

ANNEX C

ANNEX I TO COMPANION POLICY 24-102 *CLEARING AGENCY REQUIREMENTS*
[BLACKLINED VERSION – please see footnote 5 of the Notice]

Annex I to Companion Policy 24-102 *Clearing Agency Requirements* is amended by replacing the Annex in its entirety with the following:

Annex I
to Companion Policy 24-102 *CP Clearing Agency Requirements*

Joint Supplementary Guidance
Developed by the Bank of Canada and Canadian Securities Administrators

– *PFMI Principle 2: Governance*

Box 2.1:
Joint Supplementary Guidance –
~~Financial Stability and Other Public Interest Considerations~~ Governance

Context

The PFMI define 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 organization sets its objectives, determines the means for achieving those objectives, and monitors performance against those objectives.

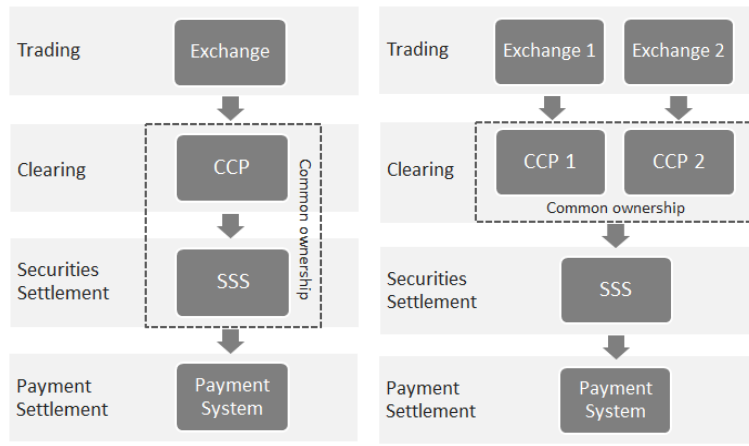
This note provides supplementary regulatory guidance for Canadian FMIs that either belong to an integrated entity or are considering consolidating with another entity to form one. It also provides additional context and clarity for Canadian FMIs on certain aspects of the PFMI's expectations pertaining to how on their governance arrangements as it relates to supporting are expected to support relevant public interest considerations.

(i) Vertical and horizontal integration in the context of FMIs

The PFMI define 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, CCP and 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).¹ Examples are shown in Figure 1.

(a) Figure 1: Examples of FMI integration in the value chain

Example of vertically integrated FMIs Example of horizontally integrated FMIs



¹ [Committee on Payments and Market Infrastructure \(CPMI\) and International Organization of Securities Commissions \(IOSCO\) 2010. "Market structure developments in the clearing industry: implications for financial stability." CPMI-IOSCO Paper No 92. Available at: http://www.bis.org/publ/cpss92.htm.](http://www.bis.org/publ/cpss92.htm)

Consolidation, or integration, of FMI services may bring about benefits for merging FMIs; however it may also create new governance challenges. The PFMI's contain some general guidance regarding how FMIs should manage governance issues that arise in integrated entities.

(b) Guidance within the PFMI's

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

PFMI 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.*** ² *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 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.*

(c) 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.

For a more extensive discussion of potentially heightened risks that integrated FMIs may face, see CPMI-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.

Measures to protect critical FMI functions

FMIs may be part of a larger consolidated entity. These FMIs must either:

- legally separate FMI-related functions³ from non-FMI-related functions performed by the consolidated entity in order to maximize bankruptcy remoteness of the FMI-related functions; or
- have satisfactory policies and procedures in place to manage additional risks resulting from the non-FMI-related functions appropriately to ensure the FMI's financial and operational viability.

² 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.

³ FMI-related functions are CCP, SSS, and CSD functions, including other core aspects of clearing and settlement necessary to perform the CCP, SSS, and CDS functions (see the CPMI-IOSCO glossary definitions of "clearing" and "settlement", available at <http://www.bis.org/cpmi/publ/d00b.pdf>).

If an FMI performs multiple FMI-related functions with distinct risk profiles within the same entity, 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.

If an FMI offers CCP services as part of its FMI-related functions, further conditions apply. 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-related functions, or have satisfactory policies and procedures in place to manage additional risks 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.

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-related 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-related 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-related function's observance of the PFMI Principle on governance.

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.

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.⁴

(ii) Public interest considerations in the context of the PFMIs

The PFMIs indicate 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.

⁴ Liquid assets held for general business losses must be funded by equity (such as common stock, disclosed reserves, or retained earnings) rather than debt.

(a) Guidance within the PFMI

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

PFMI 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 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 CPMI-IOSCO PFMI Disclosure framework and Assessment methodology provides questions to guide the assessment of the FMI against the PFMI. 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.

(b) Supplementary Guidance for designated Canadian FMIs

By definition the PFMI 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 decision?

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

Box 2.2:
Joint Supplementary Guidance—
Vertically and Horizontally Integrated FMIs

Context

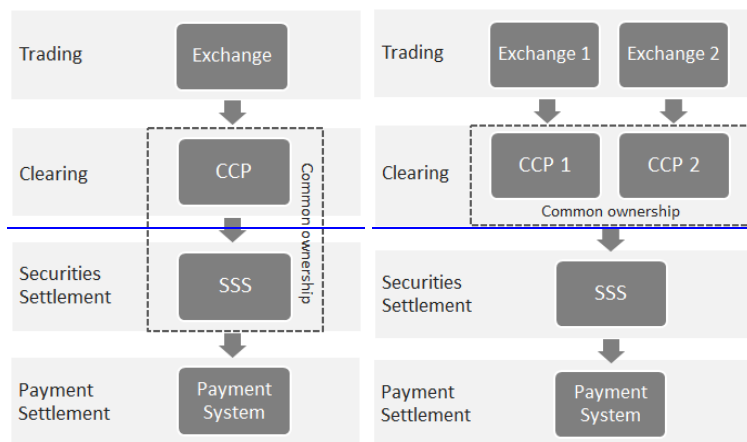
Consolidation, or integration, of FMI services may bring about benefits for merging FMIs; however it may also create new governance challenges. The PFMI contain some general guidance regarding how FMIs should manage governance issues that arise in integrated entities. This note provides supplementary 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

The PFMI define 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, CCP and 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).⁴ Examples are shown in Figure 1.

Figure 1: Examples of FMI integration in the value chain

a) Example of vertically integrated FMIs b) Example of horizontally integrated FMIs



⁴ CPMI-IOSCO 2010. "Market structure developments in the clearing industry: implications for financial stability." CPMI-IOSCO Paper No 92. Available at: <http://www.bis.org/publ/cps92.htm>.

Guidance within the PFMLs

The following text has been extracted directly from the PFMLs. The pertinent information is in bold italics.

PFML 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.**² 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.~~

PFML 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.~~

For a more extensive discussion of potentially heightened risks that integrated FMIs may face, see CPMI, "Market structure developments in the clearing industry: implications for financial stability" (2010).³

~~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 may be part of a larger consolidated entity. These FMIs must either:
 - ~~legally separate FMI-related functions⁴ from non-FMI-related functions performed by the consolidated entity in order to maximize bankruptcy remoteness of the FMI-related functions; or~~
 - ~~have satisfactory policies and procedures in place to manage additional risks resulting from the non-FMI-related functions appropriately to ensure the FMI's financial and operational viability.~~~~

² ~~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.~~

³ ~~Available at <http://www.bis.org/cpmi/publ/d92.pdf>.~~

⁴ ~~FMI-related functions are CCP, SSS, and CSD functions, including other core aspects of clearing and settlement necessary to perform the CCP, SSS, and CDS functions (see the CPMI-IOSCO glossary definitions of "clearing" and "settlement", available at <http://www.bis.org/cpmi/publ/d00b.pdf>).~~

- If an FMI performs multiple FMI-related functions with distinct risk profiles within the same entity, 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.
- If an FMI offers CCP services as part of its FMI-related functions, further conditions apply. 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-related functions, or have satisfactory policies and procedures in place to manage additional risks 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-related 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-related 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-related function's observance of the CPMI-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.⁵

⁵ Liquid assets held for general business losses must be funded by equity (such as common stock, disclosed reserves, or retained earnings) rather than debt.

– **PFMI Principle 3: Framework for the comprehensive management of risks**

**Box 3.1:
Joint Supplementary Guidance –
Recovery Plans**

Context

In 2012, to enhance the safety and efficiency of payment, clearing and settlement systems, the Committee on Payments and Market Infrastructures and the International Organization of Securities Commissions (CPMI-IOSCO) released a set of international risk-management standards for FMIs, known as the **Principles for Financial Market Infrastructures (PFMIs)**.¹ The PFMIs provide standards regarding FMI recovery planning and orderly wind-down, which were adopted by the Bank of Canada as Standard 24 of the Bank's *Risk-Management Standards for Designated Systemic FMIs*² and by the CSA as part of National Instrument 24-102.^{3,4} ~~The Bank's Standard (NI-24 is described as follows:-102).~~⁵ In the context of recovery planning,

An FMI is expected to identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. This entails preparing appropriate plans for its recovery or orderly wind-down based on the results of that assessment.

In October 2014, the CPMI-IOSCO released its report, “**Recovery of Financial Market Infrastructures**” (the **Recovery Report**), providing additional guidance specific to the recovery of FMIs.⁶ The Recovery Report explains the required structure and components of an FMI recovery plan and provides guidance on FMI critical services and recovery tools at a level sufficient to accommodate possible differences in the legal and institutional environments of each jurisdiction.

For the purpose of this guidance, FMI recovery is defined as the set of actions that an FMI can take, consistent with its rules, procedures and other ex ante contractual agreements, to address any uncovered loss, liquidity shortfall or capital inadequacy, whether arising from participant default or other causes (such as business, operational or other structural weakness), including actions to replenish any depleted pre-funded financial resources and liquidity arrangements, as necessary, to maintain the FMI's viability as a going concern and the continued provision of critical services.^{7,8}

Recovery planning is not intended as a substitute for robust day-to-day risk management ~~or for business continuity planning.~~ Rather, it serves to extend and strengthen an FMI's risk-management framework, enhancing the resilience of the FMI against financial risks and bolstering confidence in the FMI's ability to function effectively even under extreme but plausible market conditions and operating environments.

Key Components of Recovery Plans

Overview of existing risk-management and legal structures

As part of their recovery plans, FMIs should include overviews of their legal entity structure and capital structure to provide context for stress scenarios and recovery activities.

FMIs should also include an overview of their existing risk-management frameworks—i.e., their **pre-recovery** risk-management frameworks and activities. As part of this overview, and to determine the relevant point(s) where standard pre-recovery risk-management frameworks are exhausted, FMIs should identify all the material risks they are exposed to and explain how they use their existing pre-recovery risk-management tools to manage these risks to a high degree of confidence.

¹ Available at <http://www.bis.org/cpmi/publ/d101a.pdf>.

