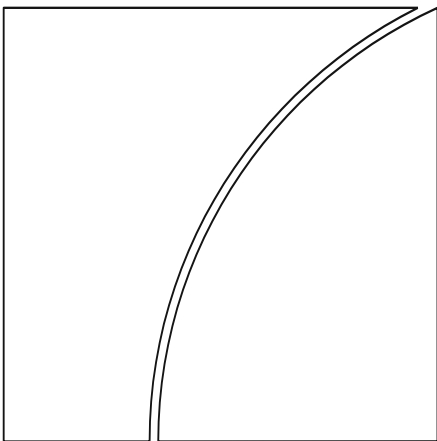


Committee on
Payments and Market
Infrastructures

Board of the International
Organization of Securities
Commissions

Consultative report



FMI's management of
general business risks and
general business losses:
Further guidance to the
PFMI

November 2025



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Executive Summary

This consultative report provides proposed supplemental guidance for FMIs and relevant authorities on certain principles and key considerations relating to FMIs' management of general business risks and general business losses, including in the context of recovery and orderly wind-down, in the *Principles for financial market infrastructures* (PFMI), published by the BIS Committee on Payment and Settlement Systems (CPSS)¹ and the International Organization of Securities Commissions (IOSCO).

The report first clarifies the scope of general business risk set out in Principle 15. General business risk refers to the risk of losses arising from an FMI's administration and operation as a business enterprise that are not related to a participant's default. General business losses may be realised when risks covered by other principles materialise, including Principle 1 on legal risk, Principle 16 on custody and investment risks, and Principle 17 on operational risk. The report also expands on the relationship between Principle 15 and other principles, notably Principle 2 on governance, Principle 3 on the framework for the comprehensive management of risks and Principle 23 on transparency.

In addition to clarifying the scope of general business risk and the interaction of Principle 15 with other principles, the report provides guidance in three key areas (set out in more detail below): identifying, monitoring, and managing general business risks; determining the minimum amount of liquid net assets funded by equity (LNAFE); and governance and transparency.

Each FMI, in conjunction with the authorities responsible for its regulation, supervision and oversight, should carefully consider this guidance when developing its approach to observing the PFMI. The guidance in this report is not intended to create or impose additional standards for FMIs beyond those set out in the PFMI, but rather to provide supplemental guidance to support FMIs' observance of the PFMI.

Identifying, monitoring, and managing general business risks

An FMI should have a framework for the comprehensive management of risks, including general business risk. This framework should be designed to ensure that an FMI appropriately identifies the general business risks to which it is exposed, estimates potential losses, and mitigates and manages losses that may materialise.

As part of this framework, an FMI should have a process for identifying its general business risks, which should encompass all sources of general business risk relevant to it, including risks covered by other principles, such as legal, custody and investment, and operational risk. An FMI should also have a process to estimate the size and timing of the potential general business losses that it may incur if the identified risks materialise. The process of assessing and estimating the financial impact of an FMI's general business risks is complex and an FMI should consider which tool or combination of tools is appropriate to estimate general business losses. These estimates should be reviewed periodically.

To minimise and mitigate the identified general business risks and manage general business losses, an FMI should assess its ability to (i) avoid or reduce general business risks, or (ii) transfer losses arising from certain general business risks, for example by obtaining insurance or explicit indemnity agreements. An FMI should also assess its ability to address any risks that it retains, using conservative assumptions about any tools that may be available to mitigate risk or transfer losses. An FMI should determine the amount of financial resources it may need to hold to address losses that may arise from general business risk, based on the residual risk it retains and the effectiveness of its controls and management of general business risk.

¹ The Committee on Payment and Settlement Systems (CPSS) changed its name to the BIS Committee on Payments and Market Infrastructures (CPMI) on 1 September 2014. References to reports published before that date use the Committee's old name.

An FMI should also identify scenarios in which its general business losses could be so great that its viability as a going concern is threatened, and it should prepare appropriate plans for its recovery or orderly wind-down in those scenarios.

At a minimum, an FMI should hold financial resources in the form of LNAFE that are at all times sufficient to ensure a recovery or orderly wind-down of critical operations and services. An FMI should consider holding additional financial resources beyond the minimum required amount of LNAFE, which could allow the FMI to address unexpected losses without the need to implement its recovery plan.

An FMI should develop clear triggers or indicators, applicable to general business losses, designed to enable timely information-sharing and escalation, and, as appropriate, the implementation of recovery and orderly wind-down plans in order to maximise the likelihood of their success.

Determining the minimum amount of liquid net assets funded by equity

The purpose of LNAFE is to ensure that an FMI has liquid assets and loss-absorbing equity capital to address potential general business losses and continue providing critical operations and services, including in recovery and, if necessary, through an orderly wind-down. Accordingly, two aspects of LNAFE are liquid assets and equity. At all times, an FMI should have on its balance sheet both liquid assets and equity that are each equal to or greater than its required amount of LNAFE.

An FMI should at all times hold sufficient LNAFE to implement its recovery and orderly wind-down plans. To estimate the amount needed for this purpose, an FMI should consider the full range of costs that it would incur when implementing its recovery and orderly wind-down plans, including ordinary operating expenses, extraordinary expenses related to recovery and orderly wind-down, and any losses the FMI would need to cover with LNAFE (taking into account the availability of other recovery tools). At a minimum, LNAFE should be equal to six months of the FMI's current operating expenses. An FMI should compare its estimated cost of implementing its recovery and orderly wind-down plans with its calculation of six months of current operating expenses and hold at least the greater of the two amounts.

Given potential changes or fluctuations in the calculations and the value of an FMI's liquid assets, an FMI should consider holding an additional amount of LNAFE above the minimum so that it maintains sufficient LNAFE at all times.

In addition to determining the amount of LNAFE to hold, an FMI should develop a viable plan for raising additional equity when necessary. An FMI should assess the suitability of specific methods for raising additional equity, which may vary based on various factors, including the FMI's corporate ownership structure, legal framework, and identified scenarios in which it might need to raise equity. A viable equity plan should include the specific steps that would need to be taken to ensure that an FMI can raise additional equity practicably, effectively and in a timely manner. An FMI should consider consulting with relevant stakeholders on its equity plan to confirm its viability.

Governance and transparency

The board of directors (or equivalent)² should oversee, monitor and evaluate the implementation of the FMI's risk management framework and associated processes for managing general business risks. An FMI's governance arrangements should ensure that the legitimate interests of relevant stakeholders are appropriately considered in the context of identifying, minimising and mitigating general business risks and addressing general business losses. An FMI should consider involving relevant stakeholders as part of its comprehensive process for managing general business risks. An FMI should disclose sufficient information concerning its approach to managing general business risk (including addressing general business losses) in

² The PFMI, including Principle 2, Key Consideration 3, refer to "an FMI's board of directors (or equivalent)". References in this document to an FMI's board of directors should be understood to also refer to any equivalent body.

order to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI, as called for by Principle 23.

1. Introduction

1.1 Background

1.1.1 In April 2012, the Committee on Payment and Settlement Systems (CPSS)³ and Technical Committee of the International Organization of Securities Commissions (IOSCO) published the *Principles for financial market infrastructures* (PFMI) which significantly strengthened the international standards for risk management by financial market infrastructures (FMIs). Subsequently, CPMI and IOSCO provided supplemental guidance to the principles in the PFMI in several additional reports, including *Recovery of financial market infrastructures*⁴ (Recovery Guidance), *Guidance on cyber resilience for financial market infrastructures*⁵ (Cyber Guidance) and *Resilience of central counterparties: Further guidance on the PFMI – final report*⁶ (CCP Resilience Guidance).

1.1.2 The PFMI recognise general business risk as applicable and important for all FMIs.⁷ The PFMI state that an FMI should have governance arrangements and objectives, as well as policies, procedures and controls, to manage this risk within a comprehensive risk management framework.⁸ In addition, the PFMI state that an FMI should develop recovery and orderly wind-down plans that take into account scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern.⁹

1.1.3 Principle 15 and its supporting key considerations outline a standard for an FMI to identify, monitor and manage general business risks and to hold sufficient LNAFE to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise and to ensure a recovery or orderly wind-down of the FMI's critical operations and services.

1.1.4 As noted in paragraph 2.2.2 of the Recovery Guidance, "given the systemic importance of FMIs, it is necessary that each FMI have a comprehensive and effective recovery plan designed to permit the FMI to continue to provide its critical services. However, where such a plan proves, in a particular circumstance, to be ineffective, it is important that the FMI have a plan to wind down in an orderly manner. A plan for an orderly wind-down is not a substitute for having a comprehensive and effective recovery plan."

1.1.5 "General business losses" are losses that are neither related to participant default nor separately covered by financial resources under the credit and liquidity risk principles.¹⁰ General business losses may arise from business risks related to the operation of an FMI as a business enterprise. They may also arise from risks

³ The Committee on Payment and Settlement Systems (CPSS) changed its name to the Committee on Payments and Market Infrastructures (CPMI) on 1 September 2014.

