the clearing house's, central securities depository's or settlement system's rules.

Gathering and assessing information on risks arising from tiered participation arrangements

(2) The clearing house, the central securities depository or settlement system may be able to obtain information relating to tiered participation through its own systems or by collecting it from direct participants. Under subsection 3.19(2) of the Regulation, the clearing house, the central securities depository or settlement system must therefore ensure that its procedures, rules, and agreements with direct participants allow it the ability to gather basic information about indirect participants in order to identify, monitor, and manage any material risks to the entity arising from such tiered participation arrangements. This information should, when collected, enable the entity, at a minimum, to identify (i) the proportion of activity that direct participants conduct on behalf of indirect participants, (ii) direct participants that act on behalf of a material number of indirect participants, (iii) indirect participants with significant volumes or values of transactions in the system, and (iv) indirect participants whose transaction volumes or values are large relative to those of the direct participants through which they access the clearing house, the central securities depository or settlement system.

Understanding material dependencies in tiered participation arrangements

(3) Under subsection 3.19(3), the clearing house, the central securities depository or settlement system is required to identify material dependencies between direct and indirect participants that may adversely affect the entity, and in particular, have policies and procedures that enable it to identify certain indirect participants, as identified in paragraphs (a) and (b). Indirect participants will often have some degree of dependency on the direct participant through which they access the clearing house, the central securities depository or settlement system. In the case of a clearing house, a central securities depository or settlement system with few direct participants but many indirect participants, it is likely that a large proportion of the transactions processed by the entity 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 clearing house, the central securities depository or settlement system should identify and monitor material dependencies of indirect participants on direct participants so that the entity has readily available information on which significant indirect participants may be affected by problems at a particular direct participant.

In some cases, issues at an indirect participant could also affect the clearing house, the central securities depository or settlement system. This is most likely to occur where a large indirect participant accesses the clearing house's, central securities depository's or settlement system's facilities through a relatively small direct participant. 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 entity. Clearing houses, central securities depositories or settlement systems should therefore identify and monitor the material dependencies of direct participants on indirect participants so that they have readily available information on how they may be affected by problems at an indirect participant, including which direct participants may be affected.

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. The clearing house, the central securities depository or settlement system is not expected to manage the credit and liquidity exposures between direct and indirect participants, although the entity may have a role in applying credit or position limits in agreement with the direct participant. The clearing house, the central securities depository or settlement system should, however, have access to information on concentrations of risk arising from tiered participation arrangements that may affect the entity, allowing it to identify indirect participants responsible for a significant proportion of the clearing house's, central securities depository's or settlement system's transactions or whose transaction volumes or values are large relative to those of the direct participants through which they access the clearing house, the central securities depository or settlement system. The entity should identify and monitor such risk concentrations.

In a CCP, direct participants are responsible for the performance of their customers' financial obligations to the CCP. The CCP 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 a clearing house that acts as a CCP, a central securities depository or a settlement system with a potential credit exposure related to an indirect participant's positions, the entity should ensure it understands and manages the exposure it would face. For example, the entity may set participation requirements that require the direct participant, on request, to demonstrate that it is adequately managing relationships with its customers to the extent that they may affect the CCP. The clearing house, the central securities depository or settlement system should also consider establishing concentration limits on exposures to indirect participants, where appropriate.

Default scenarios can create uncertainty about whether indirect participants' transactions have been settled or will be settled and whether any settled transactions will be unwound. Default scenarios can also raise legal and operational risks for the clearing house, the central securities depository or settlement system if there is uncertainty about whether the indirect or direct participant is liable for completing the transaction. The clearing house, the central securities depository or settlement system 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 entity. The clearing house, the central securities depository or settlement system should ensure that its rules and procedures are clear regarding the status of indirect participants' transactions at each point in the settlement process (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. The clearing house, the central securities depository or settlement system should also ensure that it adequately understands its direct participants' processes and procedures for managing an indirect participant's default. For example, the entity 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 entity to operational, reputational, or other risks.