² See key consideration 4 of PFMI Principle 3 and key consideration 3 of PFMI Principle 15 which are adopted in the Canadian Securities Administrators' (CSA) National Instrument 24-102 *Clearing Agency Requirements*, section 3.1.

³ See key consideration 4 of PFMI Principle 3 and key consideration 3 of PFMI Principle 15 which are adopted in the Canadian Securities Administrators' (CSA) National Instrument 24-102 *Clearing Agency Requirements*, section 3.1.

⁴ ~~The Bank of Canada's *Risk-Management Standards for Designated FMIs* is available at <http://www.bankofcanada.ca/core-functions/financial-system/bank-canada-risk-management-standards-designated-fmis/>.~~

⁵ ~~The Bank of Canada's *Risk-Management Standards for Systemic FMIs* is available at <http://www.bankofcanada.ca/core-functions/financial-system/bank-canada-risk-management-standards-systemic-fmis/>.~~

⁶ Available at <http://www.bis.org/cpmi/publ/d121.pdf>.

⁷ Recovery Report, Paragraph 1.1.1

⁸ For a precise definition of orderly wind-down, see the Recovery Report, Paragraph 2.2.2.

Critical services⁹

In their recovery plans, FMIs should identify, in consultation with Canadian authorities and stakeholders, the services they provide that are critical to the smooth functioning of the markets that they serve and to the maintenance of financial stability. FMIs may find it useful to consider the degree of **substitutability** and **interconnectedness** of each of these critical services, specifically

- ❖ The degree of criticality of an FMI's service is likely to be high if there are no, or only a small number of, alternative service providers. Factors related to the substitutability of a service could include (i) the size of a service's market share, (ii) the existence of alternative providers that have the capacity to absorb the number of customers and transactions the FMI maintains, and (iii) the FMI participants' capability to transfer positions to the alternative provider(s).
- ❖ The degree of criticality of an FMI's service may be high if the service is significantly interconnected with other market participants, both in terms of breadth and depth, thereby increasing the likelihood of contagion if the service were to be discontinued. Potential factors to consider when determining an FMI's interconnectedness are (i) what services it provides to other entities and (ii) which of those services are critical for other entities to function.

Stress scenarios¹⁰

In their recovery plans, FMIs should identify scenarios that may prevent them from being able to provide their critical services as a going concern. Stress scenarios should be focused on the risks an FMI faces from its payment, clearing and settlement activity. An FMI should then consider stress scenarios that cause financial stress in excess of the capacity of its existing pre-recovery risk controls, thereby pushing the FMI into recovery. An FMI should organize stress scenarios by the types of risk it faces; for each stress scenario, the FMI should clearly explain the following:

- ❖ the assumptions regarding market conditions and the state of the FMI within the stress scenario, accounting for the differences that may exist depending on whether the stress scenario is systemic or idiosyncratic;
- ❖ the estimated impact of a stress scenario on the FMI, its participants, participants' clients and other stakeholders; and
- ❖ the extent to which an FMI's existing pre-recovery risk-management tools are insufficient to withstand the impacts of realized risks in a recovery stress scenario and the value of the loss and/or of the negative shock required to generate a gap between existing risk-management tools and the losses associated with the realized risks.

Triggers for recovery

For each stress scenario, FMIs should identify the triggers that would move them from their pre-recovery risk-management activities (e.g., those found in a CCP's default waterfall) to recovery. These triggers should be both qualified (i.e., outlined) and, where relevant, quantified to demonstrate a point at which recovery plans will be implemented without ambiguity or delay. While the boundary between pre-recovery risk-management activities and recovery can be clear (for example, when pre-funded resources are fully depleted), judgment may be needed in some cases. When this boundary is not clear, FMIs should lay out in their recovery plans how they will make decisions.¹¹ This includes detailing in advance their communication plans, as well as the escalation process associated with their decision-making procedures. They should also specify the decision-makers responsible for each step of the escalation process to ensure that there is adequate time for recovery tools to be implemented if required.

More generally, it is important to identify and place the triggers for recovery early enough in a stress scenario to allow for sufficient time to implement recovery tools- described in the recovery plan. Triggers placed too late in a scenario will impede the effective rollout of these tools and hamper recovery efforts. Overall, in determining the moment when recovery should commence, and especially where there is uncertainty around this juncture, an FMI should be prudent in its actions and err on the side of caution.

Selection and ImplementationApplication of Recovery Tools¹²

A comprehensive plan for recovery

The success of a recovery plan relies on a comprehensive set of tools that can be effectively implemented during recovery. The applicability of these tools and their contribution to recovery varies by system, stress event and the order in which they are applied.

⁹ Recovery Report, Paragraphs 2.4.2–2.4.4

¹⁰ Recovery Report, Paragraph 2.4.5

¹¹ Recovery Report, Paragraph 2.4.8

¹² Recovery Report, Paragraph 2.3.6 – 2.3.7 and 2.5.6 and Paragraphs 3.4.1 – 3.4.7

A robust recovery plan relies on a range of tools to form an adequate response to realized risks. Canadian authorities will provide feedback on the comprehensiveness of selected recovery tools when reviewing an FMI's complete recovery plan.

Characteristics of recovery tools

In providing this guidance, Canadian authorities used a broad set of criteria (described below), including those from the ~~CPMI-IOSCO~~ Recovery Report, to determine the characteristics of effective recovery tools.¹³ FMIs should aim for consistency with these criteria in the selection and application of tools. In this context, recovery tools should be

- Reliable and timely in their application and have a strong legal and regulatory basis. This includes the need for FMIs to mitigate the risk that a participant may be unable or unwilling to meet a call for financial resources in a timely manner, or at all (i.e., performance risk), and to ensure that all recovery activities have a strong legal and regulatory basis.
- Measurable, manageable and controllable to ensure that they can be applied effectively while keeping in mind the objective of minimizing their negative effects on participants and the broader financial system. To this end, using tools in a manner that have predictable and capped results in participant exposure exposures that are determinable and fixed provides better certainty of a tool's impact the tools' impacts on FMI participants and ~~its~~their contribution to recovery. Fairness in the allocation of uncovered losses and shortfalls, and the capacity to manage the associated costs, should also be considered.
- Transparent to participants: this should include a predefined description of each recovery tool, its purpose and the responsibilities and procedures of participants and the FMIs subject to the recovery tool's application to effectively manage participants' expectations. Transparency also mitigates performance risk by detailing the obligations and procedures of FMIs and participants beforehand to support the timely and effective rollout of recovery tools.
- Designed to create appropriate incentives for sound risk management and encourage voluntary participation in recovery to the greatest extent possible. This includes may include distributing post-recovery proceeds to participants that supported the FMI through the recovery process.

Systemic stability

Certain tools may have serious consequences for participants and for the stability of financial markets more generally. FMIs should use prudence and judgment in the selection of appropriate tools. Canadian authorities are of the view that FMIs should avoid be cautious in using tools that can create uncapped, unpredictable or ill-defined participant exposures, and which could create uncertainty and disincentives to participate in an FMI. Any such use would need to be carefully justified. Participants' ability to predict and manage their exposures to recovery tools is important, both for their own stability and for the stability of the indirect participants of an FMI.

In assessing FMI recovery plans, Canadian authorities are concerned with the possibility of systemic disruptions from the use of certain tools or tools that pose unquantifiable risks to participants. ~~When selecting recovery tools~~When determining which recovery tools should be included in a recovery plan, and selecting and applying such tools during the recovery phase, FMIs should keep in mind the objective of minimizing their negative impacts on participants, the FMI and the broader financial system.

Recommended recovery tools

This section outlines recommended recovery tools for use in FMI recovery plans. Not all tools are applicable for the different types of FMIs (e.g., a payment system versus a central counterparty), nor is this an exhaustive list of tools that may be available for recovery. Each FMI should use discretion when selecting determining the most appropriate tools for inclusion in its recovery plans plan, consistent with the considerations discussed above.

❖ **Cash calls**

Cash calls are recommended for recovery plans if to the extent that the exposures they are generate are fixed and determinable; for example, capped and limited to a maximum number of rounds over a specified period, established in advance. ~~The cap (or)~~In this context, participant exposure exposures should be linked to each participant's risk-weighted level of FMI activity.

By providing predictable exposures pro-rated to a participant's risk-weighted level of activity, FMIs create incentives for better risk management on the part of participants, while giving the FMI greater certainty over the amount of resources that can be made available during recovery.

Since cash calls rely on contingent resources held by FMI participants, there is a risk that they may not be honoured, reducing their effectiveness as a recovery tool. The management of participants' expectations, especially placing through the placement of clear limits on participant exposure, can mitigate this concern.

¹³ Recovery Report, Paragraph 3.3.1

Cash calls can be designed in multiple ways to structure incentives, vary their impacts on participants and respond to different stress scenarios. When designing cash calls, FMIs should, to the greatest extent possible, seek to minimize the negative consequences of the tool's use.

❖ Variation margin gains haircutting (VMGH)

VMGH is recommended for recovery plans ~~if its use is limited to a maximum number of rounds that are predefined by the FMI because participant exposure under this tool can be measured with reasonable confidence, as it is tied to the level of risk held in the variation margin (VM) fund and the potential for gains. Where recovery plans allow for multiple rounds of VMGH, Canadian authorities will consider the impact of each successive round of haircutting with increasing focus on systemic stability.~~

VMGH relies on participant resources posted at the FMI as variation margin (VM). Where the price movements of underlying instruments create sufficient VM gains for use in recovery, VMGH provides an FMI with a reliable and timely source of financial resources without the performance risk that is associated with tools reliant on resources held by participants.

VMGH assigns losses and shortfalls only to participants with net position gains; as a result, the pro rata financial burden is higher for these participants. The negative effects of VMGH can also be compounded for participants who rely on variation margin gains to honour obligations outside the FMI.

~~Participant exposure under VMGH can be measured with reasonable confidence since it is tied to the level of risk held in the VM fund and the potential for gains. By specifying the maximum number of rounds that VMGH can be applied, an FMI will limit this exposure, providing better predictability of the tool's impact. FMIs should seek to minimize these negative effects to the greatest extent possible.~~

❖ Voluntary contract allocation

To recover from an unmatched book caused by a participant default, a CCP can use its powers to allocate unmatched contracts.¹⁴ In the context of recovery, contract allocation ~~should only be applied~~ is encouraged on a voluntary basis, ~~for example, by auction.~~ Voluntary contract allocation ~~(e.g., by auction)~~ addresses unmatched positions while taking participant welfare into account, since only participants who are willing to take on positions will participate.

The reliance on a voluntary process, such as an auction, introduces the risk that not all positions will be matched or that the auction process is not carried out in a timely manner. Defining the responsibilities and procedures for voluntary contract allocation (e.g., the auction rules) in advance will mitigate this risk and increase the reliability of the tool. To ensure that there is adequate participation in an auction process, FMIs should create incentives for participants to take on unmatched positions. FMIs may also wish to consider expanding the auction beyond direct participants to increase the chances that all positions will be matched.

