

# Draft Guidance – Financial Stability Standards for Securities Settlement Facilities: Comparison to CPSS-IOSCO *Principles for Financial Market Infrastructures*

## Introduction

This document provides a comparison between the draft guidance for the *Financial Stability Standards for Securities Settlement Facilities* (SSF Standards), and the *Principles for Financial Market Infrastructures* (the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 It is intended to assist readers of the draft guidance to the SSF Standards in understanding where the Reserve Bank has added to and amended the text of the Principles and associated explanatory notes, by providing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

*Disclaimer: An automated process was used in generating the comparison of the draft guidance to the SSF Standards against the Principles and associated explanatory notes.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 Readers should refer directly to the text of the draft guidance to the SSF Standards and the Principles in order to fully understand the requirements of and differences between the two.*

## ~~Principle~~Standard 1: Legal basis

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

### ~~Explanatory note~~Guidance

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

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<sup>1</sup> The draft SSF Standards are available at: <<http://www.rba.gov.au/payments-system/clearing-settlement/consultations/201208-new-fin-stability-standards/index.html>>. CPSS-IOSCO (2012), *Principles for Financial Market Infrastructures*, CPSS Publications No 101, Bank for International Settlements, April, is available at: <<http://www.bis.org/publ/cpss101.htm>>.

1.1. A securities settlement facility should be a legal entity (whose primary activity is operating the securities settlement facility) and one which is separate from other entities which may expose it to risks unrelated to those arising from its function as a securities settlement facility.

1.1.1. In general, a securities settlement facility should not provide services that have a distinct risk profile from, and potentially pose material additional risks to, its primary activity of operating the securities settlement facility. This may require that the securities settlement facility provide any such services in a legally and financially separate entity, or take other equivalent action. Where a securities settlement facility performs, or wishes to perform, functions that, while having a distinct risk profile, are necessarily ancillary to its primary activity, it should consult the Reserve Bank and demonstrate that any potential risks posed to its primary activity as a securities settlement facility are appropriately and effectively managed.

1.1.2. The identification of the securities settlement facility as a separate legal entity is of particular importance where an entity related to the securities settlement facility is experiencing operational or financial difficulties, including external administration. Related entities which may expose the securities settlement facility to material risks unrelated to those arising from its function as a securities settlement facility include a related central counterparty, a financial market, or technology or other service providers. The legal separation of the securities settlement facility from other legal entities may also provide protection to those other legal entities should the securities settlement facility itself experience operational or financial difficulties. This Standard does not assume or suggest, however, that legal separation will remove all risks that may arise as a result of operational or financial difficulties faced by a securities settlement facility or related entities.

1.2. The legal basis should provide a high degree of certainty for each material aspect of an FMI's securities settlement facility's activities in all relevant jurisdictions.

## Legal basis

1.2.1. 3.1.2.—The legal basis should provide a high degree of certainty for each material aspect of an FMI's securities settlement facility's activities in all relevant jurisdictions.<sup>2</sup> The legal basis consists of the legal framework and the FMI's securities settlement facility's rules, procedures, and contracts. The legal framework includes general laws and regulations that govern, among other things, property, contracts, insolvency, corporations, securities, banking, secured interests, and liability. In some cases, the legal framework that governs competition and consumer and investor protection may also be relevant. Laws and regulations specific to an FMI's securities settlement facility's activities include those governing its authorization and its authorisation, regulation, supervision, and oversight; rights and interests in financial instruments; settlement finality; netting; immobilisation and dematerialisation of securities; arrangements for delivery versus payment (DvP), payment versus payment (PvP), or delivery versus delivery (DvD); collateral arrangements (including margin arrangements); default procedures; and the resolution of an FMI. An FMI's securities settlement facility. A securities settlement facility should establish rules, procedures, and contracts that are clear, understandable, and consistent with the legal framework and provide a high degree of legal certainty. An FMI's securities settlement facility also should consider whether the rights and obligations of the FMI's securities settlement facility, its participants, and as appropriate, other parties, as set forth in its rules, procedures, and contracts are consistent with relevant industry standards and market protocols.

