



**SECURITIES AND FUTURES COMMISSION**  
證券及期貨事務監察委員會

## **Guidelines on the application of the CPMI-IOSCO Principles for Financial Market Infrastructures**

May 2016 (Updated)

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## 1. Introduction

- 1.1 On 28 March 2013, the Securities and Futures Commission (“**SFC**”) and the Hong Kong Monetary Authority (“**HKMA**”) jointly announced their commitment to adopt the “Principles for financial market infrastructures” (“**PFMIs**”)¹ issued by the the Committee on Payments and Market Infrastructures (CPMI)² ) of the Bank for International Settlements and the International Organization of Securities Commissions (“**IOSCO**”) in April 2012³. The PFMIs are the latest international regulatory standards for financial market infrastructures (“**FMIs**”) including central counterparties and clearing houses⁴. The PFMIs comprise 24 principles for observance by FMIs (“**Principles**”) and 5 responsibilities for central banks, market regulators and other relevant authorities in their regulation of FMIs.
- 1.2 These Guidelines are published by the SFC, pursuant to Section 399(1) of the Securities and Futures Ordinance (“**SFO**”), to articulate the SFC’s expectations with regard to the implementation of the PFMIs by recognized clearing houses in the discharge of their duties under the SFO. The SFC has set out the key considerations of each of the Principles in the Guidelines that the SFC considers relevant in meeting the standards set by the Principles⁵. As Principle 24 of the PFMIs relates to disclosure of market data by trade repositories and thus does not apply to recognized clearing houses, it will not form part of the Principles of which recognized clearing houses are expected to observe.
- 1.3 Unless otherwise specified or the context otherwise requires, words and phrases in the Guidelines should be interpreted by reference to any definition of such word or phrase in the SFO.
- 1.4 These Guidelines shall come into effect on 27 May 2016.

## 2. International Standards for Financial Market Infrastructures

- 2.1 The Principles for FMIs set the latest international benchmark for the regulation, governance and risk management of systemically important FMIs. These principles replace, harmonise and, where appropriate, strengthen the three pre-existing standards for FMIs⁶. They are designed to ensure that the infrastructure supporting global financial markets is robust and thus well placed to withstand financial shocks. All FMIs that are regarded as systemically important are expected to observe these principles.
- 2.2 The main policy objectives of CPMI and IOSCO in laying down the Principles are to enhance the safety and efficiency of FMIs and, more broadly, to reduce systemic risks

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<sup>1</sup> <http://www.sfc.hk/edistributionWeb/gateway/EN/news-and-announcements/news/doc?refNo=13PR28>

<sup>2</sup> With effect from 1 September 2014, the Committee on Payment and Settlement Systems (CPSS) was renamed as the Committee on Payments and Market Infrastructures (CPMI).

<sup>3</sup> Link to the report: <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD377.pdf>

<sup>4</sup> Financial market infrastructure is defined as a system that facilitates the clearing, settling, or recording of payments, securities, derivatives or other financial transactions. There are five major types of FMIs: payment systems, central securities depositories (CSDs), securities settlement systems (SSSs), central counterparties (CCPs) and trade repositories (TRs).

<sup>5</sup> These key considerations are those set out under the respective Principles in the PFMIs.

<sup>6</sup> The previous standards for various FMIs were: the “Core Principles for Systemically Important Payment Systems” issued by CPSS in 2001, the “Recommendations for Securities Settlement Systems” issued by CPSS-IOSCO in 2001, and the “Recommendations for Central Counterparties” issued by CPSS-IOSCO in 2004. Trade repositories were not covered in these standards.



and promote transparency and financial stability<sup>7</sup>. In this regard, the PFMI provide guidance to FMIs on identifying, monitoring and managing the full range of risks that may arise in the FMI or through interdependencies with other FMIs or market participants, and risks that are transmitted by the FMI. These risks include legal, credit, liquidity, general business, custody, investment and operational risks.