❖ Voluntary contract tear-up

Since eliminating positions can help re-establish a matched book, Canadian authorities view voluntary contract tear-up as a potentially effective tool for FMI recovery. ~~However, to the extent that the termination of an incomplete trade represents a disruption of a critical FMI service (albeit on a limited and intended basis), it can be too invasive to apply. Where contract tear-up is included in a recovery plan, FMIs should keep this in mind and perform tear-up only on a voluntary basis.~~ To this end, FMIs may want to consider using incentives to encourage voluntary tear-up during recovery.¹⁵ While contract tear-up undertaken on a voluntary basis is a recommended tool, the forced termination of an incomplete trade may represent a disruption of a critical FMI service, and can be intrusive to apply (see the section "Tools requiring further justification" for a discussion of forced contract tear-up).

To the extent that ~~a~~ voluntary contract tear-up ~~still disrupts~~ may disrupt critical FMI services, it can produce disincentives to participate in an FMI. There should be a strong legal basis for the relevant processes and procedures when voluntary contract tear-up is included in a recovery plan. This will help to manage participant expectations for this tool and ensure that confidence in the FMI is maintained.

Other tools available for FMI recovery include standing third-party liquidity lines, contractual liquidity arrangements with participants, insurance against financial loss, increased contributions to pre-funded resources, and use of an FMI's own capital beyond the default waterfall. These and other tools are often already found in the pre-recovery risk-management frameworks of FMIs; ~~nonetheless,~~ Canadian authorities encourage their use for recovery as well, provided they are in keeping with the criteria

¹⁴ A CCP "matched book" occurs when ~~there a~~ position taken on by the CCP with one clearing member is offset by an equal distribution of assets and liabilities. In the context of a CCP, ~~and at opposite position taken on with~~ a simplified level, this refers to the matched positions that form the two sides of an active trade ~~second clearing member.~~ A matched book must be maintained for the CCP to complete a trade. An unmatched book occurs when one participant defaults on its position in the trade, leaving the CCP unable to complete the transaction.

¹⁵ Recovery Report, Paragraph 4.5.3

for effective recovery tools as found in the Recovery Report and in this guidance.¹⁶ Where system-specific recovery needs necessitate, FMI can also design recovery tools not explicitly listed in this guidance. The applicability of such tools will be examined by the Canadian authorities when they review the proposed recovery plan.

To the extent that the costs of recovery are shared less equally under some tools (e.g., VMGH), if it is financially feasible, FMIs could consider post-recovery actions to restore fairness where participants have been disproportionately affected. Such actions may include the repayment of participant contributions used to address liquidity shortfalls and other instruments that aim to redistribute the burden of losses allocated during recovery. It is important to note that these actions in the post-recovery period should not impair the financial viability of the FMI as a going concern.

Tools not recommended for recovery plans requiring further justification

Due to their uncertain and potentially negative effects on the broader financial system, tools that are more intrusive or result in participant exposures that are difficult to measure, manage or control, must be carefully considered and justified with strong rationale by the FMI when they are included in a recovery plan. Canadian authorities ~~do not encourage the inclusion~~ will provide their views on the suitability of uncapped and unlimited rounds any such tools as part of cash calls, unlimited rounds ~~their review of VMGH, involuntary (forced) contract allocation, involuntary (forced) contract tear-up, and the use of non-defaulting participants' initial margin in FMI recovery plans. These could potentially be used by a resolution authority but would need to be carefully assessed against their potential impact on participants and the stability of the broader financial system.~~

~~While these tools can potentially address liquidity or capital shortfalls, it could be to the detriment of the broader financial system and the viability of the FMI. Uncapped~~ For example, uncapped and unlimited cash calls and unlimited rounds of VMGH can create ambiguous participant exposures, ~~while exposures to involuntary contract allocation and tear-up activities can be difficult to manage, measure and control, even when they offer incentives to assist with recovery, the negative effects of which must be prudently considered when including them in a recovery plan. In addition, when applied during the recovery process, Canadian authorities will monitor the application of each successive round of cash calls and VMGH with increased focus on systemic stability.~~

~~Where FMIs believe that these tools should be included in a recovery plan, the tools must be carefully considered and accompanied by a strong rationale for their use. Canadian authorities will provide feedback on the suitability of any such tools as part of their review of a recovery plan.~~

Tools such as involuntary (forced) contract allocation and involuntary (forced) contract tear-up create exposures that are difficult to manage, measure and control. To the extent that these tools are even more intrusive, they have the ability to pose greater risk to systemic stability. Canadian authorities acknowledge that such tools have potential utility when other recovery options are ineffective, and could possibly be used by a resolution authority, but expect FMIs to carefully assess the potential impact of such tools on participants and the stability of the broader financial system.

Canadian authorities do not encourage the use of non-defaulting participants' initial margin in FMI recovery plans considering the potential for significant negative impacts.¹⁷ Similarly, a recovery plan should not assume any extraordinary form of public or central bank support.¹⁸

Recovery from non-default-related losses and structural weaknesses

Consistent with a defaulter-pays principle, an FMI should rely on FMI-funded resources to address recovery from non-default-related losses (i.e., operational and business losses on the part of an FMI), including losses arising from structural weakness.¹⁹ To this end, FMIs should examine ways to increase the loss absorbency between the FMI's pre-recovery risk-management activities and participant-funded resources (e.g., by using FMI-funded insurance against operational risks).

¹⁶ Recovery Report, Paragraph 3.3.1

¹⁷ [Recovery Report, Paragraph 4.2.26](#)

¹⁸ [Recovery Report, Paragraph 2.3.1](#)

¹⁹ Structural weakness can be caused by factors such as poor business strategy, poor investment and custody policy, poor organizational structure, IM/IT-related obstacles, poor legal or regulatory risk frameworks, and other insufficient internal controls.

Structural weakness can be an impediment to the effective rollout of recovery tools and may itself result in non-default-related losses that are a trigger for recovery. An FMI recovery plan should ~~include a process to identify procedures~~ detailing how to promptly ~~identify/detect~~, evaluate and address the sources of underlying structural weakness on a continuous basis (e.g., unprofitable business lines, investment losses) ~~and the tools available to address them within a concrete time frame.~~

The use of participant-funded resources to recover from non-default-related losses can lessen incentives for robust risk management within an FMI and provide disincentives to participate. If, despite these concerns, participants consider it in their interest to keep the FMI as a going concern, an FMI and its participants may agree to include a certain amount of participant-funded recovery tools to address some non-default-related losses. Under these circumstances, the FMI should clearly explain under what conditions participant resources would be used and how costs would be distributed.

Defining full allocation of uncovered losses and liquidity shortfalls

Principles 4 (credit risk)²⁰ and 7 (liquidity risk)²¹ of the PFMI's require that FMIs should specify rules and procedures to fully allocate both uncovered losses and liquidity shortfalls caused by stress events, ~~such as participant default. Rules to fully allocate all uncovered credit losses and liquidity shortfalls may be implemented either as part of recovery and/or resolution.~~ To be consistent with this requirement, **Canadian FMIs should consider various stress scenarios and have rules and procedures that allow them to fully allocate any ~~losses~~ or liquidity ~~shortfalls~~ arising from ~~those~~ these stress scenarios.** ~~For additional guidance on stress scenarios and triggers for, in excess of the capacity of existing pre-recovery, see risk controls. Tools used to address full allocation should reflect the Recovery Report, Sections 2.4.5 Report's characteristics of effective recovery tools, including the need to have them measurable, manageable and controllable to those who will bear the losses and 2.4.6 liquidity shortfalls in recovery, and page 3 of this document for their negative impacts to be minimized to the greatest extent possible.~~

Legal consideration for full allocation

An FMI's rules for allocating losses and liquidity shortfalls should be supported by relevant laws and regulations. There should be a high level of certainty that rules and procedures to fully allocate all uncovered losses and liquidity shortfalls are enforceable and will not be voided, reversed or stayed.²² This requires that Canadian FMIs design their recovery tools in compliance with Canadian laws. For example, if the FMI's loss-allocation rules involve a guarantee, Canadian law generally requires that the guaranteed amount be determinable and preferably capped by a fixed amount.²³

FMIs should consider whether it is appropriate to involve indirect participants ~~that do not benefit from a customer protection regime~~ in the allocation of losses and shortfalls during recovery. ~~Such loss or shortfall allocation arrangement~~ To the extent that it is permitted, such arrangements should have a strong legal and regulatory basis; respect the FMI's frameworks for tiered participation, segregation and portability; and involve consultation with indirect participants to ensure that all relevant concerns are taken into account.

Overall, FMIs are responsible for seeking appropriate legal advice on how their recovery tools can be designed and for ensuring that all recovery tools and activities are in compliance with the relevant laws and regulations.

Additional Considerations in Recovery Planning

Transparency and coherence²⁴

An FMI should ensure that its recovery plan is coherent and transparent to all relevant levels of management within the FMI, as well as to its regulators and overseers. To do so, a recovery plan should

- ❖ contain information at the appropriate level and detail; and
- ❖ be sufficiently coherent to relevant parties within the FMI, as well as to the regulators and overseers of the FMI, to effectively support the implementation/application of the recovery tools.

²⁰ Under key consideration 7 of PFMI Principle 4, an FMI should establish explicit rules and procedures that fully address any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI.

²¹ Under key consideration 10 of PFMI Principle 7, FMIs should establish rules and procedures that address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking or delaying the same-day settlement of payment obligations.

²² CPMI-IOSCO Principles for Financial Market Infrastructures, Paragraph 3.1.10.

²³ The *Bank Act*, Section 414-(1) and IROC Rule 100.14 prohibit banks and securities dealers, respectively, from providing unlimited guarantees to an FMI or a financial institution.

²⁴ Recovery Report, Section 2.3.

An FMI should ensure that the assumptions, preconditions, key dependencies and decision-making processes in a recovery plan are transparent and clearly identified.

Relevance and flexibility²⁵

An FMI's recovery plan should thoroughly cover the information and actions relevant to extreme but plausible market conditions and other situations that would call for the use of recovery tools. An FMI should take into account the following elements when developing its recovery plan:

- ❖ the nature, size and complexity of its operations;
- ❖ its interconnectedness with other entities;
- ❖ operational functions, processes and/or infrastructure that may affect the FMI's ability to implement its recovery plan; and
- ❖ any upcoming regulatory reforms that may have the potential to affect the recovery plan.

Recovery plans should be sufficiently flexible to address a range of FMI-specific and market-wide stress events. Recovery plans should also be structured and written at a level that enables the FMI's management to assess the recovery scenario and initiate appropriate recovery procedures. As part of this expectation, the recovery plan should demonstrate that senior management has assessed the potential two-way interaction between recovery tools and the FMI's business model, legal entity structure, and business and risk-management practices.