Direct participation in a clearing house, a central securities depository or settlement system 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 a clearing house, a central securities depository or a settlement system, 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. If these indirect participants have large values or volumes of business through the clearing house, the central securities depository or settlement system this may affect its smooth functioning. For these reasons, where an indirect participant accounts for a large proportion of the transactions processed by the entity, it may be appropriate to encourage direct participation. For example, the clearing house, the central securities depository or settlement system may in some cases establish objective thresholds above which direct participation would normally be encouraged (provided that the firm satisfies the entity's access criteria). Setting such thresholds and encouraging direct participation should be based on risk considerations rather than commercial advantage.

Links with other financial market infrastructures

General principle

3.20. (1) For the purposes of the Regulation and this PS, a link is to be understood as a set of contractual and operational arrangements between a recognized clearing house, central securities depository or settlement system and one or more other clearing houses, central securities depositories or settlement systems or trade repositories that connect these entities directly or through an intermediary. The clearing house, the central securities depository or settlement system may establish a link for the primary purpose of expanding its services to additional financial instruments, markets, or institutions.

Identifying and managing link-related arrangements

(2) Before entering into a link arrangement, and on an ongoing basis once the link is established, the clearing house, the central securities depository or settlement system is required to identify and assess, and subsequently monitor and manage all potential sources of risk arising from the link, including legal, operational, credit, and liquidity risks.

The type and degree of risk varies according to the design and complexity of the entities and the nature of the relationship between them. In a simple case of a vertical link, for example, the clearing house, the central securities depository or settlement system may provide basic services to another entity, such as a CSD that provides securities transfer services to an SS. Such links typically pose only operational and custody risks. Other links, such as an arrangement in which a CCP provides clearing services to another CCP, may be more complex and may pose additional risk, such as credit and liquidity risk. Cross-margining by two or more CCPs may also pose additional risk because the CCPs may rely on each other's risk-management systems to measure, monitor, and manage credit and liquidity risk. In addition, links between different types of clearing houses, central securities depositories or settlement systems may pose specific risks to one or all of the entities in the link arrangement. For example, a CCP may have a link with a CSD that performs the services of an SS for the delivery of securities and settlement of margins. If the CCP poses risks to the CSD, the CSD should manage those risks.

In respect of managing legal risks, a link is required to have a well-founded legal basis, as further required by paragraph 3.20(3)(a) of the Regulation.

In respect of managing operational risks, the clearing house, the central securities depository or settlement system should ensure that linked entities provide an appropriate level of information about their operations to each other in order for each to perform effective periodic assessments of the operational risk associated with the link. In particular, the clearing house, the central securities depository or settlement system should ensure that each entity's 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. Systems and communication arrangements between linked entities also should be reliable and secure so that the link does not pose significant operational risk. Any reliance by a linked entity on a critical service provider should be disclosed as appropriate to the other entities. In addition, a linked entity should be obligated to 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 entity will not inhibit the smooth functioning of the link, related risk-management arrangements, or non-discriminatory access to the link.

In respect of managing financial risks, the clearing house, the central securities depository or settlement system should ensure that each entity in a link is able to effectively measure, monitor, and manage their financial risk, including custody risk, arising from the link. Moreover, the entities and their participants should be obligated to ensure they have adequate protection of assets in the event of the insolvency of another linked entity or a participant default in a linked entity.

Specific guidance on mitigating and managing risks for CSD-CSD links and CCP-CCP links is provided in subsections 3.20(4) and (5).

(3) (a) As is required under paragraph 3.20(3)(a) of the Regulation, a link should have a well-founded legal basis that supports its design and provides adequate protection to the entities involved in the link. Cross-border links may present legal risk arising from differences between the laws and contractual rules governing the linked entities and their participants, including those relating to rights and interests, collateral arrangements, settlement finality, and netting arrangements. For example, differences in law and rules governing settlement finality may lead to a scenario where a transfer is regarded as final in one entity, but not in the linked one(s). In some jurisdictions, differences in laws may create uncertainties regarding the enforceability of CCP obligations assumed by novation, open offer, or other similar legal device. Differences in insolvency laws may unintentionally give a participant in one CCP a claim on the assets or other resources of a linked CCP in the event of the first's default. To limit these uncertainties, the respective rights and obligations of the linked entities and, where necessary, their participants should be clearly defined in the link agreement. 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.