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

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

## Rights and interests

~~1.2.2. 3.1.5.—~~The legal basis should clearly define the rights and interests of ~~an FMI~~ an FMI's securities settlement facility, its participants, and, where relevant, its participants' customers in the financial instruments, such as cash and securities, or other relevant assets held in custody, directly or indirectly, by the ~~FMI~~ securities settlement facility. ~~It is not sufficient for key rights and obligations to be implied.~~ The legal basis should fully protect both a participant's assets held in custody by the ~~FMI~~ securities settlement facility and, where appropriate, a participant's customer's assets held by or through the ~~FMI~~ securities settlement facility, from the insolvency of relevant parties and other relevant risks. It should also protect these assets when held at a custodian or linked FMI. In particular, consistent with ~~Principle 11 SSF Standard 9 on CSDs and Principle 14 on segregation and portability; central securities depositories~~ the legal basis should protect the assets and positions of a participant's customers ~~in a CSD and CCP. In addition,~~ Where applicable, the legal basis should provide certainty ~~, where applicable,~~ with respect to ~~an FMI's; a securities settlement facility's~~ interests in, and rights to use and dispose of, collateral; ~~an FMI's~~ a securities settlement facility's authority to transfer ownership rights or property interests; and ~~an FMI's~~ a securities settlement facility's rights to make and receive payments, in all cases, notwithstanding the bankruptcy or insolvency of its participants, participants' customers, or a custodian bank.<sup>3</sup> Also, the ~~FMI~~ securities settlement facility should structure its operations so that its claims against collateral provided to it by a participant should have priority over all other claims, and the claims of the participant to that same collateral should have priority over the claims of third-party creditors. ~~For TRs, the legal basis also should specifically define the rights and interests of participants and other relevant stakeholders with respect to the data stored in the TR's systems.~~

## Mitigating legal risk

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

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<sup>3</sup> Collateral arrangements may involve either a pledge or a title transfer, including transfer of full ownership. ~~If an FMI~~ If a securities settlement facility accepts a pledge, it should have a high degree of certainty that the pledge has been validly created in the relevant jurisdiction and validly perfected, if necessary. ~~If an FMI~~ If a securities settlement facility relies on a title transfer, including transfer of full ownership, it should have a high degree of certainty that the transfer is validly created in the relevant jurisdiction and will be enforced as agreed and not recharacterised, for example, as an invalid or unperfected pledge or some other unintended category of transaction. ~~An FMI's securities settlement facility~~ securities settlement facility should also have a high degree of certainty that the transfer itself is not voidable as an unlawful preference under insolvency law. See also ~~Principle SSF Standard 5~~ Principle 5 on collateral, ~~Principle 6 on margin~~, and ~~Principle 13 SSF Standard 11~~ Principle 11 on participant-default rules and procedures.

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

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

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

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

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

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

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

## Settlement finality

**1.5.1.** ~~3.1.6.~~—There should be a clear legal basis regarding when settlement finality occurs in ~~an FMI~~ securities settlement facility in order to define when key financial risks are transferred in the system, including the point at which transactions are irrevocable. Settlement finality is an important building block for risk-management systems (see also ~~Principle 8.~~ ~~An FMI~~ SSF Standard 7). A securities settlement facility should consider, in particular, the actions that would need to be taken in the event of a participant's insolvency. A key question is whether transactions of an insolvent participant would be honoured as final, or could be considered void or voidable by liquidators and relevant authorities. In some countries, for example, so-called ~~“zero-hour rules”~~ “rules” in insolvency law can have the effect of reversing a payment, notwithstanding that it appears to have been successfully settled ~~inprocessed by~~ a payment system.<sup>4</sup> Because this possibility can lead to credit and liquidity risks, the securities settlement facility should ensure that the finality of settlement is not affected by the operation of zero-hour rules that undermine settlement finality should be eliminated, in any relevant jurisdiction. If the securities settlement facility offers real-time gross settlement, or has arrangements that involve the netting of transactions, it should seek the benefit of the relevant sections of the Payment Systems and Netting Act 1998 (if operating in Australia), or equivalent legislation in other jurisdictions. ~~An FMI~~ securities settlement facility also should consider the legal basis for the external settlement mechanisms it uses, such as funds transfer or securities transfer systems. The laws of the relevant jurisdictions should support the provisions of the ~~FMI's~~ securities settlement facility's legal agreements with its participants and money settlement banks ~~agents~~ relating to finality.