- 2.3 The Principles also address efficiency in FMIs. As noted by CPMI-IOSCO in the PFMI report, inefficient FMIs may distort financial activity and the market structure, thereby affecting market participants and their customers which may, as a result, bring about increased risks within the broader financial system.
- 2.4 The SFC, being a member of IOSCO, fully supports the PFMI. Prior to the release of the PFMI, the SFC had applied the *Recommendations for securities settlement systems* developed by the CPMI and IOSCO in 2001 in its regulation and supervision of securities settlement systems in Hong Kong.

### 3. Application of the PFMI to Recognized Clearing Houses

- 3.1 The regulatory objectives of the SFC under the SFO<sup>8</sup> are, among others, to:
- Maintain and promote the fairness, efficiency, competitiveness, transparency and orderliness of the securities and futures industry; and
  - Reduce systemic risks in the securities and futures industry.
- 3.2 In furtherance of these regulatory objectives, one of the SFC's functions<sup>9</sup> is to supervise, monitor and regulate the activities carried on by recognized clearing houses. The SFO also stipulates specific duties<sup>10</sup> of a recognized clearing house<sup>11</sup>, including the duty to ensure orderly, fair and expeditious clearing and settlement arrangements, and that risks associated with its business and operations are managed prudently. In discharging its duties, a recognized clearing house has to (a) act in the interest of the public, having particular regard to the interest of the investing public; and (b) ensure that the interest of the public prevails where it conflicts with its own interest.
- 3.3 While the SFO does not set out detailed regulatory requirements in respect of recognized clearing houses, the SFC has always made reference to international best practices and standards for the purposes of carrying out its functions in relation to recognized clearing houses. The SFC also notes that the main policy objectives behind the PFMI are consistent with the regulatory objectives of the SFC under the SFO. Moreover, the specific duties of recognized clearing houses, as stipulated in the SFO, are also in line with the PFMI. The SFC considers that all recognized clearing houses are systemically important FMIs in Hong Kong. Therefore, the SFC has adopted the PFMI as benchmarks against which to assess recognized clearing houses in the course of carrying out its function to supervise, monitor and regulate them.

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<sup>7</sup> As noted in the PFMI report, these objectives are consistent with the public policy objectives of previous standards and recommendations developed by the CPMI and IOSCO.

<sup>8</sup> Section 4(a) and (e)

<sup>9</sup> Section 5(1)(b)(i)

<sup>10</sup> Section 38

<sup>11</sup> The term "clearing house" as defined in section 1 of Part 1 of Schedule 1 to the SFO includes SSSs and CCPs.



- 3.4 An overview of the 23<sup>12</sup> Principles is provided in the Annex. Under each Principle, the SFC has set out the key considerations that the SFC considers relevant in meeting the standard set by the Principle. It is the SFC's intention that the application of the Principles by recognized clearing houses should be consistent with PFMI and in this regard, the SFC would refer to the accompanying explanatory notes of each Principle for guidance.
- 3.5 The SFC expects recognized clearing houses to observe the PFMI (including any related supplemental guidance on observance of the PFMI issued by CPMI-IOSCO from time to time) on an on-going basis. The SFC will take such observance into account in assessing if recognized clearing houses have discharged their duties under the SFO. In this regard, the SFC appreciates that the way the PFMI are implemented by recognized clearing houses may vary depending on the nature of their operations, functions, activities and services provided.
- 3.6 The SFC will monitor the recognized clearing houses to ensure that they observe the PFMI. The SFC also expects that an applicant to become a recognized clearing house should demonstrate its ability to observe the PFMI, and in this connection, the applicant will be required to submit a self-assessment report on compliance with the PFMI and disclosure made based on the Disclosure framework and Assessment Methodology published by CPMI- IOSCO<sup>13</sup> in December 2012 to support its application.

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<sup>12</sup> Principle 24 which relates to disclosure of market data by trade repositories which is not relevant to recognized clearing houses is removed from these Guidelines.