(b) In all cases, links are required to be designed such that the clearing house, the central securities depository or settlement system is able to properly observe the Regulation. Further, the link should not hinder the ability of each of the other linked entities to observe securities legislation, including the Regulation, as well as the ability of their regulators to monitor compliance with securities legislation, where applicable.

CSD-CSD links

(4) Under subsection 3.20(4), if the central securities depository is linked to another CSD or, if the clearing house acts a CSD and is linked to another CSD(s), it is required to meet various standards, arising from various potential risks. Namely, as part of its activities, a CSD (the 'investor CSD'), or a third party acting on behalf of the investor CSD, may choose to establish a link with another CSD (the 'issuer CSD', in which securities are issued or immobilized), for example by opening an account with the issuer CSD, so as to enable the cross-system settlement of securities transactions. 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 are therefore required under paragraph 3.20(4)(a) of the Regulation to identify, monitor, and manage the credit and liquidity risks arising from the linked entity. In addition, under paragraph 3.20(4)(b) of the Regulation, any credit extensions between CSDs must be covered fully by high-quality collateral and be subject to limits. Further, some practices deserve particularly rigorous attention and controls. In particular, under paragraph 3.20(4)(c) of the Regulation, provisional transfers of securities between linked CSDs must be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.

Under paragraph 3.20(4)(d) of the Regulation, an investor CSD must 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. 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 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.

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).

Pursuant to paragraph 3.20(4)(e) of the Regulation, if an investor CSD uses an intermediary to operate a link with an issuer CSD, the investor CSD must 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 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. 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.

CCP-CCP links

(5) A clearing house that acts as a CCP may establish links with one or more other CCPs. In this regard, if the clearing house operating as a CCP is linked to another CCP, subsection 3.20(5) of the Regulation requires it to meet various standards, arising from various potential risks.

Although the details of individual link arrangements among CCPs differ significantly because of the varied designs of CCPs and the markets they serve, there are currently two basic types of CCP links: peer-to-peer links and participant links. In a peer-to-peer link, a CCP maintains special arrangements with another CCP and is not subject to normal participant rules. Typically, however, the CCPs exchange margin and other financial resources on a reciprocal basis. The linked CCPs 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. Risk management between the CCPs is based on a bilaterally approved framework, which is different from that applied to a normal participant.

In a participant link, one CCP (the participant CCP) is a participant in another CCP (the host CCP) and is subject to the host CCP’s normal participant rules. In such cases, the host CCP maintains an account for the participant CCP and would typically require the participant CCP to provide margin, as would be the case for a participant that is not a CCP. A participant CCP 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 defaults, the participant CCP may not have adequate protection because the participant CCP does not hold collateral from the host CCP to mitigate the counterparty risk posed to it by the host CCP. Risk protection in a participant link is one-way, unlike in a peer-to-peer link. The participant CCP that provides margin but does not collect margin from another linked CCP should therefore hold additional financial resources to protect itself against the default of the host CCP.

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 involved in the link. The most challenging issue with respect to CCP links is the risk management of the financial exposures that potentially arise from the link arrangement. Under paragraphs 3.20(5)(a) and (b) of the Regulation, before entering into a link with another CCP, the CCP must identify and assess the potential spill-over effects from the default of the linked CCP, as well as identify, assess and manage the potential spill-over effects on an ongoing basis thereafter. Under paragraph 3.20(5)(c) of the Regulation, if a link has three or more CCPs, each CCP must identify and assess the risks of the collective link arrangement. A network of links between CCPs that does not properly acknowledge and address the inherent complexity of multi-CCP links could have significant implications for systemic risk.