Implementation of Recovery Plan²⁶

An FMI should have credible and operationally feasible approaches to recovery planning in place and be able to act upon them in a timely manner, under both idiosyncratic and market-wide stress scenarios. To this end, recovery plans should describe

- ❖ potential impediments to ~~implementing~~applying recovery tools effectively and strategies to address them; and
- ❖ the impact of a major operational disruption.²⁷

This information is important to strengthen a recovery plan's resilience to shocks and ensure that the recovery tools are actionable.

A recovery plan should also include an escalation process and the associated communication procedures that an FMI would take in a recovery situation. Such a process should define the associated timelines, objectives and key messages of each communication step, as well as the decision-makers who are responsible for it.

Consulting Canadian authorities when taking recovery actions

While the responsibility for implementing the recovery plan rests with the FMI, Canadian authorities consider it critical to be informed when an FMI triggers its recovery plan and before the ~~implementation of recovery tools and other recovery actions. This includes the authorities~~application of recovery tools and other recovery actions. To the extent an FMI intends to use a tool or take a recovery action that might have significant impact on its participants (e.g. tools requiring further justification), the FMI should consult Canadian authorities before using such tools or taking such actions to demonstrate how it has taken into account potential financial stability implications and other relevant public interest considerations. Authorities include those responsible for the regulation, supervision and oversight of the FMI, as well as any authorities who would be responsible for the FMI if it were to be put into resolution.

~~Canadian FMIs should consult Canadian authorities before implementing any and all recovery tools and actions to ensure that decisions take into account potential financial stability implications and other relevant public interest considerations. This action should occur early on and~~Relevant Canadian authorities should be informed (or consulted as appropriate) early on and interaction with authorities should be explicitly identified in the escalation process of a recovery plan. Acknowledging the speed at which an FMI may enter recovery, FMIs are encouraged to develop formal communications protocols with authorities in the event that recovery is triggered and immediate action is required.

²⁵ Recovery Report, Section 2.3.

²⁶ Recovery Report, Paragraph 2.3.9

²⁷ This is also related to the FMI's backup and contingency planning, which are distinct from recovery plans.

Review of Recovery Plan²⁸

An FMI should include in its recovery plan a robust assessment of the recovery tools presented and detail the key factors that may affect their ~~implementation~~-application. It should recognize that, while some recovery tools may be effective in returning the FMI to viability, these tools may not have a desirable effect on its participants or the broader financial system.

A framework for testing the recovery plan (for example, through scenario exercises, periodic simulations, back-testing and other mechanisms) should be presented either in the plan itself or linked to a separate document. This impact assessment should include an analysis of the effect of ~~implementing~~applying recovery tools on financial stability and other relevant public interest considerations.²⁹ Furthermore, an FMI should demonstrate that the appropriate business units and levels of management have assessed the potential consequences of recovery tools on FMI participants and entities linked to the FMI.

Annual review of recovery plan

An FMI should review and, if necessary, update its recovery plan on an annual basis. The recovery plan should be subject to approval by the FMI's Board of Directors.³⁰ Under the following circumstances, an FMI is expected to review its recovery plan more frequently:

- ❖ if there is a significant change to market conditions or to an FMI's business model, corporate structure, services provided, risk exposures or any other element of the firm that could have a relevant impact on the recovery plan;
- ❖ if an FMI encounters a severe stress situation that requires appropriate updates to the recovery plan to address the changes in the FMI's environment or lessons learned through the stress period; and
- ❖ if the Canadian authorities request that the FMI update the recovery plan to address specific concerns or for additional clarity.

Canadian authorities will also review and provide their views on an FMI's recovery plan before it comes into effect. This is to ensure that the plan is in line with the expectations of Canadian authorities.

Orderly Wind-Down Plan as Part of a Recovery Plan³¹

Canadian authorities expect FMIs to prepare, as part of their recovery plans, for the possibility of an orderly wind-down. However, developing an orderly wind-down plan may not be appropriate or operationally feasible for some critical services. In this instance, FMIs should consult with the relevant authorities on whether they can be exempted from this requirement.

Considerations when developing an orderly wind-down plan

An FMI should ensure that its orderly wind-down plan has a strong legal basis. This includes actions concerning the transfer of contracts and services, the transfer of cash and securities positions of an FMI, or the transfer of all or parts of the rights and obligations provided in a link arrangement to a new entity.

In developing orderly wind-down plans, an FMI should elaborate on

- ❖ the scenarios where an orderly wind-down is initiated, including the services considered for wind-down;
- ❖ the expected wind-down period for each scenario, including the timeline for when the wind-down process for critical services (if applicable) would be complete; and
- ❖ measures in place to port critical services to another FMI that is identified and assessed as operationally capable of continuing the services.

Disclosure of recovery and orderly wind-down plans

An FMI should disclose sufficient information regarding the effects of its recovery and orderly wind-down plans on FMI participants and stakeholders, including how they would be affected by (i) the allocation of uncovered losses and liquidity shortfalls and (ii) any measures the CCP would take to re-establish a matched book. In terms of disclosing the degree of discretion an FMI has in ~~implementing~~applying recovery tools, an FMI should make it clear to FMI participants and all other stakeholders ahead of time that all recovery tools and orderly wind-down actions that an FMI can ~~implement~~apply will only be employed after consulting with the relevant Canadian authorities.

²⁸ Recovery Report, Paragraph 2.3.8

²⁹ This is in line with key consideration 1 of PFMI Principle 2 (Governance), which states that an FMI should have objectives that place a high priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations.

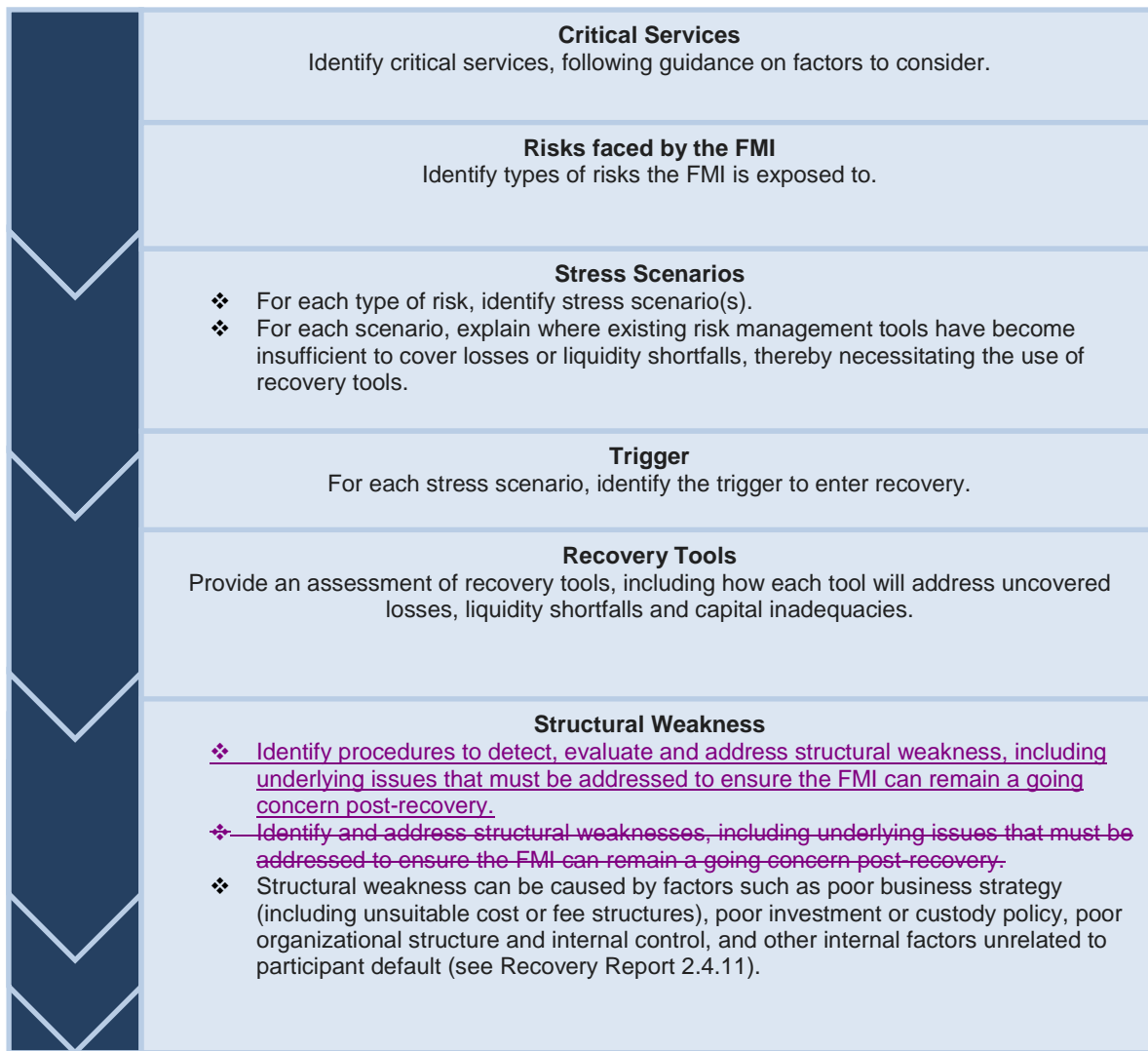
³⁰ Recovery Report, Paragraph 2.3.3

³¹ Recovery Report, Paragraph 2.2.2

Note that recovery and orderly wind-down plans need not be two separate documents; the orderly wind-down of critical services may be a part or subset of the recovery plan. Furthermore, Canadian FMIs may consider developing orderly wind-down plans for non-critical services in the context of recovery if winding down non-critical services could assist in or benefit the recovery of the FMI.

Annex: Guidelines on the Practical Aspects of FMI Recovery Plans

The following example provides suggestions on how an FMI recovery plan could be organized.



**Box 5.1:
Joint Supplementary Guidance –
Collateral**

Context

The PFMI establish the form and attributes of collateral that an FMI holds to manage its own credit exposures or those of its participants. This note provides additional guidance for Canadian FMIs to meet the components of the collateral principle related to: (i) acceptance of collateral with low credit, liquidity and market risk; (ii) concentrated holdings of certain assets; and (iii) calculating haircuts. In certain circumstances, regulators may allow exceptions to the collateral policy on a case-by-case basis if the FMI demonstrates that the risks can be adequately managed.