## Netting arrangements

**1.5.2.** ~~3.1.7.~~—~~If an FMI~~ If a securities settlement facility has a netting arrangement, the enforceability of the netting arrangement should have a sound and transparent legal basis.<sup>5</sup> In general, netting offsets obligations between or among participants in the netting arrangement, thereby reducing the number and value of payments or deliveries needed to settle a set of transactions. Netting can reduce potential losses in the event of a participant default and may reduce the probability of a default.<sup>6</sup> Netting arrangements should be designed to be explicitly recognised and supported under the law and enforceable against ~~an FMI and an FMI's failed participants in bankruptcy~~ a securities settlement facility and a securities settlement facility's failed participants in bankruptcy. In particular, the securities settlement facility should seek the benefit of the relevant sections of the Payment Systems and Netting Act 1998 (if operating in Australia), or equivalent legislation in another jurisdiction, with respect to any netting arrangements. Without such legal underpinnings, net obligations may be challenged in judicial or administrative insolvency proceedings. If these challenges ~~are~~ were successful, the ~~FMI's~~ securities settlement facility and its participants could ~~be liable for~~ face gross settlement amounts that could drastically increase obligations ~~because gross obligations, which in some circumstances~~ could be many multiples of net obligations.

~~3.1.8.~~—~~Novation, open offer, and other similar legal devices that enable an FMI to act as a CCP should be founded on a sound legal basis.~~<sup>7</sup> ~~In novation (and substitution), the original contract between the buyer~~

<sup>4</sup>—In the context of payment systems, “zero-hour rules” make all transactions by a bankrupt participant void from the start (“zero hour”) of the day of the bankruptcy (or similar event). In an RTGS system, for example, the effect could be to reverse payments that have apparently already been settled and were thought to be final. In a DNS system, such a rule could cause the netting of all transactions to be unwound. This could entail a recalculation of all net positions and could cause significant changes to participants' balances.

<sup>5</sup>—There are several types of netting arrangements used in the market that may be relevant to an FMI. Some types of arrangements net payments or other contractual obligations resulting from market trades (or both) on an ongoing basis, while others close-out payments or obligations when an event such as insolvency occurs. There are a number of legal structures for these types of netting arrangements.

<sup>6</sup>—An FMI may bilaterally net its obligations with each participant, facilitate the bilateral netting of obligations between participants, or provide for the multilateral netting of obligations.

<sup>7</sup>—In some countries, for example, assumption of obligation may be used instead of arrangements to replace the original contract between the buyer and seller with the two new contracts.

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

## Enforceability

~~1.5.3. 3.1.9.—~~The rules, procedures, and contracts related to ~~an FMI's~~ securities settlement facility's operation should be enforceable in all relevant jurisdictions. In particular, the legal basis should support the enforceability of the participant-default rules and procedures that ~~an FMI's~~ securities settlement facility uses to handle a defaulting or insolvent participant, especially any transfers ~~and close-outs~~ of a direct or indirect participant's assets or positions (see also Principle 13 ~~SSF Standard 11~~ on participant-default rules and procedures). ~~An FMI's~~ securities settlement facility should have a high degree of certainty that ~~such~~ actions taken under such rules and procedures will not be voided, reversed, or subject to stays, including with respect to the resolution regimes applicable to its participants.<sup>8</sup> Ambiguity about the enforceability of procedures could delay and possibly prevent ~~an FMI's~~ securities settlement facility from taking actions to fulfil its obligations to non-defaulting participants or to minimise its potential losses. ~~Insolvency law should support isolating risk and retaining and using collateral and cash payments previously paid into an FMI, notwithstanding a participant default or the commencement of an insolvency proceeding against a participant. The securities settlement facility should obtain a written and reasoned legal opinion as to the enforceability of the securities settlement facility's arrangements under the laws of each relevant jurisdiction.~~