⁴ See CPMI-IOSCO, *Recovery of financial market infrastructures*, revised July 2017, www.bis.org/cpmi/publ/d162.pdf and www.iosco.org/library/pubdocs/pdf/IOSCOPD569.pdf. An earlier version of this report was published in October 2014.

⁵ See CPMI-IOSCO, *Guidance on cyber resilience for financial market infrastructures*, June 2016, www.bis.org/cpmi/publ/d146.pdf and www.iosco.org/library/pubdocs/pdf/IOSCOPD535.pdf.

⁶ See CPMI-IOSCO, *Resilience of central counterparties (CCPs): Further guidance on the PFMI – final report*, July 2017, www.bis.org/cpmi/publ/d163.htm and www.iosco.org/library/pubdocs/pdf/IOSCOPD539.pdf.

⁷ The application of the PFMI to FMIs that are owned and operated by central banks is addressed in CPMI-IOSCO, *Application of the Principles for financial market infrastructures to central bank FMIs*, August 2015, www.bis.org/cpmi/publ/d130.pdf and www.iosco.org/library/pubdocs/pdf/IOSCOPD501.pdf.

⁸ PFMI Section 2.0, "Overview of key risks in financial market infrastructures," paragraph 2.7, "General business risk"; and Principle 3, "Framework for the comprehensive management of risks".

⁹ See Principle 3, Key Consideration 4. See also Recovery Guidance paragraph 2.2.2.

¹⁰ As discussed further below, see Section 1.4, there is no functional distinction intended between the term "general business losses" and the term "non-default losses," which is a term commonly used by CCPs but is less commonly used by other FMI types.

faced by the FMI related to other principles under the PFMI, for example, legal risk (Principle 1), custody and investment risks (Principle 16) and operational risk (Principle 17). General business losses may be one-time or recurring losses.¹¹

1.1.6 Since the publication of the PFMI, changes in the external environment have highlighted the importance of mitigating and managing general business risks and addressing potential general business losses. In this context, FMIs should prepare for potential general business losses including those that could threaten their financial viability.

1.2 Prior work contributing to this document

1.2.1 In August 2022, CPMI-IOSCO published *A discussion paper on central counterparty practice to address non-default losses*¹² (2022 Discussion Paper), which initiated a public consultation. The 2022 Discussion Paper was motivated by the fact that there was a limited common understanding of CCPs' current practices to address non-default losses (NDLs), including estimating the potential size of NDLs and maintaining adequate resources and appropriate tools to address NDLs. The paper was informed by a stock-take of current industry practices to address NDLs from 20 CCPs in 10 jurisdictions and follow-up information sessions with representatives from CCPs and participants.

1.2.2 In August 2023, CPMI-IOSCO published an updated document entitled *Report on current central counterparty practices to address non-default losses* (2023 NDL Practices Report).¹³ The 2023 NDL Practices Report was informed by the responses to the consultation. It provided a more complete description of current practices that CCPs employ to address NDLs and updated the 2022 Discussion Paper with additional practices provided through the public consultation.

1.2.3 The process of researching and drafting these publications revealed a wide range of practices related to NDLs. Although certain practices appeared to be well developed, these practices were not equally widespread. A few other practices appeared less well developed, including some that were potentially inconsistent with the PFMI.

1.2.4 In an environment in which general business losses are increasingly top of mind,¹⁴ the industry outreach found that some stakeholders were concerned that FMIs may not be appropriately holding sufficient financial resources to cover non-default (or general business) losses. This is particularly relevant if the FMI's participants are called upon to bear losses in limited circumstances.

1.2.5 As noted in the 2023 NDL Practices Report, "one theme common to the questionnaire responses and the discussion at the information session is that there is a dearth of relevant internal or external historical data related to actual experience of NDLs threatening the viability of a CCP. However [...] past performance is no guarantee of future results and there is a need to avoid conflating "unknown risk" or "low risk" with "no risk."¹⁵ This theme – and this caution – apply equally to other FMI types.

1.2.6 In order to further assess current practices for addressing risks related to general business losses, CPMI-IOSCO conducted a Level 3 implementation monitoring assessment to evaluate how the general

¹¹ See PFMI Explanatory Note 3.15.1.

¹² CPMI-IOSCO, *A discussion paper on central counterparty practices to address non-default losses*, August 2022, www.bis.org/cpmi/publ/d208.pdf and www.iosco.org/library/pubdocs/pdf/IOSCOPD709.pdf.

¹³ CPMI-IOSCO, *Report on current central counterparty practices to address non-default losses*, August 2023, www.bis.org/cpmi/publ/d217.pdf and www.iosco.org/library/pubdocs/pdf/IOSCOPD743.pdf.

¹⁴ See paragraph 1.1.5, see also FSB, *Guidance on Financial Resources to Support CCP Resolution and on the Treatment of CCP Equity in Resolution* Section 1.2, November, 2020, www.fsb.org/2020/11/guidance-on-financial-resources-to-support-ccp-resolution-and-on-the-treatment-of-ccp-equity-in-resolution.

¹⁵ 2023 NDL Practices Report, p5.

business risk principle (Principle 15) and other relevant principles in the PFMI have been implemented across FMI types. The report found that there are gaps and material differences in FMIs' implementation of those principles. CPMI-IOSCO published its findings of the Level 3 assessment in November 2025, and those findings also inform this report.¹⁶

1.2.7 In light of these observations and themes, CPMI-IOSCO believe that some of the issues observed in the Level 3 assessment arise in part from a lack of common understanding of the PFMI. Therefore, CPMI-IOSCO believes that supplemental guidance under the PFMI would help FMIs more fully understand and implement the PFMI, improve overall resilience with respect to general business losses and promote greater transparency.

1.3 Purpose of this report

1.3.1 This report is intended to provide supplemental guidance with respect to interpreting the standards under Principle 15 and other relevant principles related to FMIs' management of general business risk and general business losses, including in the context of recovery and orderly wind-down. In addition to clarifying the scope of Principle 15 and its interaction with other principles, the report provides guidance in three key areas (set out in more detail below): identifying, monitoring and managing general business risks; determining the minimum amount of LNAFE; and governance and transparency.

1.3.2 In contrast to earlier work, this report is addressed to all FMI types, rather than CCPs only, for two reasons. First, the PFMI principles elaborated on in this report are addressed to all FMIs. General business losses are also relevant for FMIs that do not face credit or liquidity risks from members or the possibility of participant defaults. Second, during the consultation on the 2022 Discussion Paper, several respondents (including market participants and FMIs) noted that it would be helpful to have consistent guidance for all FMI types. Accordingly, although specific risks may differ across FMI types, CPMI-IOSCO have determined that guidance in this area would be helpful and applicable to all FMI types.

1.3.3 The guidance is not intended to create additional standards beyond those set out in the PFMI. The report should be read in conjunction with the relevant principles, key considerations and explanatory notes in the PFMI as well as other supplementary guidance.¹⁷ In particular, this guidance supplements the Recovery Guidance and provides considerations for determining the amount of LNAFE necessary for an FMI to implement recovery and orderly wind-down plans in the context of general business losses. The guidance provides clarity on an acceptable way – although it does not prescribe what is necessarily the only way – of observing the PFMI. Each FMI, in conjunction with the authorities responsible for its regulation, supervision and oversight, should carefully take into account the guidance in this report when developing its approach to meeting the PFMI.

1.4 Terminology

1.4.1 This report addresses "general business losses", losses that are neither related to participant default nor separately covered by financial resources under the credit and liquidity risk principles.¹⁸ The 2023 NDL Practices Report, which focused on CCPs only, used the term NDLS for these types of loss. That term is commonly used by CCPs, but is less commonly used by other FMI types, and is not included in the PFMI. To

¹⁶ See CPMI-IOSCO, *Implementation monitoring of the PFMI: Level 3 assessment on general business risks*, November 2025, available at www.bis.org/cpmi/publ/d228.htm.

¹⁷ See paragraph 1.1.1 above.

¹⁸ Principle 15, Key Consideration 1 defines general business risk to include "poor execution of business strategy", "negative cash flows" and "unexpected and excessively large operating expenses". Further, Explanatory Note 3.15.1 notes that "business-related losses" may also arise from risks covered by other principles, for example, legal risk, investment risk, and operational risk. Therefore, managing general business risk encompasses managing the risk of "business-related losses" from these other risks. Hence, this report uses the term "general business losses" to refer to the financial impact of losses resulting from the manifestation of any of these types of risks.

promote a consistent understanding of this type of risk across all FMI types, this guidance will henceforth refer to such losses as general business losses. In practice, general business losses and NDLS cover the same scope of losses.¹⁹

1.5 Key inputs into the report

1.5.1 There were four main inputs to the development of the guidance in this report: (i) the stocktake and follow-up information sessions conducted as inputs to the 2022 Discussion Paper; (ii) the 2023 NDL Practices Report, including the 2022 Discussion Paper and the consultation responses received; (iii) the Level 3 implementation monitoring assessment of Principle 15 and associated principles for all FMI types, including FMIs' responses to the Level 3 survey; and (iv) CPMI-IOSCO's working knowledge of current FMI practices.