Exposures faced by one CCP from a linked CCP should be identified, monitored, and managed with the same rigour as exposures from a CCP’s participants to prevent a default at one CCP from triggering a default at a linked CCP. Such exposures should be covered fully, primarily through the use of margin or other equivalent financial resources. In particular, under paragraph 3.20(5)(d) of the Regulation, each CCP in a CCP link arrangement must be able to cover, at least on a daily basis, its current and potential future exposures to the linked CCP and its participants, if any, fully with a high degree of confidence without reducing the CCP’s ability to fulfil its obligations to its own participants at any time. Financial resources used to cover inter-CCP current exposures should be prefunded with highly liquid assets that exhibit low credit risk. Best practice is for CCPs to have near real time inter-CCP risk management. However, at a minimum, financial exposures among linked CCPs should be marked to market and covered on a daily basis. CCPs also need to consider and address the risks arising from links in designing their stress tests and calibrating their prefunded default arrangements. Linked CCPs should also take into account the effects that possible contributions to each other’s 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.

Because of the different possible types of links, different types of CCPs, and differences in the legal and regulatory frameworks in which CCPs may operate, different combinations of risk-management tools may be used by the CCP. When linked CCPs have materially different risk-management frameworks, the risks stemming from the link are more complex. In this case, the linked CCPs should carefully assess the effectiveness of their risk-management models and methodologies, including their default procedures, in order to determine whether and to what extent their inter-CCP risk-management frameworks should be harmonised or whether additional risk-mitigation measures would be sufficient to mitigate risks arising from the link.

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.

Linked CCPs 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 holds to address other risks. The most direct way to achieve this outcome is for CCPs not to participate in each other’s default funds, which may in turn mean that the CCP will need to provide additional margin. However, in arrangements in which CCPs have agreed, consistent with their regulatory framework, to contribute to each other’s default funds, the linked CCPs should assess and mitigate the risks of making such contributions via specific conditions. In particular, funds used by a CCP to contribute to another CCP's default fund must represent prefunded additional financial resources and must not include resources used by the CCP 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 to mitigate the counterparty risk presented by its participants. The contributing CCP should further ensure that any consequent exposure of its own participants to the risk of a participant default in the linked CCP is fully transparent to and understood by its participants. The contributing CCPs may, for example, consider it appropriate to ensure 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 to another should be held in such a way that they are ring fenced from other resources provided to that CCP. 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. Finally, in case of a participant default in the first CCP, the use of the linked CCP's contribution to the default fund of the first CCP could be restricted or limited. For example, the linked CCP's contribution to the default fund could be put at the bottom of the first CCP's default waterfall.

Link arrangements between CCPs will expose each CCP to sharing in potentially uncovered credit losses if the linked CCP's default waterfall has been exhausted. For example, a CCP may be exposed to loss mutualisation from defaults of a linked CCP's participants. This risk will be greater to the extent that the first CCP is unable directly to monitor or control the other CCP's participants. Such contagion risks can be even more serious in cases where more than two CCPs are linked, directly or indirectly, and a CCP considering such a link should satisfy itself that it can manage such risks adequately. Each CCP 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. CCPs 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, CCPs may need to increase financial resources to address this risk.

Any default fund contributions or allocation of uncovered losses should be structured to ensure that (i) no linked CCP is treated less favourably than the participants of the other CCP and (ii) each CCP's contribution to the loss sharing arrangements of the other is no more than proportionate to the risk the first CCP poses to the linked CCP.

Efficiency and effectiveness

General principle

3.21. (1) Under subsection 3.21(1) of the Regulation, a recognized clearing house, central securities depository or settlement system is required to efficiently and effectively meet the needs of its participants and the markets it serves. In particular, the clearing house, the central securities depository or settlement system should have regard for choice of a clearing, depository and settlement arrangement; operating structure; scope of products cleared, deposited, settled, or recorded; and use of technology and procedures. In the context of this section, and as further operationalized in subsection 3.21(2) of the Regulation, "efficiency" refers generally to the resources required by the entity to perform its functions, while "effectiveness" refers to whether the entity is meeting its intended goals and objectives.