~~1.5.4. 3.1.10.—~~An FMI's securities settlement facility should also establish rules, procedures, and contracts related to its operations that ~~are~~ would be enforceable ~~when the FMI is implementing in the event that the securities settlement facility had to implement~~ its plans for recovery or orderly wind-down, ~~and in the event of external administration~~. Where relevant, ~~they~~ these should adequately address issues and associated risks resulting from ~~(a) foreign and cross-border participation and interoperability of FMIs and (b) foreign participants in the case of an FMI which is being wound down.~~ There should be a high degree of certainty that ~~any~~ actions taken by the ~~FMI's~~ securities settlement facility under such rules and procedures ~~will~~ would not be voided, reversed, or subject to stays. Ambiguity about the enforceability of procedures that facilitate the implementation of the ~~FMI's~~ securities settlement facility's plans for recovery or orderly wind-down, or the resolution of the ~~FMI's~~ securities settlement facility, could delay and possibly prevent the ~~FMI's~~ securities settlement facility or the Reserve Bank and other relevant authorities from taking appropriate actions and hence increase the risk of a disruption to its critical services or a disorderly wind-down of the ~~FMI's~~ securities settlement facility. ~~In the case that an FMI is being wound down or resolved, the legal basis should support decisions or actions concerning termination, close-out netting, the transfer of cash and securities positions of an FMI, or the transfer of all or parts of the rights and obligations provided in a link arrangement to a new entity.~~

## Default or suspension of participants

~~1.5.5. The rules applying in the event of the default or suspension of a participant should be set out in advance: this enhances the certainty of obligations placed on participants and thus minimises the opportunity for surviving participants to challenge any liability (in a default situation, there~~

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<sup>8</sup> However, rights triggered only because of entry into resolution or the exercise of resolution powers may be subject to stays. ~~See for example FSB, Key attributes of effective resolution regimes for financial institutions, KA 4.2, 4.3, and Annex IV, paragraph 1.3. in some jurisdictions.~~

are likely to be strong incentives to undertake behaviour to minimise any contribution, and this could amplify systemic risks, see SSF Standard 11 on participant-default rules and procedures).

### External administration

1.5.6. Where a securities settlement facility is in external administration or is otherwise facing difficulties, there is scope for these events to cause instability in the broader financial system. A high degree of certainty in the legal framework concerning such events can help to limit the capacity for such instability.

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

### Conflicts of law

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

### Legal opinion

1.6.2. A securities settlement facility operating in multiple jurisdictions should obtain a well-reasoned, independent legal opinion and provide this to the Reserve Bank. This opinion should cover potential conflicts of law, the enforceability of the securities settlement facility's rules in all relevant jurisdictions and the securities settlement facility's ability to satisfy its regulatory obligations in all relevant jurisdictions. At least every two years, this legal opinion should be reviewed, updated where appropriate, and provided to the Reserve Bank. Between periodic reviews, the legal opinion should be reviewed whenever there is a material change to the securities settlement facility's operational, governance or risk-management arrangements or to the legal or regulatory framework governing its activities that may impact on the opinion. Further to such a review, the opinion should be updated where appropriate and provided to the Reserve Bank. Material changes triggering a review of the legal opinion may include changes to: the nature and composition of the securities settlement facility's membership; its internal organisation or structure; product offerings; or applicable laws or regulations.

## **Principle Standard 2: Governance**

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

### **Explanatory note Guidance**

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

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

~~2.1.1.~~ ~~3.2.2.~~—Given the importance of ~~FMI securities settlement facilities~~ and the fact that their decisions can have widespread impact, affecting multiple financial institutions, markets, and jurisdictions, it is essential for each ~~FMI securities settlement facility~~ to place a high priority on the safety ~~and efficiency~~ of its operations and explicitly support financial stability and other relevant public interests. ~~This is consistent with a securities settlement facility's obligations under section 821A of the Corporations Act 2001, which states that a CS facility must, to the extent that it is reasonably practicable to do so, not only comply with standards determined by the Reserve Bank under section 827D, but also do all other things necessary to reduce systemic risk. Supporting the public interest is a broad concept that includes, for example, fostering fair and efficient markets. For example, in certain OTC derivatives markets, industry standards and market protocols have been developed to increase certainty, transparency, and stability in the market. If a CCP in such markets were to diverge from these practices, it could, in some cases, undermine the market's efforts to develop common processes to help reduce uncertainty. An FMI's A securities settlement facility's~~ governance arrangements should also include appropriate consideration of the interests of participants, participants' customers, ~~the Reserve Bank and other~~ relevant authorities, and other stakeholders. ~~A TR, for example, should have objectives, policies, and procedures that support the effective and appropriate disclosure of market data to relevant authorities and the public (see Principle 24). For all types of FMIs, Governance arrangements should provide for fair and open access (see Principle 18, insofar as this would not be inconsistent with the maintenance of acceptable risk-control standards (see SSF Standard 15 on access and participation requirements) and for effective implementation of recovery or wind-down plans, or resolution.~~

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

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



Governance arrangements should provide clear and direct lines of responsibility and accountability, particularly between management and the board, and ensure sufficient independence for key functions such as risk management, internal control, and audit. These arrangements should be disclosed to owners, the [Reserve Bank and other relevant](#) authorities, participants, and, at a more general level, the public.