(i) Acceptable collateral

An FMI should conduct its own assessment of risks when determining collateral eligibility. In general, collateral held to manage the credit exposures of the FMI or those of its participants should have minimal credit, liquidity and market risk, even in stressed market conditions. However, asset categories with additional risk may be accepted when subject to conservative haircuts and adequate concentration limits.¹

The following clarifies regulators' expectations on what is acceptable collateral ~~by specifying:~~

- ~~1) minimum requirements for all assets that are acceptable as collateral;~~
- ~~2) the asset categories that are judged to have minimal credit, liquidity and market risk; and~~
- ~~3) additional asset categories that could be acceptable as collateral if subject to conservative haircuts and concentration limits.~~

Minimum requirements for acceptable collateral

1) An FMI should conduct its own internal assessment of the credit, liquidity and market risk of the assets eligible as collateral. The FMI should review its collateral policy at least annually, and whenever market factors justify a more frequent review. At a minimum, acceptable assets should:

- ~~• i) be freely transferable without legal, regulatory, contractual or any other constraints that would impair liquidation in a default;~~
- ~~• ii) be marketable securities that have an active outright sale market even in stressed market conditions;~~
- ~~• iii) have reliable price data published on a regular basis;~~
- ~~• iv) be settled over a securities settlement system compliant with the Principles; and~~
- ~~• v) be denominated in the same currency as the credit exposures being managed, or in a currency that the FMI can demonstrate it has the ability to manage.~~

An FMI should not rely only on external opinions to determine what acceptable collateral is. The FMI should conduct its own assessment of the riskiness of assets, including differences within a particular asset category, to determine whether the risks are acceptable. Since the primary purpose of accepting collateral is to manage the credit exposures of the FMI and its participants, it is paramount that assets eligible as collateral can be liquidated for fair value within a reasonable time frame to cover credit losses following a default. The annual review of the FMI's collateral policy provides an opportunity to assess whether risks continue to be adequately managed. Owing to the dynamic nature of capital markets, the FMI should monitor changes in the underlying risk of the specific assets accepted as collateral, and should adjust its collateral policy in the interim period between annual reviews, when required.

At a minimum, an asset should have certain characteristics in order to provide sufficient assurance that it can be liquidated for fair value within a reasonable time frame. These characteristics relate primarily to the FMI's ability to reliably sell the asset as required to manage its credit exposures. The asset should be unencumbered, that is, it must be free of legal, regulatory, contractual or other restrictions that would impede the FMI's ability to sell it. The challenges associated with selling or transferring non-marketable assets, or those without an active secondary market, preclude their acceptance as collateral.

¹ See PFMI Principle 5, key considerations 1 and 4.

[Accepted asset categories](#)

2) Assets generally judged to have minimal credit, liquidity and market risk are the following:

- ~~i)~~ cash;
- ~~ii)~~ securities issued or guaranteed² by the Government of Canada;³
- ~~iii)~~ securities issued or guaranteed by a provincial government; and
- ~~iv)~~ securities issued by the U.S. Treasury.

In general, the assets judged to have minimal risk are cash and debt securities issued by government entities with unique powers, such as the ability to raise taxes and set laws, and that have a low probability of default. Total Canadian debt outstanding is currently dominated by securities issued or guaranteed by the Government of Canada and by provincial governments. The relatively large supply of securities issued by these entities and their generally high creditworthiness contribute to the liquidity of these assets in the domestic capital market. Securities issued by the U.S. Treasury are also deemed to be of high quality for the same reasons. The overall riskiness of securities issued by the Government of Canada and the U.S. Treasury is further reduced by their previous record of maintaining value in stressed market conditions, when they tend to benefit from a “flight to safety.”

It is essential that an FMI regularly assesses the riskiness of even the specific high-quality assets identified in this section to determine their adequacy as eligible collateral. In some cases, only certain assets within the more general asset category may be deemed acceptable.

[Additional asset categories](#)

3) An FMI should consider its own distinct arrangements for allocating credit losses and managing credit exposures when accepting a broader range of assets as collateral. The following asset classes may be acceptable as collateral if they are subject to conservative haircuts and concentration limits:

- ~~i)~~ securities issued by a municipal government;
- ~~ii)~~ bankers’ acceptances;
- ~~iii)~~ commercial paper;
- ~~iv)~~ corporate bonds;
- ~~v)~~ asset-backed securities that meet the following criteria: (1) sponsored by a deposit-taking financial institution that is prudentially regulated at either the federal or provincial level, (2) part of a securitization program supported by a liquidity facility, and (3) backed by assets of an acceptable credit quality;
- ~~vi)~~ equity securities traded on marketplaces regulated by a member of the CSA and the Investment Industry Regulatory Organization of Canada; and
- ~~vii)~~ other securities issued or guaranteed by a government, central bank or supranational institution classified as Level 1 high-quality assets by the Basel Committee on Banking Supervision.

An FMI should take into account its specific risk profile when assessing whether accepting certain assets as collateral would be appropriate. The decision to broaden the range of acceptable collateral should also consider the size of collateral holdings to cover the credit exposures of the FMI relative to the size of asset markets. In cases where the total collateral required to cover credit exposures is small compared with the market for high-quality assets, there is less potential strain on participants to meet collateral requirements.

Accepting a broader range of collateral has certain advantages. Most importantly, it provides participants with more flexibility to meet the FMI’s collateral requirements, which may be especially important in stressed market conditions. A broader range of collateral diversifies the risk exposures faced by the FMI, since it may be easier to liquidate diversified collateral holdings when liquidity unexpectedly dries up for a particular asset class. It also diversifies market risk by reducing potential exposure to idiosyncratic shocks. Accepting a broader range of assets recognizes the increased cost to market participants of posting only

² [Guarantees include securities issued by federal and provincial Crown corporations or other entities with an explicit statement that debt issued by the entity represents the general obligations of the sovereign.](#)

³ [Guarantees include securities issued by federal and provincial Crown corporations or other entities with an explicit statement that debt issued by the entity represents the general obligations of the sovereign.](#)

the highest-quality assets, as well as the increasing encumbrance of these assets in order to meet new regulatory standards.⁴

(ii) Concentration Limits

An FMI should avoid concentrated holding of assets where this could potentially introduce credit, market and liquidity risk beyond acceptable levels. In addition, the FMI should mitigate specific wrong-way risk by limiting the acceptance of collateral that would likely lose value in the event of a participant default, and prevent participants from posting assets they or their affiliates have issued. The FMI should measure and monitor the collateral posted by participants on a regular basis, with more frequent analysis required when more flexible collateral policies have been implemented.⁵

The following points clarify regulators' expectations regarding the composition of collateral accepted by an FMI.

Concentration risk limits by specifying:

~~1) broad limits for riskier asset classes to mitigate concentration risk;~~

~~2) targeted limits for securities issued by financial sector entities to mitigate specific wrong-way risk; and~~

~~3) the level of monitoring required for collateral posted by participants.~~

4) An FMI should limit assets from the broader range of acceptable assets identified in [section \(i\) 3\) the previous section \("Additional asset categories"\)](#) to a maximum of 40 per cent of the total collateral posted from each participant. Within the broader range of acceptable assets, the FMI should consider implementing more specific concentration limits for different asset categories.

An FMI should limit securities issued by a single issuer from the broader range of acceptable assets to a maximum of 5 per cent of total collateral from each participant.

The guidance limits the acceptance of collateral from the broader range of assets to a maximum of 40 per cent because a higher proportion could potentially create unacceptable risks to FMIs and their participants. This limit is currently applied to the Bank's Standing Liquidity Facility and the Liquidity Coverage Ratio under Basel III. The benefits of expanding collateral—namely, providing participants with more flexibility and achieving greater diversification—are achieved within the limit of 40 per cent, with collateral in excess of this limit increasing the overall risk exposures with less benefit. In some circumstances, regulators may permit an FMI to accept more than 40 per cent of total collateral from the broader range of assets if the risk from a particular participant is low.

Employing a limit of 5 per cent of total collateral for securities issued by a single issuer is a prudent measure to limit exposures from idiosyncratic shocks. It also reduces the need for procyclical adjustments to collateral requirements following a decline in value.

An FMI should consider implementing more stringent concentration limits, as well as imposing limits on certain asset categories, depending on the FMI's specific arrangements for managing credit exposures. The considerations described in [section \(i\) 3\) the previous section \("Additional asset categories"\)](#) for accepting a broader range of assets as collateral apply equally to the decision over whether more stringent concentration limits should be implemented.

Specific wrong-way risk limits

2) An FMI should limit the collateral from financial sector issuers to a maximum of 10 per cent of total collateral pledged from each participant. The FMI should not allow participants to post their own securities or those of their affiliates as collateral.

An FMI is exposed to specific wrong-way risk when the collateral posted is highly likely to decrease in value following a participant default. It is highly likely that the value of debt and equity securities issued by companies in the financial sector would be adversely affected by the default of an FMI participant, introducing wrong-way risk. This is especially the case for interconnected FMI participants with activities that are concentrated in domestic financial markets. Implementing a limit on financial sector issuers mitigates potential risk exposures from specific wrong-way risk. More stringent limits should be implemented where appropriate.

⁴ The encumbrance of high-quality assets is expected to increase through a number of regulatory reforms, including Basel III, over-the-counter derivatives reform and the Principles.

⁵ See Principle 5, key considerations 1 and 4.

[Collateral monitoring](#)

3) In cases where only the highest-quality assets are accepted, an FMI is required to measure and monitor the collateral posted by participants during periodic evaluations of participant creditworthiness. The FMI should measure and monitor the correlation between a participant's creditworthiness and the collateral posted more frequently when a broader range of collateral is accepted. The FMI should have the ability to adjust the composition and to increase the collateral required from participants experiencing a reduction in creditworthiness.

When only the highest-quality assets are accepted as collateral, there is less risk associated with the composition of collateral posted by a participant; hence, such risk does not need to be monitored as closely. The FMI should monitor the composition of collateral pledged by participants more frequently when riskier assets are eligible, since such assets are more likely to be correlated with the participant's creditworthiness. FMIs should also consider the general credit risk of their participants when deciding how frequently monitoring should be conducted. In all circumstances, the FMI should have the contractual and legal ability to unilaterally require more collateral and to request higher-quality collateral from a participant that is judged to present a greater risk.

(iii) Haircuts

An FMI should establish stable and conservative haircuts that consider all aspects of the risks associated with the collateral. An FMI should evaluate the performance of haircuts by conducting backtesting and stress testing on a regular basis.⁶

The following points clarify regulators' expectations regarding the calculation and testing of haircuts ~~by outlining:~~

~~1) requirements for calculating haircuts; and~~

~~2) requirements for testing the adequacy of haircuts and overall collateral accepted.~~

[Calculating haircuts](#)

1) An FMI should apply stable and conservative haircuts that are calibrated against stressed market conditions. When the same haircut is applied to a group of securities, it should be sufficient to cover the riskiest security within the group. Haircuts should reflect both the specific risks of the collateral accepted and the general risks of an FMI's collateral policy.

Including periods of stressed market conditions in the calibration of haircuts should increase the haircut rate. In addition to representing a conservative approach, this helps to mitigate the risk of a procyclical increase in haircuts during a period of high volatility. Typically, FMIs group similar securities by shared characteristics for the purposes of calculating haircuts (e.g., Government of Canada bonds with similar maturities). An FMI should recognize the different risks associated with each individual security by ensuring that the haircut is sufficient to cover the security with the most risk within each group. Haircuts should always account for all of the specific risks associated with each asset accepted as collateral. However, the FMI should also consider the portfolio risk of the total collateral posted by a participant; the FMI may consider employing deeper haircuts for concentration and wrong-way risk above certain thresholds.