1.6 Organisation of the report

1.6.1 The report is organised as follows: Section 2 sets out the scope of "general business risk" and the interaction with other PFMI principles; Sections 3 through 5 address different aspects of managing general business risk and general business losses, including: identifying, monitoring, and managing general business risks (Section 3); determining the minimum amount of LNAFE (Section 4); and governance and transparency (Section 5).

1.6.2 Each section begins with context, including relevant principles and key considerations in the PFMI, followed by specific guidance on the topic. Where applicable, examples illustrate possible ways to implement the guidance. These examples are not meant to be prescriptive or exhaustive.

¹⁹ For the avoidance of doubt, while this report will use the term "general business losses", there is no implication intended that the use of the term "NDL" or "non-default losses" by any FMI or authority is discouraged.

2. Scope and interaction with other PFMI principles

2.1 Scope of general business risk

2.1.1 Principle 15 of the PFMI sets out the standard for general business risk. An FMI's general business risk refers to the risk of losses arising from that FMI's administration and operation as a business enterprise that are neither related to participant default nor separately covered by financial resources under the credit or liquidity risk principles.²⁰

2.1.2 A variety of business factors can cause general business losses, including poor execution or limited take-up of a business strategy, negative cash flows, or unexpected and excessively large operating expenses.

2.1.3 An FMI may also incur general business losses when risks covered by other principles materialise, including legal risk (Principle 1), custody and investment risks (Principle 16) and operational risk (Principle 17). While an FMI may have controls and procedures in place to minimise these risks consistent with the respective principles, there could nonetheless be cases in which an FMI's controls and mitigants fail and a risk event occurs, resulting in a financial loss for the FMI. Examples of how an FMI could face losses from these risks are described below:

2.1.3.1 *Legal risk example:* An FMI that has a well-founded, clear, transparent and enforceable legal basis for each material aspect of its activities, consistent with Principle 1, could still face losses arising from a legal event, such as a lawsuit against the FMI that may result in judgments or fees borne by the FMI.

2.1.3.2 *Custody and investment risks example:* An FMI may use a network of supervised and regulated entities (such as central securities depositories (CSDs), custodians or cash correspondents) to, consistent with Principle 16, safeguard its own and its participants' assets, and minimise the risk of loss on and delay in access to these assets.²¹ Nonetheless, one of these entities could fail to meet its obligations to safeguard these assets, including assets "in transit", potentially exposing the FMI to financial loss.

2.1.3.3 *Operational risk example:* An FMI may, consistent with Principle 17, identify all plausible sources of operational risk and mitigate their impact through the use of appropriate systems, policies, procedures and controls. There could nonetheless be cases in which, despite those mitigants, an unexpected operational event occurs, resulting in a financial loss. For example, an FMI may face cyber events, natural disasters or terrorist attacks, which could lead to financial losses from system outages or damage to physical or real estate assets, or affect an FMI's business expenses.

2.2 Interactions between Principle 15 and other principles

2.2.1 As noted in paragraph 1.19 of the PFMI, "the principles are designed to be applied holistically because of the significant interaction between principles; principles should be applied as a set and not on a standalone basis". Therefore, in understanding and observing the standard for managing general business risk, FMIs should refer to both Principle 15 specifically and the PFMI as a whole.

2.2.2 As noted above, there is a clear interaction between general business risk covered in Principle 15 and legal, custody and investment, and operational risks covered in Principles 1, 16, and 17, respectively. The latter principles set out standards for the identification, monitoring and management of those risks. Principle 15 sets out the standard for addressing financial losses that may arise should those risks materialise, despite the FMI's efforts to meet the relevant standard. This report provides guidance for Principle 15, and does not provide any additional guidance on Principles 1, 16 and 17.

²⁰ See Explanatory Note 3.15.1 for further description of general business risk.

²¹ For discussion of treatment of custody and investment losses in the context of CCPs, see Section 6.2 of the CCP Resilience Guidance.

2.2.3 Whereas Principles 1, 16 and 17 inform the scope of the general business risk, this guidance also relates to Principle 2 on governance, Principle 3 on the framework for the comprehensive management of risks, and Principle 23 on transparency, given the importance of applying these principles in the context of managing general business risk.

2.2.4 Principle 2 sets out the standard for the governance of an FMI and states that “an FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations and the objectives of relevant stakeholders”. Strong governance arrangements facilitate the effective management of risks, including general business risk. Given that general business risk is part of the FMI’s overall risk management framework, it is important that the FMI has clear processes for ensuring that its board of directors has sufficient visibility over these risks, such that they can make informed decisions about the FMI’s tolerance for general business risk and the appropriateness of the level of residual risk.

2.2.5 Principle 3 states that “an FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks”; these include general business risks. The key considerations under Principle 3 state that an FMI should have risk-management policies, procedures and systems that enable it to identify, measure, monitor and manage the range of risks that arise in or are borne by the FMI, which again include general business risks. An FMI also should identify scenarios, including scenarios with general business losses, that may 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.

2.2.6 Principle 3, Key Consideration 1 also establishes that risk management frameworks, including for general business risk, should be subject to periodic review.

2.2.7 Principle 23 states that “an FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.” This principle applies equally in the context of managing general business risk.

3. Identifying, monitoring and managing general business risks

The objective of this guidance is to support an FMI in its efforts to consider the full scope of general business risks that are relevant given its particular business model and operations and that can give rise to general business losses.

Section 3.1 provides guidance on developing an FMI’s general business risk profile, which includes identifying the range of general business risks relevant to an FMI, and estimating the potential financial impacts if the identified risks were to crystallise. Section 3.2 includes guidance on how an FMI may mitigate and manage the risks and potential losses it has identified, and how it can accept and manage any residual risks. Section 3.3 provides guidance on how an FMI may monitor its general business risk and general business losses.

3.1 Identifying sources and estimating the potential financial impact of general business risks

Context

3.1.1 Principle 15, Key Consideration 1 states that “an FMI should have robust management and control systems to identify, monitor and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses”.

3.1.2 The guidance in this section is aimed at supporting an FMI in identifying the general business risks it faces, which may manifest in different ways and from different sources. Potential sources include the FMI's business model, customer base, business operations, and dependencies on third parties. This section also provides examples of potential approaches that an FMI could take to support its efforts to estimate the financial impacts that could arise from the general business risks to which it is exposed. The combination of the risks faced by the FMI in the context of these and other sources, the estimates of financial consequences if they manifest, and existing controls to mitigate risks, together make up the FMI's general business risk profile.

Guidance

3.1.3 An FMI should have a framework for the comprehensive management of risk, including general business risk. This framework should be designed to ensure that an FMI appropriately identifies general business risks, estimates potential losses, and mitigates and manages losses that may materialise. The risk management framework should be supported by documented policies and procedures.²² The risk management framework should be established and its implementation overseen by the board of directors. The FMI "also should have comprehensive internal processes to help the board and senior management monitor and assess the adequacy and effectiveness of" the FMI's risk management framework; this will likely involve close engagement with the FMI's senior management, relevant business lines, independent risk management and independent internal (or, if necessary, external) audit.²³

3.1.4 In developing its risk management framework, an FMI should establish and implement the following processes:

3.1.4.1 A thorough process to identify general business risk that stems from an FMI's specific activities.²⁴ An FMI should also consider leveraging its risk and control assessments to evaluate general business risks against its risk appetite and risk tolerance.

3.1.4.2 A reliable process to estimate potential general business losses that informs management and the board of directors about the potential size and timing of general business losses.²⁵

3.1.4.3 Processes to manage specific business risks, including minimising and mitigating general business risk and addressing any risks that an FMI retains. Based on the residual risk the FMI retains and the effectiveness of the FMI's controls and management of general business risk, an FMI should determine the amount of financial resources it may need to hold to address losses should they arise.²⁶

Identifying general business risks

3.1.5 An FMI should have a thorough process to identify its sources of general business risk, in order to enable it to appropriately capture all relevant general business risks. These include risks covered by other principles, such as operational, legal, and custody and investment risk. An FMI should consider developing an integrated risk taxonomy to classify specific risks and should consider using a risk and control self-identification or similar process to support its identification of general business risks.

3.1.6 An FMI should consider that general business risks could stem from both internal and external sources. Internal sources that could potentially result in general business losses are the FMI's business model and operations (for example, lack of take-up of new products or unsuccessful technology upgrades). External sources that could have an impact on an FMI's general business risk profile are those that are outside of the FMI's operations. For example, changes in macroeconomic conditions that could affect the profitability of the

²² See Principle 3, Key Consideration 1.

²³ See generally Explanatory Note 3.3.9.

²⁴ See paragraphs 3.1.5–3.1.8.

²⁵ See paragraphs 3.1.9–3.1.14.

²⁶ See Section 3.2 below.

FMI's business model, increases in the costs of wages, property or third-party services; or reductions in revenues that could stem from changing business environments.