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

2.2.3. ~~3.2.5.—~~Depending on its ownership structure and organisational form, ~~an FMI~~a securities settlement facility may need to focus particular attention on certain aspects of its governance arrangements. ~~An FMI that is part of a larger organisation, for example, should place particular emphasis on the clarity of its governance arrangements, including in relation to any conflicts of interests and outsourcing issues that may arise because of the parent or other affiliated organisation's structure. The FMI's governance arrangements should also be adequate to ensure that decisions of affiliated organisations are not detrimental to the FMI.<sup>9</sup> An FMI~~For instance, a securities settlement facility that is, or is part of, a for-profit entity may need to place particular emphasis on managing any conflicts between income generation and safety. ~~And a securities settlement facility that is part of a larger organisation or corporate group, should consider any conflicts of interest or other issues that may arise from its relationship to its parent or to other affiliated entities (see SSF Standard 2.9).~~<sup>10</sup> ~~For example, a TR should ensure that it effectively identifies and manages conflicts of interests that may arise between its public role as a centralised data repository and its own commercial interests, particularly if it offers services other than recordkeeping.~~ Where relevant, any cross-border issues should also be appropriately identified, assessed, and dealt with in the facility's governance arrangements, both at the FMI level of the securities settlement facility and at the level(s) of its parent entity(ies). ~~The~~A securities settlement facility's ownership structure and organisational form may also need to be considered in the preparation and implementation of ~~the FMI's~~its recovery or wind-down plans or in assessments of ~~the FMI's~~its resolvability.

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

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

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<sup>9</sup> If an FMI is wholly owned or controlled by another entity, authorities should also review the governance arrangements of that entity to see that they do not have adverse effects on the FMI's observance of this principle.

<sup>10</sup> If a securities settlement facility is wholly owned or controlled by another entity, the Reserve Bank will also consider the governance arrangements of that entity in assessing the securities settlement facility's observance of this Standard.

~~central bank that are managed by different personnel. Where there is competition with private sector systems, a central bank should also be careful to protect confidential information about external systems collected in its role as overseer and avoid its misuse.~~

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

2.3.1. ~~3.2.8.—~~ An FMI's A securities settlement facility's board has multiple roles and responsibilities that should be clearly specified. These roles and responsibilities should include ~~(a);~~ establishing clear strategic aims for the entity; ~~(b)~~ ensuring effective monitoring of senior management (including selecting its senior managers, setting their objectives, evaluating their performance, and, where appropriate, removing them); ~~(c)~~ establishing appropriate compensation policies (which should be consistent with best practices and based on long-term achievements, in particular, the safety ~~and efficiency~~ of the FMI); ~~(d)~~ securities settlement facility – see paragraph 2.5.2; establishing and overseeing the risk-management function and material risk decisions; ~~(e)~~ overseeing internal control functions (including ensuring independence and adequate resources); ~~(f)~~ ensuring compliance with all supervisory and oversight requirements; ~~(g)~~ ensuring consideration of financial stability and other relevant public interests; and ~~(h)~~ providing accountability to the owners, participants, and other relevant stakeholders.<sup>11</sup> (see SSF Standard 2.8).

2.3.2. ~~3.2.9.—~~ Policies and procedures related to the functioning of the board should be clear and documented. These policies include the responsibilities and functioning of board committees. A board would normally be expected to have, among others, a risk committee, an audit committee, and a compensation committee, or equivalents. All such committees should have clearly assigned responsibilities and procedures.<sup>12</sup> Board policies and procedures should include processes to identify, address, and manage potential conflicts of interest of board members. Conflicts of interest include, for example, circumstances in which a board member has material competing business interests with the ~~FMI's~~ securities settlement facility. Further, policies and procedures should also include regular reviews of the board's performance and the performance of each individual member, as well as, potentially, periodic independent assessments of performance.