[Verifying the adequacy of haircuts and overall collateral accepted](#)

2) An FMI should perform backtesting of its collateral haircuts on at least a monthly basis, and conduct a more thorough review of haircuts quarterly. The FMI's stress tests should take into account the collateral posted by participants.

FMIs are expected to calculate stable and conservative haircuts by considering stressed market conditions. In general, including stressed market conditions in the calibration of haircuts should provide a high level of coverage that does not require continuous testing and verification. Nonetheless, backtesting on a monthly basis allow the adequacy of haircuts to be evaluated against observed outcomes. A quarterly review of haircuts balances the objective of stable haircuts with the need to adjust haircuts as required. Including changes to collateral values as part of stress testing provides a more accurate assessment of potential losses in a default scenario.

⁶ See PFMI Principle 5, key considerations 2 and 3.

– **PFMI Principle 7: Liquidity risk**

**Box 7.1:
Joint Supplementary Guidance –
Liquidity Risk**

Context

The PFMI define liquidity risk as risk that arises when the FMI, its participants or other entities cannot settle their payment obligations when due as part of the clearing or settlement process. This note provides additional guidance for Canadian FMIs to meet the components of the liquidity-risk principle related to: (i) maintaining sufficient liquid resources and (ii) qualifying liquid resources.

(i) Maintaining sufficient liquid resources

An FMI should maintain sufficient qualifying liquid resources to cover its liquidity exposures to participants with a high degree of confidence. An FMI should maintain additional liquid resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible conditions. Liquidity stress testing should be performed on a daily basis. An FMI should verify that its liquid resources are sufficient through comprehensive stress testing conducted at least monthly.¹

The information provided in this section clarifies regulators' expectations of sufficient qualifying liquid resources ~~by specifying:~~

- ~~1) the degree of confidence required to cover liquidity exposures;~~
- ~~2) the total liquid resources that should be maintained; and~~
- ~~3) how the FMI should verify that its liquid resources are sufficient and adjust liquid resources when necessary.~~

Liquidity exposure coverage

4) Qualifying liquid resources should meet an established single-tailed confidence level of at least 97 per cent with respect to the estimated distribution of potential liquidity exposures.² The FMI should have an appropriate method for estimating potential exposures that accounts for the design of the FMI and other relevant risk factors.

The guidance requires a high threshold for covering liquidity exposures with qualifying liquid resources, while also considering the expense associated with obtaining these resources. A 97 per cent degree of confidence is equivalent to less than one observation per month (on average) in which a liquidity exposure is greater than the FMI's qualifying liquid resources. However, if it is to meet the required threshold, the FMI should estimate its potential liquidity exposures accurately. The FMI should account for all relevant predictive factors when estimating potential exposures. While historical exposures are expected to form the basis of estimated potential exposures, the FMI should account for the impact of new products, additional participants, changes in the way transactions settle or other relevant market- risk factors.

Total liquid resources

2a) An FMI should maintain additional liquid resources that are sufficient to cover a wide range of potential stress scenarios. Total liquid resources should cover the FMI's largest potential exposure under a variety of extreme but plausible conditions. The FMI should have a liquidity plan that justifies the use of other liquid resources and provides the supporting rationale for the total liquid resources that it maintains.

The guidance requires that total liquid resources be determined by the largest potential exposure in extreme but plausible conditions. This implies maintaining total liquid resources sufficient to cover at least the FMI's largest observed liquidity exposures, but the liquidity resources would likely be larger, based on an assessment of potential liquidity exposures in extreme but plausible conditions. The FMI's liquidity plan should explain why the FMI's estimated largest potential exposure is an accurate assessment of the FMI's liquidity needs in extreme but plausible conditions, thereby demonstrating the adequacy of the FMI's total liquid resources.

¹ See PFMI Principle 7, key considerations 3, 5, 6 and 9.

² A "potential liquidity exposure" is defined as the estimated maximum daily liquidity needs resulting from the market value of the FMI's payment obligations under normal business conditions. FMIs should consider potential liquidity exposures over a rolling one-year time frame.

It is permissible for an FMI to manage this risk in part with other liquid resources because it may be prohibitively expensive, or even impossible, for the FMI to obtain sufficient qualifying liquid resources. FMIs face increased risk from liquid resources that do not meet the strict definition of “qualifying,” and thus an FMI should include in its liquidity plan a clear explanation of how these resources could be used to satisfy a liquidity obligation. This additional explanation is warranted in all cases, even when the FMI’s dependence on other liquid resources is minimal.

2b)–When applicable, the possibility that a defaulting participant is also a liquidity provider should be taken into account.

Generally, the liquidity providers for Canadian FMIs are also participants in the FMI. When a defaulting participant is also a liquidity provider, it is important that the FMI’s liquidity facilities are arranged in such a way that it has sufficient liquidity. To do so, the FMI should either have additional liquid resources or negotiate a backup liquidity provider, so that the FMI has sufficient liquidity (as specified in this guidance) in the event that one of its liquidity providers defaults.

Verifying sufficiency of liquid resources

3)–FMIs should perform liquidity stress testing on a daily basis to assess their liquidity needs. At least monthly, FMIs should conduct comprehensive stress tests to verify the adequacy of their total liquid resources and to serve as a tool for informing risk management. Stress-testing results should be reviewed by the FMI’s risk-management committee and reported to regulators on a regular basis.

FMIs should have clear procedures to determine whether their liquid resources are sufficient and to adjust their available liquid resources when necessary. A full review and potential resizing of liquid resources should be completed at least annually.

The annual validation of an FMI’s model for managing liquidity risk should determine whether its stress testing follows best practices and captures the potential risks faced by the FMI.

FMIs should assess their liquidity needs through stress testing that includes the measurement of the largest daily liquidity exposure that they face. FMIs should also conduct stress testing to verify whether their liquid resources are sufficient to cover potential liquidity exposures under a wide range of stress scenarios. An annual full review and potential resizing of liquid resources provides adequate time to negotiate with liquidity providers. While it may be impractical for FMIs to frequently obtain additional liquid resources, it is important that FMIs clearly define the circumstances requiring prompt adjustment of their available liquid resources, and have a reliable plan for doing so. Establishing clear procedures provides transparency regarding an FMI’s decision-making process and prevents the FMI from delaying required increases in liquid resources beyond what is reasonably acceptable. The review of stress- testing results by the FMI’s risk-management committee provides additional assurance that liquid resources are sufficient, and whether an interim resizing is necessary. Reporting results to regulators on a monthly basis allows for timely intervention if liquid resources have been deemed inadequate.

Comprehensive stress testing should also encompass a broad range of stress scenarios, not just to verify whether the FMI’s liquid resources are sufficient, but also to identify potential risk factors. Reverse stress testing, more extreme stress scenarios, valuation of liquid assets and focusing on individual risk factors (e.g., available collateral) all help to inform the FMI of potential risks. The annual validation of the FMI’s risk-management model enables it to fully assess the appropriateness of the stress scenarios conducted and the procedures for adjusting liquid resources.

(ii) Qualifying liquid resources

Qualifying liquid resources should be highly reliable and have same-day availability. Liquid resources are reliable when the FMI has near certainty that the resources it expects will be available when required. Qualifying liquid resources should be available on the same day that they are needed by the FMI to meet any immediate liquidity obligation (e.g., a participant’s default). Qualifying liquid resources that are denominated in the same currency as the FMI’s exposures count toward its minimum liquid-resource requirement.³

The following section clarifies regulators’ expectations as to what is considered a qualifying liquid resource ~~by:~~

- ~~1) identifying the assets in the possession, custody or control of the FMI that are considered qualifying liquid resources; and~~
- ~~2) setting clear standards for liquidity facilities to be considered qualifying liquid resources, including more stringent standards for uncommitted liquidity facilities.~~

³ See PFMI Principle 7, key considerations 4, 5 and 6

Assets in the possession, custody or control of the FMI

~~1)~~—Cash and treasury bills⁴ in the possession, custody or control of an FMI are qualifying liquid resources for liquidity exposures denominated in the same currency.⁵

Cash held by an FMI does not fluctuate in value and can be used immediately to meet a liquidity obligation, thereby satisfying the criteria for liquid resources to be highly reliable and available on the same day.⁶ Treasury bills issued by the Government of Canada or the U.S. Treasury also meet the definition of a qualifying liquid resource. By market convention, sales of treasury bills settle on the same day, allowing funds to be obtained immediately, whereas other bonds can settle as late as three days after the date of the trade. Treasury bills can also be transacted in larger sizes with less market impact than most other bonds. In addition, the shorter-term nature of treasury bills makes them more liquid than other securities during a crisis (i.e., they benefit from a “flight to liquidity”). Thus, there is a high degree of certainty that the FMI would obtain liquid resources in the amount expected following the sale of treasury bills.

Liquidity facilities

~~2a)~~—Committed liquidity facilities are qualifying liquid resources for liquidity exposures denominated in the same currency if the following criteria are met:

- ~~i)~~—facilities are pre-arranged and fully collateralized;
- ~~ii)~~—there is a minimum of three independent liquidity providers;⁷ and
- ~~iii)~~—the FMI conducts a level of due diligence that is as stringent as the risk assessment completed for FMI participants.

For liquidity facilities to be considered reliable, an FMI should have near certainty that the liquidity provider will honour its obligation. Pre-arranged liquidity facilities provide clarity on terms and conditions, allowing greater certainty regarding the obligations and risks of the liquidity providers. Pre-arranged facilities also reduce complications associated with obtaining liquidity, when required. Furthermore, a liquidity provider is most likely to honour its obligations when lending is fully collateralized. Therefore, only the amount that is collateralized will be considered a qualifying liquid resource. A liquidity facility is more reliable when the risk of non-performance is not concentrated in a single institution. By having at least three independent liquidity providers, the FMI would continue to diversify its risks should even a single provider default. To monitor the continued reliability of a liquidity facility, the FMI should assess its liquidity providers on an ongoing basis. In this respect, an FMI’s risk exposures to its liquidity providers are similar to the risks posed to it by its participants. Therefore, it is appropriate for the FMI to conduct comparable evaluations of the financial health of its liquidity providers to ensure that the providers have the capacity to perform as expected.

~~2b)~~—Uncommitted liquidity facilities are considered qualifying liquid resources for liquidity exposures in Canadian dollars if they meet the following additional criteria:

- ~~i)~~—the liquidity provider has access to the Bank of Canada’s Standing Liquidity Facility (SLF);
- ~~ii)~~—the facility is fully collateralized with SLF-eligible collateral; and
- ~~iii)~~—the facility is denominated in Canadian dollars.