3.1.7 Even with appropriate mitigants for general business risks in place, those risks can materialise, resulting in general business losses. For example, an FMI may implement robust cyber security practices but may still experience disruptions (and resulting general business losses) due to cyberattacks on its systems or on its service providers' systems. An FMI should contemplate how these residual risks can affect its general business risk profile.

3.1.8 An FMI should consider the possibility that different types of risks could materialise at the same time and should consider how that may affect the FMI's response. An FMI should also consider looking ahead to identify new risks or novel ways that existing risks may manifest. An awareness of interactions between different risks and how the risk landscape is evolving will give an FMI a more comprehensive view of its general business risk profile.

Estimating the size and timing of general business losses

3.1.9 In developing its general business risk profile, an FMI should estimate the size and timing of the potential general business losses that could be incurred if the risks it identifies do materialise. This is an important element of the FMI's general business risk profile as it underpins the FMI's preparation for the financial consequences of general business risk. Both the size and timing of losses are relevant for assessing the effectiveness of risk mitigation and addressing losses from residual risk (Section 3.2), as well as for assessing the sufficiency of LNAFE (Section 4.2) as the most extreme scenarios may require an FMI to implement its recovery or orderly wind-down plan. In addition, an FMI should consider whether potential losses would affect its capital position and whether it would have liquid financial resources to address losses as needed.

3.1.10 The process of assessing and estimating the financial impact of an FMI's general business risks is complex and will often require analysis based on incomplete information. Given this complexity, an FMI should have a reliable process for estimating potential general business losses that is linked to the FMI's identification of general business risks. As part of this process, an FMI should consider which tool or combination of tools is appropriate for it to use to estimate general business losses. Specific tools that an FMI could use include historical loss data, loss distribution models, scenario analysis and sensitivity analysis.

3.1.10.1 *Historical loss data:* An FMI should consider leveraging historical data, such as applying average or maximum historical losses, to quantify the size and timing of loss estimates, to the extent feasible and relevant. Relevant sources of historical data could include the FMI's own incident data. Where the FMI lacks sufficient general business loss history of its own, it should consider supplementing its internal data with external data, to the extent available and appropriate. This may include data from other FMIs, other institutions or vendors. This approach may be particularly appropriate for risks that are expected, occur more frequently, and are generally more predictable.

3.1.10.2 *Loss distribution models:* An FMI could also consider leveraging available data, where adequate, to develop loss distribution models and simulations to estimate general business losses. An FMI may face challenges in accurately using models to estimate its general business loss exposures due to insufficient data and should therefore consider supplementing its models with other tools to develop general business loss estimates.

3.1.10.3 *Scenario analysis:* An FMI should also consider scenario analysis, especially for general business risk events that are more difficult to model and can result in outsized losses. Scenario analysis can be an effective tool to examine how specific risk events would affect the FMI, and ultimately, for quantifying potential general business losses. An FMI should consider developing scenarios to estimate the range of potential losses and the time frame in which those losses may materialise for each scenario. In estimating the range of losses, an FMI should also consider how an event can give rise to different types of loss. For example, an operational risk event may lead to both operational losses and, later, litigation losses. It may be appropriate for these scenarios to be calibrated across a spectrum of

severity, in order to give greater insights into the sensitivity of the estimates to different scenario assumptions. Relevant approaches to informing the development and calibration of an FMI's scenario analysis could include the analysis of estimated projected losses under hypothetical scenarios, supplemented and informed by internal and/or external expert judgement.

3.1.10.4 *Sensitivity analysis*: An FMI could consider performing sensitivity analysis by varying inputs and parameters to the FMI's models and scenarios to see how changes in the parameters would affect the size and timing of potential losses. Such sensitivity analysis could be an effective way to mitigate the risk that the FMI has either under- or overestimated the potential impact of a particular risk or provide the FMI with an understanding of where there is most uncertainty in its estimates.

3.1.11 To further support its estimation of general business losses, an FMI should also consider leveraging the support of relevant subject matter experts from within the organisation or external to it. For example, operational risk professionals at the FMI could work with financial professionals to develop quantitative estimates of potential general business losses resulting from certain operational risk events. In addition to internal experts, an FMI may consider leveraging external expertise to supplement its own knowledge and processes, in order to help validate or provide challenge to the FMI's assumptions and approach to estimating certain general business losses and to help identify potential gaps in its self-assessment.

3.1.12 Given the challenges in estimating the size and timing of potential general business losses, an FMI should clearly document both its conclusions and the methodologies used as part of its process for estimating general business losses. Documentation on methodologies could include, for example, underlying assumptions, data sources, potential limitations and the degree of expert judgment used. This documentation, if shared with relevant stakeholders (in whole or in part), could contribute to a better understanding of the FMI's general business risk profile and may allow the FMI to collect valuable feedback on its loss estimation process from relevant stakeholders.²⁷ Identified weaknesses, limitations, and assumptions of an FMI's risk estimation process should be clearly documented and assessed for their potential impact on the FMI's measurement of general business losses.

Reviewing and updating the general business risk profile

3.1.13 An FMI should regularly review and update its identification of general business risks and estimation of the size and timing of potential general business losses. Changes in the FMI's current operating environment and business model could affect the FMI's identification of the relevant general business risks to which it is exposed, as well as the estimates of how those risks would affect the FMI's financial position if they were to manifest.

3.1.14 In line with the guidance in Section 5.1, an FMI should put in place a process for ensuring that material decisions that have a significant impact on the general business risk profile are approved by its board.

3.2 Minimising and mitigating sources of general business risks and managing residual risk

Context

3.2.1 Principle 15, Key Consideration 1 states that "an FMI should have robust management and control systems to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses". The guidance below discusses approaches to minimising and mitigating sources of general business risk and managing residual risk, including by holding financial resources to address losses that may materialise from residual risk.

²⁷ See Sections 5.2 and 5.3 for more details on stakeholder feedback.

Guidance

3.2.2 To mitigate general business risk and manage general business losses that could materialise, an FMI should assess its ability to avoid or reduce general business risks or transfer losses arising from certain general business risks, as well as address any risks that it retains.

3.2.3 An FMI may be able to avoid certain risks, for example, by deciding not to engage in (or to exit) a high-risk business venture. An FMI may be able to reduce risk eg by strengthening controls, improving processes, or investing in training to increase its staff's ability to control risks. An FMI may also be able to transfer losses arising from certain risks such as by obtaining insurance or explicit indemnity agreements from parents, owners or participants.²⁸

3.2.4 An FMI should make conservative assumptions about the availability and effectiveness of tools used to mitigate risk or transfer losses. As it relates to mitigating risk, an FMI should consider the limitations of the tools it uses, including where controls may not fully address inherent risk or where controls may not perform as intended. As it relates to transferring losses, an FMI should consider the timing and performance risk of the tools it plans to use. For example, where an FMI uses insurance, the FMI should be attentive to potential timing mismatches, which may affect the amount of liquid resources available to the FMI when the losses are due to be absorbed. An FMI should also assess for potential performance risk where tools rely on action by third parties and take appropriate steps to address that risk. An FMI should consider using multiple tools to mitigate risk or transfer losses and assess the validity and usefulness of different tools depending on the types of risks the FMI is trying to mitigate.

3.2.5 An FMI may accept or retain some general business risks if it assesses that the risks are consistent with its risk-tolerance policy. Furthermore, while an FMI should take actions to reduce the likelihood that general business risks occur, and it may be able to transfer some losses, it cannot fully eliminate the possibility that its expenses could exceed its revenues or that it will bear an unexpected loss that cannot be fully transferred.

Addressing general business losses from residual business risk

3.2.6 Based on the residual risk the FMI retains and the effectiveness of the FMI's controls and management of general business risk, an FMI should determine the amount of financial resources it needs to hold to address general business losses should they arise.

3.2.7 Given FMIs' systemic importance, an FMI should identify scenarios where losses could be so great that its viability as a going concern is threatened, prepare appropriate plans for its recovery and orderly wind-down in those scenarios, and hold financial resources in the form of LNAFE sufficient to ensure a recovery and, if recovery fails, the orderly wind-down of critical operations and services.²⁹ An FMI should hold financial resources in the form of LNAFE that are at all times sufficient to ensure a recovery or orderly wind-down of critical operations and services (see Section 4 below).

3.2.8 An FMI will likely wish to be able to address certain general business losses without needing to implement its recovery plan. An FMI should consider holding additional financial resources beyond the minimum requirement, with the amount of such additional resources determined in light of its risk appetite. This could allow an FMI to address unexpected losses without needing to implement its recovery plan.

²⁸ See CCP Resilience Guidance, paragraph 6.1.1. On treatment of custody and investment losses, see paragraph 4.6.2 of the Recovery Guidance and paragraph 6.2.3 of the CCP Resilience Guidance.

²⁹ See Principle 3, Key Consideration 4; see also paragraphs 4.2.8–9 below ("Cost to implement recovery and orderly wind-down plans").

3.3 Monitoring general business risk and general business losses

Context

3.3.1 Principle 15, Key Consideration 1 states that “an FMI should have robust management and control systems to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows or unexpected and excessively large operating expenses”. The guidance below discusses considerations for monitoring general business risk and general business losses.