Efficiency is a broad concept that encompasses what the clearing house, the central securities depository or settlement system chooses to do, how it does it, and the resources required. Fundamentally, the entity should be designed and operated to meet the needs of its participants and the markets it serves. The clearing house's, central securities depository's or settlement system's efficiency will ultimately affect its use by its participants and their customers as well as these entities' ability to conduct robust risk management, which may affect the broader efficiency of financial markets.

The clearing house, the central securities depository or settlement system is effective when it reliably meets its obligations in a timely manner and achieves the public policy goals of safety and efficiency for participants and the markets it serves. In the context of oversight and auditing, the entity's effectiveness may also involve meeting service and security requirements.

A clearing house, a central securities depository or a settlement system that operates inefficiently or functions ineffectively may distort financial activity and the market structure, increasing not only the financial and other risks of an entity's participants, but also the risks of their customers and end users. If the entity is inefficient, a participant may choose to use an alternate arrangement that poses increased risks to the financial system and the broader economy. The primary responsibility for promoting the efficiency and effectiveness of the clearing house, the central securities depository or settlement system belongs to its owners and operators.

Presumption

(2) (a) The clearing house's, central securities depository's or settlement system's efficiency and effectiveness depends partly on its choice of, and its reliability in meeting its intended goals and objectives related to a clearing, depository and settlement arrangement (for example, gross, net, or hybrid settlement; real time or batch processing; and novation or guarantee scheme); operating structure (for example, links with multiple trading venues or service providers); scope of products cleared, settled, or recorded; and use of technology and procedures (for example, communication procedures and standards). Under paragraph 3.21(2)(a) to (c) of the Regulation, it will be presumed that the clearing house, the central securities depository or settlement system is operating efficiently and effectively if it can demonstrate all the items listed in the paragraphs. Under paragraph 3.21(2)(a) of the Regulation, the clearing house, the central securities depository or settlement system must demonstrate that it meets the needs of its participants and the markets it serves, with particular regard to items (i) to (iv) listed in the Regulation.

In designing an efficient system, the clearing house, the central securities depository or settlement system should also consider the practicality and costs for participants, their customers, and other relevant parties (including other clearing houses, central securities depositories or settlement systems and service providers). Furthermore, the entity's technical arrangements should be sufficiently flexible to respond to changing demand and new technologies.

(b) To further demonstrate its efficient and effective operation, the clearing house, the central securities depository or settlement system should have clearly defined goals and objectives that are measureable and achievable. Under paragraph 3.21(2)(b), the clearing house, the central securities depository or settlement system is required to set minimum service-level targets (such as the time it takes to process a transaction and the availability of its IT system), risk-management expectations (such as the level of financial resources it should hold), and business priorities (such as the development of new services), in order to establish that it is operating efficiently and effectively.

(c) Finally, in establishing that the clearing house, the central securities depository or settlement system is operating efficiently and effectively, paragraph 3.21(2)(c) of the Regulation requires that the clearing house, the central securities depository or settlement system demonstrate that it has mechanisms for the regular review of its efficiency and effectiveness. Such reviews should include periodic measurement of progress against the entity's goals and objectives. As well, since efficiency can involve cost control, the entity's reviews should include regular review of its costs and pricing structure.

Communication procedures and standards

General principle

3.22. (1) The ability of participants to communicate with a clearing house, a central securities depository or a settlement system in a timely, reliable, and accurate manner is key to achieving efficient clearing, settlement, depository, recording and payment processes. A clearing house's, central securities depository's or settlement system's adoption of internationally accepted communication procedures and standards for its core functions – i.e. standardized communication procedures (or protocols) which provide a common set of rules across systems for exchanging messages – can facilitate the elimination of manual intervention in clearing, depository and settlement processing, reduce risks and transaction costs, improve efficiency, and reduce barriers to entry into a market. Reducing the need for intervention and technical complexity when processing transactions can also help to reduce the number of errors, avoid information losses, and ultimately reduce the resources needed for data processing by an entity, its participants, and markets generally. In this regard, subsection 3.22(1) of the Regulation requires a recognized clearing house, central securities depository or settlement system to use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards to ensure effective communication between the entity and its participants, their customers, and others that connect to the clearing house, the central securities depository or settlement system (such as third-party service providers and other clearing houses, central securities depositories or settlement systems). The entity is encouraged but not required to use or accommodate internationally accepted communication procedures and standards for purely domestic transactions.