More-stringent standards are warranted for uncommitted facilities because a liquidity provider's incentives to honour its obligations are weaker. However, the risk that the liquidity provider will be unwilling or unable to provide liquidity is reduced by the requirement that it needs to be a direct participant in the Large Value Transfer System and that the collateral be eligible for the Standing Liquidity Facility (SLF). This is because the collateral obtained from the FMI in exchange for liquidity can be pledged to the Bank of Canada under the SLF. This option significantly reduces the liquidity pressures faced by the liquidity provider that could interfere with its ability to perform on its obligations. A facility in a foreign currency would not qualify because the Bank does not lend in currencies other than the Canadian dollar. The increased reliability of liquidity providers with access to routine credit from the central bank is recognized explicitly within the PFMI.

⁴ “Treasury bills” refers to bonds issued by the Government of Canada and the U.S. Treasury with a maturity of one year or less.

⁵ This section refers to unencumbered assets free of legal, regulatory, contractual or other restrictions on the ability of the FMI to liquidate, sell, transfer or assign the asset.

⁶ “Cash” refers to currency deposits held at the issuing central bank and at creditworthy commercial banks. “Value” in this context refers to the nominal value of the currency.

⁷ The Liquidity providers should not be affiliates to be considered independent.

– **PFMI Principle 15: General business risk**

**Box 15.1:
Joint Supplementary Guidance –
General Business Risk**

Context

The PFMI define general business risk as any potential impairment of the financial condition (as a business concern) of an FMI owing to declines in its revenue or growth in its expenses, resulting in expenses exceeding revenues and a loss that must be charged against capital. These risks arise from an FMI's administration and operation as a business enterprise. They are not related to participant default and are not covered separately by financial resources under the Credit or Liquidity Risk [PFMI](#) Principles. To manage these risks, the PFMI state that FMIs should identify, monitor and manage their general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses. This note provides additional guidance for Canadian FMIs to meet the components of the general business risk principle related to: (i) governing general business risk; (ii) determining sufficient liquid net assets; and (iii) identifying qualifying liquid net assets. It also establishes the associated timelines and disclosure requirements.

(i) Governance of general business risk

Principle 15, key consideration 1 of the PFMI states:

An FMI should have robust management and control systems to identify, monitor, and manage general business risk.

The following points clarify the authorities' expectations on how an FMI's governance arrangements should address general business risk.

An FMI's Board of Directors should be involved in the process of identifying and managing business risks.

Management of business risks should be integrated within an FMI's risk-management framework, and the Board of Directors should be responsible for determining risk tolerances related to business risk and for assigning responsibility for the identification and management of these risks. These risk tolerances and the process for the identification and management of business risk should be the foundation for the FMI's business risk-management policy. Based on the PFMI, the policies and procedures governing the identification and management of business risk should meet the standards outlined below.

- The FMI's business risk-management policy should be approved by the Board of Directors and reviewed at least annually. The policy should be consistent with the Board's overall risk tolerance and risk-management strategy.
- The Board's Risk Committee should have a role in advising the Board on whether the business risk-management policy is consistent with the FMI's general risk-management strategy and risk tolerance.
- The business risk-management policy should provide clear responsibilities for decision making by the Board, and assign responsibility for the identification, management and reporting of business risks to management.

(ii) Determining sufficient liquid net assets

Principle 15, key consideration 2 of the PFMI states:

An FMI should hold liquid net assets funded by equity [...] so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity an FMI should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.

Principle 15, key consideration 3 of the PFMI states:

An FMI should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, an FMI should hold liquid net assets funded by equity equal to at least six months of current operating expenses.

The following points clarify the authorities' expectations on how FMIs should calculate their sufficient liquid net assets:

~~Until guidance for recovery planning and for calculating the associated costs is completed,~~ FMI's are required to hold liquid net assets to cover a minimum of six months of current operating expenses.

In calculating current operating expenses, FMI's will need to:

- **Assess and understand the various general business risks they face** to allow them to estimate as accurately as possible the required amount of liquid net assets. These estimates should be based on financial projections, which take into consideration, for example, past loss events, anticipated projects and increased operating expenses.
- **Restrict the calculation to ongoing expenses.** FMI's will need to adjust their operating costs such that any extraordinary expenses (i.e., unessential, infrequent or one-off costs) are excluded. Typically, operating costs include both fixed costs (e.g., premises, IT infrastructure, etc.) and variable costs (e.g., salaries, benefits, research and development, etc.).
- **Assess the portion of staff from each corporate department required to ensure the smooth functioning of the FMI during the six-month period.** The calculation of operating expenses would include some indirect costs. FMI's would require not only dedicated operational staff, but also various supporting staff. These could include (but are not limited to) staff from the FMI's Legal, IT and HR departments or staff required to ensure the continued functioning of other FMI's that could be necessary to support the FMI.

To fully observe [PFMI](#) Principle 15, FMI's must hold sufficient liquid assets to cover the greater of (i) funds required for FMI's to implement their recovery or wind-down; or (ii) six months of current operating expenses. In the interim, until recovery planning guidance is published, only the latter amount will apply.

The amount of liquid net assets required to implement an FMI's recovery or wind-down plans will depend on the scenarios or tools available to the FMI. The acceptable recovery and orderly wind-down plans for Canadian FMI's will be articulated by the authorities in forthcoming guidance. Once this guidance on recovery planning has been developed, the guidance on general business risk will be updated to provide FMI's with additional clarity on how to calculate the costs associated with these plans and determine the amount of liquid net assets required.

(iii) Qualifying liquid net assets

Explanatory note 3.15.5 of the PFMI's states:

An FMI should 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. Equity allows an FMI to absorb losses on an ongoing basis and should be permanently available for this purpose.

Principle 15, key consideration 4 of the PFMI's states:

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

Principle 15, key consideration 3 of the PFMI's states:

These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles.

The following points clarify the authorities' expectations on which assets qualify to be held against general business risk, and how these assets should be held to ensure that they are permanently available to absorb general business losses.

Assets held against general business risk should be of high quality and sufficiently liquid, such as cash, cash equivalents and liquid securities.

Authorities have developed regulatory guidance related to managing liquidity and investment risks, which provides additional clarity on the definition of cash equivalents and liquid securities, respectively.

- **Cash equivalents** – are considered to be treasury bills¹ issued by either the Canadian or U.S. federal governments. As noted in the liquidity guidance, by market convention, sales of treasuries settle on the same day, allowing funds to be obtained immediately, whereas other bonds can settle as late as three days after the trade date.

¹ Treasury bills refer to short-term (i.e. maturity of one year or less) debt instruments issued by the Canadian or U.S. federal government.

- **Liquid securities** – for the purposes of general business risk, liquid securities are defined by the financial instruments criteria listed in the guidance on the Investment Risk Principle. These criteria outline financial instruments considered to have minimal credit, market, and liquidity risk.

Liquid net assets must be held at the level of the FMI legal entity to ensure that they are unencumbered and can be accessed quickly. Liquid net assets may be pooled with assets held for other purposes, but must be clearly identified as held against general business risk.

FMI's may need to accumulate liquid net assets for purposes other than to meet the General Business Risk [PFMI](#) Principle. However, assets held against general business risk cannot be used to cover participant default risk or any other risks covered by the financial resources principles.

Liquid net assets can be pooled with assets held for other purposes, but must be clearly identified as held against general business risk in the FMI's reports to its regulators.

(iv) Timelines for assessing and reporting the level of liquid net assets

Explanatory note 3.15.8 of the PFMI's states:

To ensure the adequacy of its own resources, an FMI should regularly assess and report its liquid net assets funded by equity relative to its potential business risks to its regulators.

The following clarifies the authorities' expectations of the frequency with which FMI's should assess and report their required level of liquid net assets.

FMI's should report to authorities the amount of liquid net assets held against business risk annually, at a minimum.

An FMI should report to the authorities the amount of liquid net assets funded by equity held exclusively against business risk and quantify its business risks as major developments arise, or at least on an annual basis. This report should include an explanation of the methodology used to assess the FMI's business risks and to calculate its requirements for liquid net assets.

FMI's should recalculate the required amount of liquid net assets annually, at a minimum.

Once FMI operators have established the amount of liquid net assets required to cover six months of operating expenses, FMI's should recalculate the required amount of liquid net assets as major developments occur, or annually, at a minimum. Once the authorities have provided further guidance on recovery and FMI's have developed recovery plans, FMI's should also evaluate the need to increase the amount of liquid net assets they should hold to meet the General Business Risk Principle.

To establish clear procedures that improve transparency regarding an FMI's decision-making process and to prevent the FMI from delaying required increases in liquid resources beyond what is reasonably acceptable, FMI's should maintain a viable capital plan for raising additional acceptable resources should these resources fall close to or below the amount needed. This plan should be approved by the Board of Directors and updated annually, or as major developments occur.

FMI's should review their methodology for calculating the required level of liquid net assets at least once every five years, or as major developments occur.²

The methodology for calculating the amount of required liquid net assets should be reviewed at least every five years to ensure that the calculation remains relevant over time.

² In the context of this specific guidance item, "major developments" refers to the major changes to operations, product and service offerings, or classes of participation.

– **PFMI Principle 16: Custody and investment risks**

**Box 16.1:
Joint Supplementary Guidance –
Custody and Investment Risks**

Context

The PFMI define investment risk as the risk faced by an FMI when it invests its own assets or those of its participants.

- An FMI holds assets for a variety of purposes, some of which are referred to specifically in the PFMI: to cover its business risk (Principle 15), to cover credit losses (Principle 4) and to cover credit exposures (Principle 6) using the collateral pledged by participants.
- An FMI may also hold financial assets for purposes not directly related to the risk management issues addressed within the PFMI (e.g., employee pensions, general investment assets).

An FMI's strategy for investing assets should be consistent with its overall risk-management strategy (Principle 16). The purpose of this note is to provide further guidance on regulators' expectations regarding the management of investment risk. This guidance helps to ensure that an FMI's investments are managed in a way that protects the financial soundness of the FMI and its participants.¹

(i) Governance

The PFMI state that the Board of Directors is responsible for overseeing the risk-management function and approving material risk decisions. An FMI should develop an investment policy to manage the risk arising from the investment of its own assets and those of its participants.

- The FMI's investment policy should be approved by the Board and reviewed at least annually. The policy should be consistent with the Board's overall risk tolerance and considered part of the FMI's risk-management framework.
- The Risk Committee should advise the Board on whether the investment policy is consistent with the FMI's general risk-management strategy and risk tolerance.
- The Board should assess the advantages and disadvantages of managing assets internally or outsourcing them to an external manager. The FMI retains full responsibility for any actions taken by its external manager.
- The FMI should establish criteria for the selection of an external manager.²

The FMI's investment policy should clearly identify those who are accountable for investment performance. The investment policy should also:

- Provide a clear explanation of the Board's delegated responsibility for investment decision making.
- Specify clear responsibilities for monitoring investment performance (against established benchmarks) and risk exposures (against limits or constraints). Procedures should be established to ensure that appropriate actions are taken when breaches occur, including possible reporting to the Board.
- Investment performance and key risk metrics should be reported to the Board at least quarterly.³

(ii) Investment strategy

The investment strategy chosen by an FMI should not allow the pursuit of profit to compromise its financial soundness. As outlined below, additional consideration should be given to the investment strategy governing assets held specifically for risk-management purposes (i.e. Principle 4-7 and Principle 15).