Guidance

3.3.2 An FMI should consider developing a set of key risk indicators and monitoring them on a regular basis so that it can take prompt action to address losses if any indicators of general business risk exceed established thresholds or parameters for those indicators consistent with the FMI’s risk-tolerance policy.

3.3.3 An FMI should also develop clear qualitative and quantitative triggers, applicable to general business losses, for its recovery and orderly wind-down plans that provide appropriate discretion to senior management and the board. In addition, an FMI should consider developing early warning indicators for recovery and orderly wind-down in the context of general business risks so that there is sufficient time for pre-determined processes for information-sharing and escalation to the FMI’s senior management and board in order to allow sufficient time to consider the appropriate actions to take. Other triggers may indicate the point at which the FMI may need to implement its recovery plan or its orderly wind-down plan in order to maximise the likelihood of its success; for example, some tools, particularly in a general business loss context, may take time or be costly to implement, such as raising additional equity capital. As such, an FMI should calibrate its triggers to enable it to commence plans early enough that it will have sufficient LNAFE to implement the plans successfully.

4. Determining the minimum amount of liquid net assets funded by equity

The proposed guidance in this section describes how an FMI should quantify the amount of LNAFE that it needs to hold. In particular, Section 4.1 provides guidance on different aspects of LNAFE. Section 4.2 provides guidance on determining the required amount of LNAFE, which includes discussion of the cost of implementing recovery and orderly wind-down and calculation of six months of operating expenses. It also provides considerations for maintaining sufficient LNAFE at all times to meet the standard. Section 4.3 provides guidance on maintaining a viable plan for raising additional equity.

4.1 Aspects of liquid net assets funded by equity

Context

4.1.1 Principle 15 states that “an FMI should [...] hold sufficient LNAFE to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.” As explained in a footnote to Explanatory Note 3.15.5, “for the purposes of this principle, the requirement for LNAFE ensures that the assets held for the purposes of this principle are sufficiently liquid to be available to mitigate any potential business risks in a timely manner, can only be used for business risk purposes and are funded by equity rather than long-term liabilities”.³⁰

4.1.2 Principle 15, Key Consideration 4 states that “assets held to cover general business risk should be of high quality and sufficiently liquid in order 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 2 states that “an FMI should LNAFE (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”.

4.1.3 The guidance in this section provides further discussion on two aspects of LNAFE, namely liquid assets and equity, and sets out a range of considerations for an FMI’s assessment of the quality and liquidity of assets held to meet the required minimum of LNAFE.

Guidance

4.1.4 The purpose of LNAFE is to ensure that an FMI has liquid assets and loss-absorbing equity capital, to address potential general business losses and continue providing critical operations and services, including in recovery and through an orderly wind-down, as necessary. Accordingly, two aspects of LNAFE are liquid assets on the asset side of the FMI’s balance sheet and loss-absorbing capital, ie equity (or net assets) on the liability side of the balance sheet.³¹ At all times, an FMI should have on its balance sheet liquid assets and equity that are each equal to or greater than the minimum amount of LNAFE (discussed below in Section 4.2).

4.1.5 Liquid assets for the purpose of meeting Principle 15 “should be of high quality and sufficiently liquid, such as cash, cash equivalents, or liquid securities, in order “to allow the FMI to meet its current and projected operating expenses under a range of scenarios, including in adverse market conditions”.³² An FMI should ensure that its liquid assets considered for this purpose are free of liens and encumbrances. These assets should be accessible promptly when required, and, if relevant, should be able to be liquidated with little to no loss in value and within the time frame needed to meet funding and liquidity needs in the FMI’s potential general business loss scenarios.

³⁰ Footnote 136 in Explanatory Note 3.15.5.

³¹ Equity equals Assets minus Liabilities. Thus, “net assets” are equivalent to “equity”.

³² Principle 15, Key Consideration 4; see also Explanatory Note 3.15.8.

4.1.6 An FMI should have processes in place to assess, on an ongoing basis, the quality and liquidity of liquid assets held as LNAFE. An FMI should consider the range of applicable risk factors that could affect the quality of liquid assets held as LNAFE, such as market risk, credit risk, custody risk and currency risk. For example, publicly traded securities, if held as LNAFE, should be regularly and frequently marked-to-market and should be valued with appropriate reductions in value for market risk (“haircuts”). An FMI should also assess the relevant timeframes for converting its liquid assets to cash in the currency needed as part of its overall analysis of management of general business losses. For example, cash that is held in term deposits, rather than held on demand, should be assessed for liquidity based on the time frame in which such term deposits would be available, including any reductions for early withdrawal.

4.1.7 The relevant time frame for liquidity in the context of general business losses is affected by the size and speed with which general business losses would materialise and the magnitude of the FMI’s payment obligations over time. An FMI should regularly assess whether its particular composition of assets will, in light of their quality and the time needed to convert non-cash assets into cash, meet the timelines required to cover obligations arising from general business losses in a range of scenarios, and should hold a composition of liquid assets that will enable it to meet its obligations promptly (including, if relevant, in the proper currency) in light of those time frames.

4.1.8 An FMI should also ensure that the equity on its balance sheet that is considered eligible for LNAFE is at all times equal to or greater than the minimum amount of LNAFE. Such equity, in contrast to liabilities (even long-term liabilities), allows an FMI to absorb losses on an ongoing basis and should be permanently available for this purpose.³³ Therefore, for the purpose of meeting Principle 15, an FMI should ensure that equity considered to be LNAFE is fully loss-absorbing and usable without relevant restrictions, such as common stock, disclosed reserves or retained earnings.³⁴

4.2 Determining the minimum amount of liquid net assets funded by equity

Context

4.2.1 The PFMI provide several key considerations under Principle 15 for determining what is sufficient LNAFE to hold. Key Consideration 2 of Principle 15 states that “the amount of LNAFE 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”.

4.2.2 Principle 15, Key Consideration 3 states that an FMI “should maintain a viable recovery or orderly wind-down plan and should hold sufficient LNAFE to implement this plan”. Explanatory Note 3.15.5 further elaborates on this point by noting that “the appropriate amount of LNAFE will depend on the content of the [recovery and orderly wind-down] plan and, specifically, on the size of the FMI, the scope of its activities, the types of actions included in the plan and the length of time needed to implement them”. Key Consideration 3 requires that, “at a minimum, an FMI should hold LNAFE equal to at least six months of current operating expenses”. Key Consideration 3 also states that “these assets are in addition to the resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.”

³³ See Explanatory Note 3.15.5 and footnote 136.

³⁴ Consistent with Explanatory Note 3.15.5, if an FMI’s corporate structure is such that it cannot legally or institutionally raise equity, it should ensure that an equal amount of equivalent loss absorbing financial resources is available.

Guidance

4.2.3 An FMI should conduct a thorough analysis to determine the amount of LNAFE it needs to hold at all times in order to implement its recovery and orderly wind-down plans.³⁵

4.2.4 As part of its analysis, an FMI should consider the full range of costs that it would incur to implement its recovery and orderly wind-down plans for each identified scenario relevant to its general business risk profile. These costs include ordinary operating expenses, extraordinary expenses related to recovery and orderly wind-down, and any losses the FMI would need to cover with LNAFE (taking into account the availability of other recovery tools) within the recovery or orderly wind-down period, as discussed in greater detail in paragraphs 4.2.8–9.

4.2.5 At a minimum, LNAFE should be equal to at least six months of the FMI's current operating expenses. An FMI should compare its calculation of the cost of implementing its recovery and orderly wind-down plans, as discussed in paragraphs 4.2.4 and 4.2.8–9, with its calculation of six months of current operating expenses as each calculation is updated and hold at least the greater of the two amounts to ensure it maintains sufficient LNAFE.

4.2.6 Financial resources that an FMI holds for purposes other than addressing general business losses, such as resources held to cover participant defaults or funds to support strategic initiatives and investments, should be determined separately from LNAFE.

4.2.7 As noted in the Recovery Guidance, an FMI should not expect public funds to be made available to maintain its viability.³⁶

Cost of implementing recovery and orderly wind-down plans

4.2.8 An FMI should estimate the amount of LNAFE needed to implement its recovery and orderly wind-down plan for each of its identified general business loss scenarios (including potential transition from the recovery plan to the orderly wind-down plan, where appropriate), taking into account the elements described below and making conservative assumptions. Based on these estimates, an FMI should hold LNAFE sufficient to address the scenario that generates the greatest amount of LNAFE needed to implement its plans.