If the clearing house, the central securities depository or settlement system conducts activities across borders, it should also use internationally accepted communication procedures and standards or, at a minimum, accommodate them. A clearing house, a central securities depository or a settlement system that, for example, settles a chain of transactions processed through multiple clearing houses, central securities depositories or settlement systems or provides services to users in multiple jurisdictions should strongly consider using internationally accepted communication procedures and standards to achieve efficient and effective cross-border financial communication. Furthermore, adopting these communication procedures can facilitate interoperability between the information systems or operating platforms of clearing houses, central securities depositories or settlement systems in different jurisdictions, which allows market participants to obtain access to multiple clearing houses, central securities depositories or settlement systems without facing technical hurdles (such as having to implement or support multiple local networks with different characteristics). An entity that operates across borders also should be able to support and use well-established communication procedures, messaging standards, and reference data standards relating to counterparty identification and securities numbering processes. For example, relevant standards promulgated by the International Organization for Standardization should be carefully considered and adopted by the clearing house, the central securities depository or settlement system.

Systems that translate or convert data

(2) While the use of internationally accepted standards for message formats and data representation (whether used domestically or across borders) will generally improve the quality and efficiency of the clearing and settlement of financial transactions, where the clearing house, the central securities depository or settlement system does not itself fully adopt internationally accepted communication standards, it can still potentially interoperate with the information systems or operating platforms of other clearing houses, central securities depositories or settlement systems by developing systems to translate or convert international procedures and standards into the domestic equivalent, and vice versa.

Transparency

General principle

3.23. Under subsection 3.23(1) of the Regulation, a recognized clearing house, central securities depository or settlement system is required to 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, and as part of the requirements under subsection 3.1(2) of the Regulation, the clearing house, the central securities depository or settlement system should adopt and disclose written rules 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. The clearing house's, central securities depository's or settlement system's rules, procedures, and explanatory material need to be accurate, up-to-date, and readily available to all current and prospective participants. Under subsections 3.23(1) and (2) of the Regulation, the relevant rules and procedures of the clearing house, the central securities depository or settlement system must be fully disclosed to participants and the public on its Website.

Understanding risks

(3) The clearing house's, central securities depository's or settlement system's rules and procedures are typically the foundation of the clearing house, the central securities depository or settlement system and provide the basis for participants' understanding of the risks they incur by participating in the entity. In this regard, and further to subsections 3.23(1) and (2) of the Regulation, which requires the clearing house, the central securities depository or settlement system to adopt clear and comprehensive rules and procedures that are fully disclosed to participants and to the public, subsection 3.23(3) of the Regulation requires the clearing house's, central securities depository's or settlement system's relevant rules and procedures to include clear descriptions of the system's design and operations, as well as the entity and its participants' rights and obligations, so that participants can assess the risk they would incur by participating in the entity. They should clearly outline the respective roles of participants and the clearing house, the central securities depository or settlement system as well as the rules and procedures that will be followed in routine operations and non-routine, though foreseeable, events, such as a participant default. In particular, the clearing house, the central securities depository or settlement system should have clear and comprehensive rules and procedures for addressing financial and operational problems within the system.

(4) Participants bear primary responsibility for understanding the rules, procedures, and risks of participating in a clearing house, a central securities depository or a settlement system as well as the risks they may incur when the entity has links with other clearing houses, central securities depositories or settlement systems. However, subsection 3.23(4) of the Regulation requires the clearing house, the central securities depository or settlement system to provide all documentation, training, and information necessary to facilitate participants' understanding of the entity's rules and procedures and the risks they face from participating in the clearing house, the central securities depository or settlement system. New participants should receive training before using the system, and existing participants should receive, as needed, additional periodic training. The clearing house, the central securities depository or settlement system 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 entity. Other relevant information that should be disclosed to participants, but typically not to the public, includes key highlights of the clearing house's, central securities depository's or settlement system's business continuity arrangements.