<sup>13</sup> <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD396.pdf>



## **Overview of Principles for Financial Market Infrastructures**

### **General Organisation**

#### **Principle 1: Legal basis**

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

- 1.1 *The legal basis should provide a high degree of certainty for each material aspect of an FMI's activities in all relevant jurisdictions.*
- 1.2 *An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.*
- 1.3 *An FMI should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.*
- 1.4 *An FMI should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the FMI under such rules and procedures will not be voided, reversed, or subject to stays.*
- 1.5 *An FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.*

#### **Principle 2: Governance**

**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.**

- 2.1 *An FMI should have objectives that place a high priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations.*
- 2.2 *An FMI should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, relevant authorities, participants, and, at a more general level, the public.*
- 2.3 *The roles and responsibilities of an FMI's board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address, and manage member conflicts of interest. The board*



*should review both its overall performance and the performance of its individual board members regularly.*

- 2.4 The board should contain suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board member(s).*
- 2.5 The roles and responsibilities of management should be clearly specified. An FMI's management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the FMI.*
- 2.6 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.*
- 2.7 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, the public.*

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

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

- 3.1 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. Risk-management frameworks should be subject to periodic review.*
- 3.2 An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.*
- 3.3 An FMI should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, and service providers) as a result of interdependencies and develop appropriate risk-management tools to address these risks.*
- 3.4 An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. An FMI should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, an FMI should also provide relevant authorities with the information needed for purposes of resolution planning.*



## Credit and liquidity risk management

### **Principle 4: Credit risk**

**An FMI should effectively measure, monitor, and manage its credit exposures to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. In addition, a CCP<sup>14</sup> that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions.**

- 4.1 An FMI should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing, and settlement processes. Credit exposure may arise from current exposures, potential future exposures, or both.*
- 4.2 An FMI should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.*
- 4.3 A payment system or SSS should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a DNS payment system or DNS SSS in which there is no settlement guarantee but where its participants face credit exposures arising from its payment, clearing, and settlement processes, such an FMI should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.*
- 4.4 A CCP should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources (see Principle 5 on collateral and Principle 6 on margin). In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. In all cases, a CCP should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount of total financial resources it maintains.*

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<sup>14</sup> Central Counterparty





- 4.5 *A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP's required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP's participants increases significantly. A full validation of a CCP's risk-management model should be performed at least annually.*
- 4.6 *In conducting stress testing, a CCP should consider the effect of a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.*
- 4.7 *An FMI should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI may borrow from liquidity providers. These rules and procedures should also indicate the FMI's process to replenish any financial resources that the FMI may employ during a stress event, so that the FMI can continue to operate in a safe and sound manner.*

### **Principle 5: Collateral**

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

- 5.1 *An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.*
- 5.2 *An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.*
- 5.3 *In order to reduce the need for procyclical adjustments, an FMI should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.*
- 5.4 *An FMI should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.*



- 5.5 *An FMI that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.*
- 5.6 *An FMI should use a collateral management system that is well-designed and operationally flexible.*

### **Principle 6: Margin**

**A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.**

- 6.1 *A CCP should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio, and market it serves.*
- 6.2 *A CCP should have a reliable source of timely price data for its margin system. A CCP should also have procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable.*
- 6.3 *A CCP should adopt initial margin models and parameters that are risk-based and generate margin requirements sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure. For a CCP that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a CCP that calculates margin at more-granular levels, such as at the subportfolio level or by product, the requirement must be met for the corresponding distributions of future exposure. The model should (a) use a conservative estimate of the time horizons for the effective hedging or close out of the particular types of products cleared by the CCP (including in stressed market conditions), (b) have an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products, and (c) to the extent practicable and prudent, limit the need for destabilising, procyclical changes.*
- 6.4 *A CCP should mark participant positions to market and collect variation margin at least daily to limit the build-up of current exposures. A CCP should have the authority and operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to participants.*
- 6.5 *In calculating margin requirements, a CCP may allow offsets or reductions in required margin across products that it clears or between products that it and another CCP clear, if the risk of one product is significantly and reliably correlated with the risk of the other product. Where two or more CCPs are authorised to offer cross-margining, they must have appropriate safeguards and harmonised overall risk-management systems.*
- 6.6 *A CCP should analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting and at least monthly, and more-frequent where appropriate, sensitivity analysis. A CCP should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears. In conducting sensitivity analysis of the model's coverage, a CCP should take into account a wide range of parameters and assumptions that reflect possible market conditions,*