4.2.9 As discussed in Section 3, general business loss scenarios identified for recovery and orderly wind down should be based on the FMI's general business risk profile. In determining the amount of LNAFE needed, or the cost of implementing its recovery and orderly wind-down plans for an identified scenario, an FMI should consider the following elements:

4.2.9.1 *Length of time needed to implement the recovery and orderly wind-down plans:* The length of time needed to implement the plans may vary for each scenario and depend on the time needed for relevant recovery tools to be implemented, including time needed to replenish depleted financial resources (see section 4.3 below). The length of time needed to implement orderly wind-down may also vary based on the strategy taken by the FMI.³⁷ The length of time necessary to implement the recovery plan

³⁵ Paragraph 4.6.1 of the Recovery Guidance states that: "An FMI will need to plan to recover from an extraordinary one-off loss or recurring losses from general business risk. To that end, an FMI needs to have both sufficient liquid net assets funded by equity to implement its plan to recover from these losses or to conduct an orderly wind-down of its critical operations and a viable plan to raise new equity in circumstances where the FMI's equity capital is used to address such losses."

³⁶ See Recovery Guidance, paragraph 2.1.3.

³⁷ For example, if the FMI's strategy for orderly wind-down is to sell the entity or business line that provides critical operations and services, the length of time needed for orderly wind-down may vary based on assumptions regarding the availability of buyers and the length of time it takes to complete a sale.

As another example, if the FMI's strategy is to continue providing its critical services until its participants can transition to an alternative arrangement, the length of time needed for orderly wind-down may depend on the time required for participants to transition based on operational, technical and financial factors. These factors may include whether the FMI's participants already participate in potential substitute FMIs or other arrangements, any requirements or mandates to centrally clear the FMI's asset classes,

and the orderly wind-down plan will affect the cost of implementing the plans because the time span has implications for the scope of the losses that an FMI may need to cover, the revenues the FMI may receive and the operating expenses that the FMI may incur during the implementation of recovery and orderly wind-down (as further explained below).

- 4.2.9.2 *Estimated losses and timing of the losses:* An FMI should consider the possibility that general business losses may materialise before its recovery tools can address them, as well as the possibility that some general business losses may need to be addressed before the FMI can wind down in an orderly manner. The portion of the losses that the FMI may need to cover as a consequence should be considered as part of the overall cost of implementing the recovery and orderly wind-down plans. To determine the amount of losses to include in the cost of implementing its plans, an FMI should estimate the total loss from each general business loss scenario (whether resulting from an extraordinary one-off loss or recurring losses) and estimate the timing of when losses will materialise, either in the short term or over a longer period, for each of the scenarios.³⁸ An FMI should assess whether its recovery (or, as appropriate, wind-down) tools can address the loss in the necessary timeframe; if not, the FMI will need to adjust its plans in order to remedy the situation, and may need to hold LNAFE to cover losses before those tools are available.
- 4.2.9.3 *Comprehensiveness and effectiveness of recovery tools:* An FMI should consider the comprehensiveness and effectiveness of the recovery tools it has identified for each scenario, including their reliability and timeliness, which may have an impact on the amount of LNAFE needed in a general business loss scenario.³⁹ More LNAFE may be needed if recovery tools do not comprehensively address the losses or to the extent that there is a risk that the set of tools may not work as expected. An FMI should carefully consider its potential liquidity needs resulting from general business losses in recovery and have appropriate tools or liquid resources in place to address these in an effective and timely manner. For example, the FMI may be unable to raise sufficient equity to cover the general business losses in the necessary time frame in particular scenarios, or the FMI may not be able to rely fully on raising equity to cover certain general business losses due to decreased market confidence following the general business loss scenario. In the case of insurance, processing claims may take longer than anticipated; there is also a risk that claims will be challenged, denied or not paid in full, or that losses may exceed the amount of insurance coverage purchased.
- 4.2.9.4 *Estimated impact on the FMI's operating expenses during recovery and orderly wind-down:* An FMI should consider its likely operating expenses during a recovery or orderly wind-down scenario, including any increases or decreases in expenses generally incurred during normal operating conditions. For example, certain expenses may increase in recovery or orderly wind-down, such as legal or consulting expenses or payroll expenses to pay retention incentives to key employees. An FMI may also incur costs associated with fees for additional services from third-party service providers or for terminating contracts. An FMI that shares the cost of overhead and support services with other business lines or entities should consider whether it might need to cover the full amount of this cost while it continues to provide its critical operations and services in a recovery scenario, should those other business lines or entities need to be wound down while the FMI is in recovery. Other expenses may decrease because an FMI may choose to reduce discretionary expenses, such as those related to employee training and travel or marketing, during recovery or wind-down.
- 4.2.9.5 *Estimated impact to the FMI's revenues:* An FMI should consider potential decreases in revenue that it might experience during the recovery and orderly wind-down scenario and estimate the impact those declines would have on the FMI's financial position. For example, an FMI that operates in a market

overlap in membership with substitute FMIs, the ease of "re-papering" contracts at another FMI (which could be affected by whether contracts are standardised or bespoke) and the feasibility of, where necessary, porting clients over to clearing members of other FMIs.

³⁸ See Recovery Guidance, paragraph 3.2.4.

³⁹ See Recovery Guidance, paragraph 3.3.1.

with viable alternatives to its services could experience a decline in membership or transaction volumes and values and, consequently, a decline in revenues. Therefore, an FMI may not be able to rely on expected revenues to cover the cost of implementing its recovery and orderly wind-down plans.

4.2.9.6 *Possibility of orderly wind-down:* In estimating the amount of LNAFE needed to implement recovery and orderly wind-down plans, an FMI should consider the possibility that the FMI will need to transition from recovery to orderly wind-down, should recovery fail.⁴⁰ An FMI should size its LNAFE appropriately such that it is prepared to execute one plan after the other if needed. Relatedly, an FMI should set appropriate triggers such that it can initiate an orderly wind-down before LNAFE falls below the amount needed to implement the orderly wind-down plan.⁴¹

4.2.10 Although an FMI may have arrangements to allocate certain losses related to the custody and investment of participants' assets, the Recovery Guidance sets out that an FMI should consider absorbing a share of these losses resulting from the custody and investment of participants' assets.⁴²

4.2.11 As noted in the CCP Resilience Guidance, "a CCP should ensure that any financial resources it contributes to absorb losses resulting from the custody and the investment of participants' assets are only available for this purpose and cannot be applied to any other type of loss; therefore, the amount of these resources should not be counted towards the amount of LNAFE required under Principle 15 of the PFMI".⁴³ While this guidance document was addressed to CCPs, other FMI types face similar risks and potential losses; therefore, FMIs of all types should take similar steps to ensure that any resources they may potentially be obligated to contribute in this context are available only for this purpose. As a result, an FMI should hold the amount of LNAFE needed to address the scenario that creates the greatest LNAFE obligation to implement its plans, consistent with paragraphs 4.2.8–9,⁴⁴ in addition to the amount of resources that the FMI holds to meet its obligations to absorb potential custody or investment losses related to participants' assets.

Testing and review

4.2.12 The Recovery Guidance states that "an FMI should test and review the [recovery] plan [...] Such testing and review should occur at least annually as well as following changes to the FMI's planning, rules, procedures or services that would materially affect the recovery plan."⁴⁵

4.2.13 Testing should include testing the ability of the FMI to implement the aspects of the recovery plan related to general business losses. This may include, for example, the tools that the plan relies upon to address such losses. The plan should be updated as necessary in light of the results of such tests.

4.2.14 As part of its regular review of its recovery and orderly wind-down plans, an FMI should also review and update its estimate of the cost of implementing its recovery and orderly wind-down plans. An FMI should also consider reviewing and updating the cost of implementing its recovery and orderly wind-down plans following any significant change in the underlying assumptions (eg new or revised scenarios in its recovery and

⁴⁰ See Recovery Guidance, paragraph 2.2.2.

⁴¹ See Recovery Guidance, paragraphs 2.4.6 and 2.4.8.

⁴² Recovery Guidance, paragraph 4.6.2. The treatment of custody losses for CSDs is more complicated, because they could have two different types of custody losses (i) loss of CSD cash held by a third-party custodian, and (ii) loss of assets that the CSD itself was holding as a custodian. Loss absorption for either of these scenarios could differ.

⁴³ See CCP Resilience Guidance, paragraphs 6.2.7.

⁴⁴ In considering scenarios in which there are custody or investment losses related to participants' assets, an FMI may account for the amount of resources it holds to meet its obligations to absorb a share of those potential custody and investment losses in its analysis of the LNAFE needed to implement its recovery and orderly wind-down plans.

⁴⁵ See Recovery Guidance, paragraph 2.3.8.

orderly wind-down plans, changes in the availability of substitutes to provide the FMI's critical services, or a large appreciation in certain costs).

Calculation of six months of current operating expenses

4.2.15 The standard in the PFMI that an FMI should hold, at a minimum, LNAFE equal to at least six months of current operating expenses is intended to set a floor (baseline amount) of LNAFE that could be calculated in a standardised way across all FMIs, regardless of the type of FMI, general business risk profile or other factors.

4.2.16 Simply calculating and holding six months of current operating expenses is not an alternative to calculating the cost of implementing the FMI's recovery and orderly wind down plans. As noted above, an FMI should compare the calculation of six months of current operating expenses (as discussed in paragraphs 4.2.17–4.2.19) with its calculation of the cost of implementing its recovery and orderly wind-down plans (as discussed in paragraphs 4.2.8–4.2.9) as each calculation is updated, and should hold at least the greater of the two amounts to ensure it maintains sufficient LNAFE.