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

2.4.1. ~~3.2.10.—~~ Governance policies related to board composition, appointment, and term should also be clear and documented. The board should be composed of suitable members with an appropriate mix of skills (including strategic and relevant technical skills), experience, competence, and knowledge of the entity (including an understanding of the ~~FMI's~~ securities settlement facility's interconnectedness with other parts of the financial system). The nature and degree of the skills, experience and expertise required of board members will depend on the size, scope and nature of the business conducted by the securities settlement facility. Members should also have a clear understanding of their roles in corporate governance, be able to devote sufficient time to their roles, ensure that their skills remain up-to-date, and have appropriate incentives to fulfil their roles. Members should be able to exercise objective and independent ~~judgment~~ judgement. A securities settlement facility should be able to demonstrate that its board composition provides a sufficient degree of independence from the views of management. This typically requires the inclusion of non-executive board members,

<sup>11</sup> See Financial Stability Forum, *FSF principles for sound compensation practices*, April 2009, for additional guidance in establishing appropriate compensation policies.

<sup>12</sup> Such committees would normally be composed mainly of, and, if possible, led by, non-executive or independent directors (see also paragraph 3-SSF Standard 2.104).

including independent board members, ~~as appropriate.~~<sup>13</sup> ~~Definitions of an independent board member vary and often are determined by local laws and regulations, but,~~<sup>14</sup> The key characteristic of independence is the ability to exercise objective, independent ~~judgment~~<sup>judgement</sup> after fair consideration of all relevant information and views and without undue influence from executives or from inappropriate external parties or interests.<sup>15</sup> The precise definition of independence used by ~~an FMI~~<sup>a securities settlement facility</sup> should be specified and publicly disclosed, and should exclude parties with significant business relationships with the ~~FMI~~<sup>securities settlement facility</sup>, cross-directorships, or controlling shareholdings, as well as employees of the organisation. Further, ~~an FMI~~<sup>a securities settlement facility</sup> should publicly disclose which board members it regards as independent. ~~An FMI~~<sup>The appropriate number of independent non-executive directors on a securities settlement facility's board will depend on the size, scope and nature of the business conducted by the securities settlement facility.</sup> A ~~securities settlement facility~~<sup>securities settlement facility</sup> may also need to consider setting a limit on the duration of board members' terms.

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

## Roles and responsibilities of management

- 2.5.1.** ~~3.2.11.~~ ~~An FMI~~<sup>A securities settlement facility</sup> should have clear and direct reporting lines between its management and board in order to promote accountability, and the roles and responsibilities of management should be clearly specified. ~~An FMI's~~<sup>A securities settlement facility's</sup> management should have the appropriate experience, ~~a~~ mix of skills, and ~~the~~ integrity necessary to discharge ~~their~~<sup>its</sup> responsibilities for the operation and risk management of the ~~FMI~~<sup>securities settlement facility</sup>. Under board direction, management should ensure that the ~~FMI's~~<sup>securities settlement facility's</sup> activities are consistent with the objectives, strategy, and risk tolerance of the ~~FMI~~<sup>securities settlement facility</sup>, as determined by the board. Management should ensure that internal controls and related procedures are appropriately designed and executed in order to promote the ~~FMI's~~<sup>securities settlement facility's</sup> objectives, and that these procedures include a sufficient level of management oversight. Internal controls and related procedures should be subject to regular review and testing by well-trained and staffed risk-management and internal-audit functions. Additionally, senior management should be actively involved in the risk-control process and should ensure that significant resources are devoted to ~~it~~<sup>the securities settlement facility's</sup> risk-management framework.

## Compensation

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

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<sup>13</sup> Having non-executive members included on a board, for example, may (depending on local corporate law) help in balancing considerations of safety and efficiency with competitiveness and, where applicable, profitability.

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

<sup>15</sup> An FMI organised in a jurisdiction with national laws on board structure or composition that do not facilitate the use of independent members should use alternative means to enhance its board's ability to exercise independent judgment, such as advisory or supervisory boards with appropriate members.