As the clearing house, the central securities depository or settlement system is well placed to observe the performance of its participants, it should promptly identify those participants whose behaviour demonstrates a lack of understanding of, or compliance with, applicable rules, procedures, and risks of participation. In such cases, the entity should take steps to rectify any perceived lack of understanding by the participant and take other remedial action necessary to protect the clearing house, the central securities depository or settlement system 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 entity should notify the appropriate regulatory, supervisory, and oversight authorities.

Changes to rules and procedures

(5) Further to subsections 3.23(1) and (2) of the Regulation which require the disclosure of all relevant rules and key procedures, subsection 3.23(5) requires that the clearing house, the central securities depository or settlement system have a clear and fully disclosed process for proposing and implementing changes to its rules and procedures. The clearing house, the central securities depository or settlement system is also required to have rules and procedures for informing participants and the Authority of such changes. Similarly, the rules and procedures should clearly disclose the degree of discretion that the clearing house, the central securities depository or settlement system can exercise over key decisions that directly affect the operation of the system, including in crises and emergencies. For example, the clearing house's, central securities depository's or settlement system's procedures may provide for discretion regarding the extension of operating hours to accommodate unforeseen market or operational problems. The clearing house, the central securities depository or settlement system also should have appropriate procedures to minimize any conflict-of-interest issues that may arise when authorized to exercise its discretion.

Disclosure of fees

(6) Subsections 3.23 (6) and (7) of the Regulation require the public disclosure of fees for individual services and policies on discounts, as well as clear descriptions of priced services for comparability purposes on its Website. In addition, the clearing house, the central securities depository or settlement system should disclose information on the system design, as well as technology and communication procedures, that affect the costs of operating the entity. 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. The clearing house's, central securities depository's or settlement system'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. The entity should provide timely notice to participants and the public of any changes to services and fees.

Disclosure framework and basic data

Under subsection 3.23(8), the clearing house, the central securities depository or settlement system should provide to the public comprehensive and appropriately detailed responses to the CPSS-IOSCO FMI Disclosure Document to improve the overall transparency of the entity, its governance, operations, and risk-management framework. In order for the disclosures to reflect correctly the entity's current rules, procedures, and operations, the clearing house, the central securities depository or settlement system should update its responses following material changes to the system or its environment. At a minimum, the entity should review its responses to the CPSS-IOSCO FMI Disclosure Document every two years to ensure continued accuracy and usefulness.

Other relevant information for participants and, more generally, the public could include general information on the clearing house's, central securities depository's or settlement system's full range of activities and operations, such as the names of direct participants in the clearing house, central securities depository or settlement system, key times and dates in entity operations, and its overall risk-management framework (including its margin methodology and assumptions). The clearing house, the central securities depository or settlement system also should disclose its financial condition, financial resources to withstand potential losses, timeliness of settlements, and other performance statistics. The clearing house, the central securities depository or settlement system is required to disclose, at a minimum, basic data on transaction volumes and values under subsection 3.23(9) of the Regulation. The Authority is of the view that such minimum basic data on transaction volumes and values are those that are set forth in the CPSS-IOSCO report *Public quantitative disclosure standards for central counterparties* for a clearing house that acts as a CCP.[16]

[16] See the consultative CPSS-IOSCO report *Public quantitative disclosure standards for central counterparties*, published in October 2013, available at the Bank for International Settlements' website (www.bis.org) and IOSCO website (www.iosco.org).

The clearing house, the central securities depository or settlement system should make the relevant information and data it discloses available to the public through generally accessible media, including its Website. The data should be accompanied by robust explanatory documentation that enables users to understand and interpret the data correctly.