4.2.17 The calculation of six months of current operating expenses as a minimum amount of LNAFE is separate and independent of the calculation of the cost of implementing recovery and orderly wind-down plans.⁴⁶ For example, in calculating six months of current operating expenses, an FMI should not take into account any increases or decreases in operating expenses during a recovery or wind-down event. In addition, an FMI should not take into account the time needed to achieve recovery or an orderly wind-down in the calculation of six months of current operating expenses.

4.2.18 The calculation of six months of current operating expenses should be based on the FMI's business-as-usual operating expenses (ie the funds needed to run the business).⁴⁷ This calculation may exclude depreciation and amortisation expenses.⁴⁸ The FMI should perform this calculation regularly so that the minimum amount of LNAFE an FMI is expected to hold is updated to reflect the FMI's current operating expenses on a rolling basis (see paragraphs 4.2.20–21 on maintaining sufficient LNAFE at all times).

4.2.19 An FMI could be part of a larger reporting entity which includes other business lines in addition to the FMI's business line, but whose financial statements do not separately report the FMI's financial position. It may be the case that some current operating expenses are shared across the entity, such as telecommunications, technology and data centre expenses, as well as compensation expenses for certain employees or staff that provide shared services across the group (eg legal, risk, audit, back office support). When calculating six months of current operating expenses, an FMI that is part of a larger entity should, at a minimum, include the current operating expenses of the FMI's business line and the shared expenses of the larger entity that are allocated to the FMI. If an FMI is unable to separate out its portion of expenses from the larger entity, it should consider whether it is appropriate to include the full amount of the larger entity's operating expenses in its calculation of six months of current operating expenses.

Maintaining sufficient LNAFE at all times

4.2.20 Principle 15 states that "liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services".

4.2.21 In order to maintain sufficient liquid net asset funded by equity at all times, an FMI should consider holding an amount of LNAFE greater than the minimum, for several reasons. First, the estimated amount of LNAFE is dependent on various factors that may change or fluctuate. The underlying inputs could increase before the FMI is able to review and update its LNAFE calculation. For example, an FMI's operating expenses can vary significantly between financial statement periods, or there may be changes to the FMI's general

⁴⁶ See paragraphs 4.2.8–9.

⁴⁷ However, if the FMI foresees significant and lasting increases in its business-as-usual operating expenses due to structural or other changes to the FMI's operating environment, the FMI should consider including this information in its calculation.

⁴⁸ See footnote 137 in Explanatory Note 3.15.5.

business risk profile. In addition, the value of non-cash assets that an FMI is holding as its liquid assets may change over time. Also, as noted above in paragraph 3.2.8, an FMI will likely wish to hold additional financial resources above the minimum amount of LNAFE in order to be able to address certain general business losses without needing to implement its recovery plan.

4.3 Viable plan for raising additional equity

Context

4.3.1 Even where the amount of LNAFE is sufficient, an FMI will need to replenish such resources after they have been used. Principle 15, Key Consideration 5 sets out that “an FMI should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.”

Guidance

4.3.2 An FMI should maintain a viable plan for raising additional equity. A plan that is viable is one that can be expected to raise equity in the necessary amount and time frame. As such, an FMI should assess the suitability of specific methods for raising additional equity based on its corporate ownership structure, its legal framework, and the identified scenarios in which it might need to raise equity. In assessing suitability, an FMI should consider the size of the potential capital shortfall and the speed with which and likelihood that it can be addressed, based upon the market conditions that may prevail at the time. An FMI should clearly state its related assumptions in the equity plan, as reviewed and approved by the FMI’s board.

4.3.3 When identifying and assessing options for raising equity, an FMI should establish pre-arranged mechanisms, such as with owners, participants or debt holders, to the extent feasible and practicable. An FMI should carefully assess whether any ad hoc options for raising equity would be sufficiently reliable and credible. An FMI should not rely on prospective public sector funding to support its recapitalisation.

4.3.4 An FMI could also consider how different methods of raising equity (where applicable) could be used in combination, how these methods could be sequenced, and whether use of one method may have an impact on the effectiveness of another method. For example, reducing dividends may reduce valuation and as such make it more costly to raise additional equity. An FMI should consider consulting with relevant stakeholders on its equity plan to confirm its viability.

4.3.5 A viable equity plan should include the specific steps that would need to be taken to ensure that an FMI can raise additional equity practicably, effectively and in a timely manner. An FMI should consider the internal and external actions needed to effect the plan (such as regulatory approvals) and the decision-making process and roles and responsibilities for executing the plan. An FMI should also consider relevant triggers for implementing its plan to raise additional equity.

5. Governance and transparency

This section provides guidance on governance and transparency in the context of general business risk and general business losses. In particular, it highlights ways that Principles 2, 3 and 23 are applicable to general business risk and management of general business losses, including with respect to FMI recovery planning, and provides examples of how these principles would apply in practice.

Section 5.1 focuses on the roles and responsibilities of the FMI’s board of directors, Section 5.2 analyses mechanisms to involve relevant stakeholders, and Section 5.3 discusses transparency with regard to managing general business risks.

5.1 Roles and responsibilities of an FMI's board of directors (or equivalent)⁴⁹

Context

5.1.1 Principle 2 of the PFMI outlines the expectation that an FMI's governance arrangements "are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders".

5.1.2 Specifically, Principle 2, Key Consideration 2 states that "an FMI should have documented and disclosed governance arrangements that provide clear and direct lines of responsibility and accountability". Principle 2, Key Considerations 3 and 5 state that the roles and responsibilities of the FMI's board of directors (or equivalent) and its management should be clearly specified.

5.1.3 Principle 2, Key Consideration 6 states that "the board should establish a clear, documented risk management framework that includes the FMI's risk tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision-making in crises and emergencies. Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources and access to the board."

Guidance

5.1.4 Whereas the FMI's management is responsible for managing general business risks as described in Section 3, the FMI's board is ultimately responsible for overseeing the FMI's overall management of general business risks and any general business losses that could materialise. In carrying out this responsibility, the board should oversee, monitor, and evaluate the implementation of the FMI's risk management framework and associated processes for managing general business risks.

5.1.5 The board should provide appropriate and effective challenge to the FMI's management, including to the management's identification of relevant sources of general business risk, its estimation of the size and timing of potential general business losses (which are described in Section 3.1), and its assumptions concerning the effectiveness of the processes for mitigating, monitoring and managing general business risks and their implementation (which are described in Sections 3.2 and 3.3). This includes the determination of financial resources that an FMI may decide to hold to address residual general business risk.

5.1.6 The board should also oversee the FMI's processes for determining the amount of LNAFE, the quality and liquidity of the assets held (which are described in Sections 4.1 and 4.2) and the FMI's plan for raising additional equity should it fall below the amount needed (as described in Section 4.3) to consider whether the amount and composition of resources are sufficient and whether the plan for raising additional equity is viable. As part of its responsibilities, the board should approve material decisions that would have a significant impact on the risk profile of the entity.⁵⁰

5.1.7 Given the board's role in activating recovery and orderly wind-down plans, it is important for the board to receive relevant information in a timely manner in order to facilitate its decision-making and preparation to use recovery tools that may take time to implement.⁵¹ An FMI should consider developing pre-

⁴⁹ As set forth in footnote 1 above, "[r]eferences in this document to an FMI's board of directors should be understood to also refer to any equivalent body".

⁵⁰ As explained in Explanatory Notes 3.2.12 and 3.3.3.

⁵¹ See Explanatory Note 3.2.13 ("the board should have procedures in place to support its capacity to act appropriately and immediately if any risks arise that threaten the FMI's viability as a going concern"). This is particularly important in a general business loss context considering that recovery would normally require raising additional equity for either loss absorption or capital replenishment. In contrast to recovery tools in a default loss context, in a general business loss context, it may be the case that recapitalisation does not rely on pre-funded or committed tools, and it may therefore be more likely that challenges arise around an FMI's ability to raise the required capital to address losses and restore capital viability with the appropriate time frame. This underlines the benefits of effective and early engagement of the FMI's senior management and board in preparing for potential recovery actions.

determined information-sharing and escalation processes specific to the general business loss context, including by developing early warning indicators, as discussed in paragraphs 3.3.2 and 3.3.3.

5.2 Involving relevant stakeholders

Context

5.2.1 Principle 2, Key Consideration 7 states that “the board should ensure that the FMI’s design, rules, overall strategy, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, to the public.”

Guidance

5.2.2 The board should ensure that the legitimate interests of relevant stakeholders are appropriately considered in the context of identifying, minimising and mitigating general business risks and addressing general business losses. Relevant stakeholders are those who are likely to be affected by the FMI’s management of general business risk (including in the context of recovery or orderly wind-down), such as the FMI’s direct and indirect participants and linked FMIs.

5.2.3 Relevant stakeholders may vary according to the type of FMI and the type of general business risk. Moreover, a particular stakeholder’s interest may vary in relation to different types of general business risk.