*including the most-volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices.*

6.7 *A CCP should regularly review and validate its margin system.*

### **Principle 7: Liquidity risk**

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

- 7.1 *An FMI should have a robust framework to manage its liquidity risks from its participants, settlement banks, nostro agents, custodian banks, liquidity providers, and other entities.*
- 7.2 *An FMI should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.*
- 7.3 *A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate intraday or multiday settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.*
- 7.4 *A CCP should maintain sufficient liquid resources in all relevant currencies to settle securities-related payments, make required variation margin payments, and meet other payment obligations on time with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions.*
- 7.5 *For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If an FMI has access to routine credit at the central bank of issue, the FMI may count such access as part of the minimum requirement to the extent it has collateral that is eligible for*



*pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.*

- 7.6 An FMI may supplement its qualifying liquid resources with other forms of liquid resources. If the FMI does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if an FMI does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. An FMI should not assume the availability of emergency central bank credit as a part of its liquidity plan.*
- 7.7 An FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMI or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. An FMI should regularly test its procedures for accessing its liquid resources at a liquidity provider.*
- 7.8 An FMI with access to central bank accounts, payment services, or securities services should use these services, where practical, to enhance its management of liquidity risk.*
- 7.9 An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the FMI, include all entities that might pose material liquidity risks to the FMI (such as settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. In all cases, an FMI should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.*
- 7.10 An FMI should establish explicit rules and procedures that enable the FMI to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the FMI's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.*



## Settlement

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

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

- 8.1 *An FMI's rules and procedures should clearly define the point at which settlement is final.*
- 8.2 *An FMI should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. An LVPS or SSS should consider adopting RTGS or multiple-batch processing during the settlement day.*
- 8.3 *An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.*

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

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

- 9.1 *An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.*
- 9.2 *If central bank money is not used, an FMI should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.*
- 9.3 *If an FMI settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, an FMI should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. An FMI should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.*
- 9.4 *If an FMI conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks.*
- 9.5 *An FMI's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the FMI and its participants to manage credit and liquidity risks.*



### **Principle 10: Physical deliveries**

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

- 10.1 *An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.*
- 10.2 *An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.*

## **Central securities depositories and exchange-of-value settlement systems**

### **Principle 11: Central securities depositories**

**A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimise and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry.**

- 11.1 *A CSD should have appropriate rules, procedures, and controls, including robust accounting practices, to safeguard the rights of securities issuers and holders, prevent the unauthorised creation or deletion of securities, and conduct periodic and at least daily reconciliation of securities issues it maintains.*
- 11.2 *A CSD should prohibit overdrafts and debit balances in securities accounts.*
- 11.3 *A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry. Where appropriate, a CSD should provide incentives to immobilise or dematerialise securities.*
- 11.4 *A CSD should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.*
- 11.5 *A CSD should employ a robust system that ensures segregation between the CSD's own assets and the securities of its participants and segregation among the securities of participants. Where supported by the legal framework, the CSD should also support operationally the segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings.*
- 11.6 *A CSD should identify, measure, monitor, and manage its risks from other activities that it may perform; additional tools may be necessary in order to address these risks.*



### **Principle 12: Exchange-of-value settlement systems**

If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

*12.1 An FMI that is an exchange-of-value settlement system should eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs, regardless of whether the FMI settles on a gross or net basis and when finality occurs.*

## **Default management**

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

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

*13.1 An FMI should have default rules and procedures that enable the FMI to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default.*

*13.2 An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.*

*13.3 An FMI should publicly disclose key aspects of its default rules and procedures.*

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

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

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

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



- 14.2 *A CCP should employ an account structure that enables it readily to identify positions of a participant's customers and to segregate related collateral. A CCP should maintain customer positions and collateral in individual customer accounts or in omnibus customer accounts.*
- 14.3 *A CCP should structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be transferred to one or more other participants.*
- 14.4 *A CCP should disclose its rules, policies, and procedures relating to the segregation and portability of a participant's customers' positions and related collateral. In particular, the CCP should disclose whether customer collateral is protected on an individual or omnibus basis. In addition, a CCP should disclose any constraints, such as legal or operational constraints, that may impair its ability to segregate or port a participant's customers' positions and related collateral.*