Investment objectives

The investment policy should include appropriate investment objectives for the various assets held for risk-management

¹ This guidance on investment risk is based on aspects of Principle 2 – Governance, Principle 3 – Comprehensive Framework for the Management of Risk, and Principle 16 – Custody and Investment Risk.

² At a minimum, external managers should have demonstrated past performance and expertise, as well as strong risk-management practices such as an internal audit function and processes to protect and segregate the FMI's assets.

³ Investment performance may also be reported to a Board committee with special expertise to which the Board has delegated the authority to review investment performance (e.g., an Investment Committee).

purposes. The stated expected return and risk tolerance of the investment objectives should reflect the:

- specific purpose of the assets;
- relative importance of the assets in the overall risk management of the FMI; and
- requirement within the PFMI for FMIs to invest in instruments with minimal credit, market and liquidity risk (see the Appendix for the minimum standards of acceptable instruments).

The investment objectives should also help to determine the appropriate benchmarks for measuring investment performance.

Investment constraints

The importance of assets held for risk-management purposes warrants the use of investment constraints. It is paramount that an FMI have prompt access to these assets with minimal price impact to avoid interference with their primary use for risk management. Investment of these assets should, at a minimum, observe the following:

- To reduce concentration risk, no more than 20 per cent of total investments should be invested in municipal and private sector securities. Investment in a single private sector or municipal issuer should be no more than 5 per cent of total investments.
- To mitigate specific wrong-way risk, investments should, as much as possible, be inversely related to market events that increase the likelihood of those assets being required. Investment in financial sector securities should be no more than 10 per cent of total investments. An FMI should not invest assets in the securities of its own affiliates. An FMI is not permitted to reinvest participant assets in a participant's own securities or those of its affiliates, as specified in Principle 16.
- For investments that are subject to counterparty credit risk, an FMI should set clear criteria for choosing investment counterparties and setting exposure limits.

The investment constraints should be clearly stated in the investment policy in order to provide clear guidance for those responsible for investment decision making.⁴

Link to risk management

FMIs should account for the implications of investing assets on their broader risk-management practices. The following issues should be considered when investing assets held for risk management purposes:

- An FMI's process for determining whether sufficient assets are available for risk management should account for potential investment losses. For example, investing the assets available to a CCP to cover losses from a participant default could lose value in a default scenario, resulting in less credit-risk protection. An FMI should hold additional assets to cover potential losses from its investments held for risk-management purposes.
- An FMI should account for the implications of investing assets on its ability to effectively manage liquidity risk. In particular, identification of the FMI's available liquid resources should account for the investment of its own and participants' assets. For example, cash held at a creditworthy commercial bank would no longer be considered a qualifying liquid resource under Principle 7 if it were invested in the debt instrument of a private sector issuer.
- The investment of an FMI's own assets and those of its participants should not circumvent related risk management requirements. For example, the reinvestment of participants' collateral should still respect the FMI's collateral concentration limits applicable to those assets.

Appendix

For the purposes of Principle 16, financial instruments can be considered to have minimal credit, market and liquidity risk if they meet *each* of the following conditions:

⁴ The use of investment vehicles where investments are held indirectly (e.g. mutual funds and exchange-traded funds) should not result in breaches to the investment constraints listed.

1. Investments are debt instruments that are:
 - a. securities issued by the Government of Canada;
 - b. securities guaranteed by the Government of Canada;
 - c. marketable securities issued by the United States Treasury;
 - d. securities issued or guaranteed by a provincial government;
 - e. securities issued by a municipal government;
 - f. bankers' acceptances;
 - g. commercial paper;
 - h. corporate bonds; and
 - i. asset-backed securities that meet the following criteria: (1) sponsored by a deposit-taking financial institution that is prudentially regulated at either the federal or provincial level, (2) part of a securitization program supported by a liquidity facility, and (3) backed by assets of an acceptable credit quality.
2. The FMI employs a defined methodology to demonstrate that debt instruments have low credit risk. This methodology should involve more than just mechanistic reliance on credit-risk assessments by an external party.
3. The FMI employs limits on the average time-to-maturity of the portfolio based on relevant stress scenarios in order to mitigate interest rate risk exposures.
4. Instruments have an active market for outright sales or repurchase agreements, including in stressed conditions.
5. Reliable price data on debt instruments are available on a regular basis.
6. Instruments are freely transferable and settled over a securities settlement system compliant with the PFMI.

– **PFMI Principle 23: Disclosure of rules, key procedures, and market data**

**Box 23.1:
Joint Supplementary Guidance –
Disclosure of Rules, Key Procedures and Market Data**

Context

The PFMI state that FMIs should provide sufficient information to their participants and prospective participants to enable them to clearly understand the risks and responsibilities of participating in the system. This note provides additional guidance for Canadian FMIs to meet the components of the disclosure principle related to: (i) public qualitative disclosure and (ii) public quantitative disclosure.

(i) Requirements included in the PFMI

Principle 23 outlines requirements for disclosure to participants as well as the general public. In addition, specific disclosure requirements are listed in the principles to which they pertain.

The following text has been extracted directly from the PFMI, [PFMI Principle 23](#), key consideration 5:

An FMI should complete regularly and disclose publicly responses to the CPMI-IOSCO Disclosure framework for financial market infrastructures. An FMI also should, at a minimum, disclose basic data on transaction volumes and values.

To supplement key consideration 5, CPMI-IOSCO published two documents: the Disclosure framework for financial market infrastructures (the Disclosure Framework),¹ and the Public quantitative disclosure standards for central counterparties (the Quantitative Disclosure Standards).² This note will refer to the disclosures that result from completing the templates provided in these documents as the Qualitative Disclosure and the Quantitative Disclosure, respectively.

(ii) Supplementary guidance for Canadian FMIs designated by the Bank of Canada

On its public website, an FMI should publish its Qualitative Disclosure and Quantitative Disclosure, as well as any other public disclosure requirements specified in Principle 23 or in other principles. Any public disclosure should be written for an audience with general knowledge of the financial sector.

(a) Qualitative disclosure (Applies to all types of FMIs)

A Qualitative Disclosure should provide the public with a high-level understanding of an FMI's governance, operation and risk-management framework.

Summary narrative disclosure

In part four of the Disclosure Framework, FMIs are required to provide a summary narrative of their observance of the Principles. FMIs should provide these narratives at the principle level, and are not required to address key considerations or to provide answers to the detailed questions listed in Section 5 of the Disclosure Framework report. Instead, the narrative disclosure should focus on providing a broad audience with an understanding of how each Principle applies to the FMI, and what the FMI has done or plans to do to ensure its observance.

¹ [Committee on Payments and Market Infrastructures and Technical Committee of the International Organization of Securities Commissions \(CPMI-IOSCO\), "Principles for financial market infrastructures: disclosure framework and assessment methodology" \(December 2012\). The Disclosure Framework is part of a document published in December 2012, titled "Principles for financial market infrastructures: Disclosure framework and Assessment methodology", and is available at <http://www.bis.org/press/p121214.htm>.](#)

² [Committee on Payments and Market Infrastructures and Technical Committee of the International Organization of Securities Commissions \(CPMI-IOSCO\), "Public quantitative disclosure standards for central counterparties" \(February 2015\). This document is available at <http://www.bis.org/cpmi/publ/d125.pdf>.](#)

Timing

FMI's should update and publish their Qualitative Disclosures following significant changes³ to the system or its environment, or at least every two years. Only the most current Qualitative Disclosure needs to be maintained on the FMI's website.

(b) Quantitative disclosure (*Applies only to CCPs*)

Quantitative Disclosures specify the set of key quantitative information required in the Disclosure Framework. They should follow the format provided by CPMI-IOSCO, allowing stakeholders, including the general public, to easily evaluate and compare FMI's.

Currently, CPMI-IOSCO has developed public quantitative disclosure standards only for CCPs. The following guidance applies only to CCPs; Canadian authorities will provide further guidance on the quantitative disclosure requirements of FMI's other than CCPs when such standards have been developed.

Context

Where a general audience may need additional context to properly interpret the data, it should be provided in explanatory notes or addressed in the CCP's Qualitative Disclosure. CCPs are encouraged to provide charts, background information and additional documentation where it may aid the reader's understanding.

Comparability

Regulators recognize that, given the different structures and arrangements among CCPs, an overly homogenized presentation format could lead to inaccurate comparability. Subject to regulatory approval, a CCP may provide analogous data in place of a disclosure requirement that is not applicable to its business or representative of the risks it faces. The CCP must justify to authorities the necessity and selection of the alternative metric.⁴ If granted approval, the CCP must provide the original data to authorities with the frequency specified in the Quantitative Disclosure Standards, and must explain in each public disclosure why an alternative metric was chosen.

Confidentiality

A CCP's public disclosure obligation does not release it from its confidentiality duties. Where a required disclosure item could reveal (or allow knowledgeable parties to deduce) commercially sensitive information about individual clearing members, clients, third-party contractors or other relevant stakeholders, or where disclosure may amount to a breach of laws or regulations for maintaining market integrity, the data must be omitted. In this case, the CCP must justify the omission to authorities.⁵ If granted approval, the CCP must provide the confidential data to authorities with the frequency specified in the Quantitative Disclosure Standards, and must explain the reason for the omission in each public disclosure.

Timing

Quantitative Disclosures should be reported quarterly, and updated with the frequency specified in the Quantitative Disclosure Standards.⁶ Even though some required data may already be publicly disclosed in other reports, or may not have changed from the previous quarter, the data should still be included in the disclosure matrix for completeness and consistency. Data should be publicly disclosed no later than 60 days after the end of each fiscal quarter, and should remain available on its website for at least three years so that trends can be examined.

³ Updated Qualitative Disclosures should be published subsequent to regulatory approval, and prior to the effective date of the significant change. Significant changes can include, but are not limited to: (i) any changes to the FMI's constituting documents, bylaws, corporate governance or corporate structure; (ii) any material change to an agreement between the FMI and its participants or to the FMI's rules, operating procedures, user guides, or manuals or the design, operation or functionality of its operations and services; and (iii) the establishment of, or removal or material change to, a link, or commencing or ceasing to engage in a business activity.

⁴ If the authorities are satisfied with the justification, the CCP need not resubmit the substitution unless the CCP's structure or arrangements change the applicability of the original disclosure requirement, or the CCP wishes to change its substituted metric. CCPs are responsible for informing authorities of any changes that could affect the applicability of the originally required or substituted data.

⁵ If the authorities are satisfied with the justification, the CCP need not resubmit the omission unless the circumstances change the confidentiality of the disclosure. CCPs are responsible for informing the authorities of any changes that could affect the confidentiality of such data.

⁶ According to the Quantitative Disclosure Standards, items under general business risk should be updated annually, and all other items should be updated on a quarterly basis.