5.2.4 In order to identify the legitimate interests of relevant stakeholders, an FMI should consider consulting with these stakeholders as it develops, tests, and updates its comprehensive processes for managing and addressing general business risks. Relevant stakeholders may provide information that helps the FMI to identify potential sources of general business risk, as discussed in Section 3.1 above. An FMI should also consider seeking stakeholder input regarding the sufficiency of resources and the tools it may use to reduce the impact of general business losses (discussed in Section 3.2), particularly if any planned tools would involve the participation of those stakeholders. An FMI should also consider including relevant stakeholders in the testing of any procedures and tools that require their participation. As noted in paragraph 2.3.4 of the Recovery Guidance, “it is particularly important that those who would bear losses or liquidity shortfalls are appropriately involved in the formation of the [recovery] plan”.

5.2.5 Where an FMI’s tools for responding to a general business loss may have an impact on participants or other stakeholders or depend upon their cooperation, it is important for those stakeholders to understand fully the FMI’s procedures and their own responsibilities for addressing general business losses. Involvement of stakeholders in the review and testing of procedures and tools can be an effective means to promote this understanding and identify any areas for improvement in an FMI’s general business risk management framework.

5.3 Transparency of managing general business risks

Context

5.3.1 Principle 23 on disclosure of rules, key procedures and market data states that “an FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.”

Guidance

5.3.2 An FMI should disclose sufficient information concerning its approach to managing general business risk (including addressing general business losses) in order to enable participants to have an accurate

understanding (with respect to general business risk) of the risks, fees and other material costs they incur by participating in the FMI, as called for by Principle 23. Such disclosures may include information about the FMI's general business risk profile, including its identified sources of risk; estimation of the size and timing of potential general business losses (as described in Section 3.1); and the tools, resources and procedures that the FMI may use to manage its general business risk (as described in Section 3.2). An FMI may also consider providing information to participants on its determination of LNAFE to implement its recovery and orderly wind-down plans and any additional financial resources it may hold to address general business losses, in order to provide assurances that the FMI has sufficient resources to continue providing its critical services as a going concern (as discussed in Section 4.2).

5.3.3 An FMI should also consider the appropriate channel and frequency of communication of this information to participants. In particular, an FMI should consider the extent to which information related to general business risk is relevant for wider groups of stakeholders, third parties, and, in some cases, the public as well as the appropriate channel for communicating the information more broadly.

5.3.4 An FMI should disclose how its rules and procedures (including recovery tools) for addressing general business losses would affect its participants. By clearly specifying relevant details concerning tools and procedures that affect participants or other stakeholders ex ante in the FMI's rules and procedures that are disclosed to those stakeholders, an FMI will support the enforceability and performance of these tools and procedures and increase the likelihood that actions taken under such rules and procedures will not be voided, reversed or subject to stays.⁵² An FMI should consider including the following elements in its disclosures:

- how the financial impact of the general business loss is estimated;
- the rules, tools, and procedures for addressing general business losses and how such tools and procedures may affect stakeholders (if relevant);
- where applicable, the different criteria and parameters used according to the type of general business loss;
- the timing for when affected stakeholders may be notified of the loss and the potential or actual impact on them, as well as when any performance of potential payment obligations may be due; and
- the governance process that the FMI will use to activate the rules, tools, and procedures for addressing the losses.

⁵² See Principle 1, Key Consideration 4. In addition, the Recovery Guidance underlines the need for adequate disclosure of loss allocation arrangements affecting participants under its recovery plan. See Recovery Guidance, paragraphs 2.3.7 and 3.3.6.

6. Consultation questions for comment

The CPMI and IOSCO welcome comments on the different topics covered in this consultative report. Comments should be sent to both the CPMI secretariat (cpmi@bis.org) and the IOSCO secretariat (GBR-CP@iosco.org) by **6 February 2026**. Comments will be published on the CPMI and IOSCO websites unless respondents expressly request otherwise.

The purpose of the report is to elicit comments and feedback from a broad range of interested stakeholders. The CPMI and IOSCO particularly welcome feedback on the following questions:

- 1) Scope and interaction with other PFMI principles
 - a) Is the guidance provided on the scope of general business risk and interaction with other PFMI principles clear and sufficient? If not, how should it be amended?
- 2) Identifying, monitoring, and managing general business risks
 - a) Is the guidance provided on identifying, monitoring and managing general business risks clear and sufficient? If not, how should it be amended?
 - b) Are there other approaches and tools, in addition to or instead of those mentioned in the report, that would help FMIs to identify general business risks and estimate the size and timing of general business losses? If so, please describe the approaches or tools.
 - c) Are there other approaches and tools, in addition to or instead of those mentioned in the report, that would help FMIs to minimise and mitigate the sources of general business risk and manage residual risk? If so, please describe the approaches or tools.
- 3) Determining the minimum amount of LNAFE
 - a) Is the guidance provided on determining the minimum amount of LNAFE clear and sufficient? If not, how should it be amended?
 - b) Are there other factors, in addition to or instead of those mentioned in the report, that an FMI should consider in its calculation of (i) the costs of implementing its recovery and orderly wind-down plans and (ii) the appropriate amount of LNAFE? If so, please describe the factors.
- 4) Governance and transparency
 - a) Is the guidance provided on governance and transparency related to general business risk clear and sufficient? If not, how should it be amended?
 - b) What particular information related to an FMI's process for managing general business risk would be useful for the FMI's participants so they can assess the risks they incur by participating in the FMI? Are there practical problems with providing such information, and if so, how can they be addressed?
 - c) Are there other areas, in addition to or instead of those mentioned in the report, where an FMI should consider seeking stakeholder input on its process for managing general business risk?
- 5) Should the guidance distinguish between operating losses and non-operating losses in determining the minimum amount of LNAFE? If so:
 - a) Please explain why such a distinction would be helpful.
 - b) How should the guidance do so?
 - c) How should operating losses be defined? Are non-operating losses all losses other than operating losses and default losses?

Annex: Members of the CPMI-IOSCO Policy Standing Group

PSG co-chairs

De Nederlandsche Bank	Olaf Sleijpen (until January 2025)
Sveriges Riksbank	Johanna Stenkula von Rosen (from February 2025)
US Commodity Futures Trading Commission	Sarah Josephson

Members

Reserve Bank of Australia	Benn Robertson Michael Robson ** Joel Fernando **
National Bank of Belgium	Stephen van Cauwenberge (until September 2025) Kris Boller (from September 2025) Filip Saffer ** Sven Siedlecki **
Autorité des Marchés Financiers (Canada)	Veronic Boivin Pedneault
Bank of Canada	Peter Youngman *
Ontario Securities Commission	Jalil El Moussadek
Autorité des Marchés Financiers (France)	Patrice Aguesse
Bank of France	Adeline Bachellerie
Bundesanstalt für Finanzdienstleistungsaufsicht	Charlotte Blum (until May 2025) Magdalena Paul (from May 2025)
Deutsche Bundesbank	Edip Acat (until January 2025) * Jan Brunnert (from January 2025)
Hong Kong Monetary Authority	Colin HW Pou
Securities and Futures Commission (Hong Kong)	Ryan Ko
Securities and Exchange Board of India	Hruda Ranjan Sahoo
Bank of Italy	Cristina Diluigi Enrico Silvaggi **
CONSOB	Diego Monorchio (from July 2025)
Bank of Japan	Takashi Hamano * Megumi Takei **
Financial Services Agency (Japan)	Tadashi Shibakawa (until July 2025) Kanami Maeda (from July 2025)
National Banking and Securities Commission (Mexico)	Rodrigo Hernández Clemente
De Nederlandsche Bank	Luc Blommers Tom van der Zanden **

Monetary Authority of Singapore	Pui Hoon Loh Edward Oei **
Finansinspektionen (Sweden)	Therese Rova (from September 2024)
Swiss National Bank	Thomas Nellen
Bank of England	Barry King Michael di Benedetto **
Board of Governors of the Federal Reserve System	Emily Caron (until June 2024) Trevor Petrellese (from June 2024) * Jamie Lee ** Jacqueline Cremos **
US Commodity Futures Trading Commission	Andrea Musalem Bob Wasserman **
Federal Reserve Bank of New York	John Rutigliano * Tom Smejkal **
US Securities and Exchange Commission	Jeff Mooney (until June 2025) Elizabeth Fitzgerald (from June 2025) Claire Noakes **
European Central Bank	Simonetta Rosati Corinna Freund ** Daniela Russo *
European Commission	Gilles Hervé
European Securities and Markets Authority	Gianpiero Carlà Raphael Di Ruggiero **
The World Bank	Maria Theresa Chimienti Nilima Ramteke **
Committee on Payments and Market Infrastructures (CPMI)	David Macdonald Raul Morales (until November 2024) Amandeep Rehlon (from November 2024)
International Organization of Securities Commissions (IOSCO)	Giles Ward (until April 2024) Randy Priem (from July 2024) Damien Shanahan (from October 2024)

* PSG and Subgroup member

** Subgroup member only

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