## **General business and operational risk management**

### **Principle 15: General business risk**

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

- 15.1 *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.*
- 15.2 *An FMI should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity an FMI should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.*
- 15.3 *An FMI should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, an FMI should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to 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.*
- 15.4 *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.*





15.5 *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.*

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

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

16.1 *An FMI should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.*

16.2 *An FMI should have prompt access to its assets and the assets provided by participants, when required.*

16.3 *An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.*

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

### **Principle 17: Operational risk**

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

17.1 *An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.*

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

17.3 *An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.*



- 17.4 *An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.*
- 17.5 *An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.*
- 17.6 *An FMI should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the FMI to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The FMI should regularly test these arrangements.*
- 17.7 *An FMI should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. In addition, an FMI should identify, monitor, and manage the risks its operations might pose to other FMIs.*

## **Access**

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

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

- 18.1 *An FMI should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements.*
- 18.2 *An FMI's participation requirements should be justified in terms of the safety and efficiency of the FMI and the markets it serves, be tailored to and commensurate with the FMI's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, an FMI should endeavour to set requirements that have the least-restrictive impact on access that circumstances permit.*
- 18.3 *An FMI should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.*

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

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



- 19.1 *An FMI should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the FMI arising from such tiered participation arrangements.*
- 19.2 *An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.*
- 19.3 *An FMI should identify indirect participants responsible for a significant proportion of transactions processed by the FMI and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions.*
- 19.4 *An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.*

### **Principle 20: FMI links**

**An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.**

- 20.1 *Before entering into a link arrangement and on an ongoing basis once the link is established, an FMI should identify, monitor, and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that each FMI is able to observe the other principles in this report.*
- 20.2 *A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the FMIs involved in the link.*
- 20.3 *Linked CSDs should measure, monitor, and manage the credit and liquidity risks arising from each other. Any credit extensions between CSDs should be covered fully with high-quality collateral and be subject to limits.*
- 20.4 *Provisional transfers of securities between linked CSDs should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.*
- 20.5 *An investor CSD should only establish a link with an issuer CSD if the arrangement provides a high level of protection for the rights of the investor CSD's participants.*
- 20.6 *An investor CSD that uses an intermediary to operate a link with an issuer CSD should measure, monitor, and manage the additional risks (including custody, credit, legal, and operational risks) arising from the use of the intermediary.*
- 20.7 *Before entering into a link with another CCP, a CCP should identify and manage the potential spill-over effects from the default of the linked CCP. If a link has three or more CCPs, each CCP should identify, assess, and manage the risks of the collective link arrangement.*



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

20.9 *A TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources.*

## **Efficiency**

### **Principle 21: Efficiency and effectiveness**

**An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.**

21.1 *An FMI should be designed to meet the needs of its participants and the markets it serves, in particular, with regard to choice of a clearing and settlement arrangement; operating structure; scope of products cleared, settled, or recorded; and use of technology and procedures.*

21.2 *An FMI should have clearly defined goals and objectives that are measurable and achievable, such as in the areas of minimum service levels, risk-management expectations, and business priorities.*

21.3 *An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.*

### **Principle 22: Communication procedures and standards**

**An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.**

22.1 *An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.*

## **Transparency**

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

**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.**



- 23.1 *An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.*
- 23.2 *An FMI should disclose clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the FMI.*
- 23.3 *An FMI should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the FMI's rules and procedures and the risks they face from participating in the FMI.*
- 23.4 *An FMI should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The FMI should provide clear descriptions of priced services for comparability purposes.*
- 23.5 *An FMI should complete regularly and disclose publicly responses to the CPMI-IOSCO Disclosure framework for financial market infrastructures. An FMI also should, at a minimum, disclose basic data on transaction volumes and values.*

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