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

### Risk-management governance

- 2.6.1.** ~~3.2.12.~~ Because the board is ultimately responsible for managing ~~an FMI's a securities settlement facility's~~ risks, it should establish a clear, documented risk-management framework that includes the FMI's securities settlement facility's risk-tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision making in crises and emergencies. The board should regularly monitor the FMI's securities settlement facility's risk profile to ensure that it is consistent with the FMI's securities settlement facility's business strategy and risk-tolerance policy. In addition, the board should ensure that the FMI securities settlement facility has an effective system of controls and oversight, including adequate governance and project-management processes, over the models used to quantify, aggregate, and manage the FMI's securities settlement facility's risks. Board approval should be required for material decisions that would have a significant impact on the risk profile of the entity, such as the limits for total credit exposure and large individual credit exposures. Other material decisions that may require board approval include the introduction of new products, implementation of new links, use of new crisis-management frameworks, adoption of processes and templates for reporting significant risk exposures, and adoption of processes for considering adherence to relevant market protocols. ~~In the OTC derivatives markets, CCPs are expected to adhere to practices or arrangements that have become established market conventions or to act in a manner that does not conflict with such terms, unless the CCP has reasonable grounds not to do so and that does not conflict with the market's wider interest. In this regard, where a CCP supports a market and is expected to fully adhere to marketwide protocols and related decisions, the CCP should be involved in the development and establishment of such standards. It is critical that market governance processes fully reflect the role of the CCP in the market. The arrangements adopted by a CCP should be transparent to its participants and regulators.~~
- 2.6.2.** ~~3.2.13.~~ The board and governance arrangements, generally, should support the use of clear and comprehensive rules and key procedures, including detailed and effective participant-default rules and procedures (see Principle 13 SSF Standard 11). 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 securities settlement facility's viability as a going concern. The governance arrangements should also provide for effective decision making in a crisis and support any procedures and rules designed to facilitate the recovery or orderly wind-down of the FMI securities settlement facility.
- 2.6.3.** ~~3.2.14.~~ In addition, the governance of the risk-management function is particularly important. It is essential that ~~an FMI's a securities settlement facility's~~ risk-management personnel have sufficient independence, authority, resources, and access to the board to ensure that the operations of the FMI securities settlement facility are consistent with the risk-management framework set by the board. The reporting lines for risk management should be clear and separate from those for other operations of the FMI securities settlement facility, and there should be an additional direct reporting line to a non-executive director on the board via a chief risk officer (or equivalent). To help the board discharge its risk-related responsibilities, ~~an FMI a securities settlement facility~~ should ~~consider the case for~~ have a risk committee, responsible for advising the board on the FMI's securities settlement facility's overall current and future risk tolerance and strategy. ~~A CCP, however, should have such a risk committee or its equivalent. An FMI's A securities settlement facility's~~ risk committee should be chaired by a sufficiently

knowledgeable individual who is typically independent of the FMI's securities settlement facility's executive management and should typically be composed of a majority of members who are non-executive members. The committee should have a clear and public mandate and operating procedures and, where appropriate, have access to external expert advice.

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

## Model validation

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

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

## Internal controls and audit

~~2.7.1. 3.2.17.—The board is responsible for establishing and overseeing internal controls and audit. An FMI's securities settlement facility should have sound internal control policies and procedures to help manage its risks. For example, as part of a variety of risk controls, the board should ensure that there are adequate internal controls to protect against the misuse of confidential information. An FMI's securities settlement facility should also have an effective internal-audit function, with sufficient resources and independence from management to provide, among other activities, a rigorous and independent assessment of the effectiveness of an FMI's securities settlement facility's risk-management and control processes (see also Principle SSF Standard 3 on the framework for the comprehensive management of risks). The board will typically establish an audit committee to oversee the internal-audit function. In addition to reporting to senior management, the audit function should have regular access to the board through an additional reporting line.~~

## External review

~~2.7.2. A securities settlement facility should engage independent and appropriately qualified external experts to conduct a review of its operations, risk-management processes, internal control mechanisms and accounts on an annual basis, or more frequently if required. The adequacy of and adherence to control mechanisms may also be assessed through regular independent compliance programmes. Additional external reviews may be required if internal-audit processes or other internal controls identify potential areas of weakness that require additional~~

external scrutiny and analysis. The outcomes of annual or ad hoc external reviews should be provided to the Reserve Bank and other relevant authorities on a timely basis, and the securities settlement facility should advise the Reserve Bank or other relevant authorities as to how it plans to address any areas of weakness identified.

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

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

2.9. A securities settlement facility that is part of a group of companies should take into account any implications of the group structure and activities for its own governance arrangements, including whether it has the necessary level of independence of decision making and management to meet its regulatory obligations as a distinct legal entity, and whether such independence could be compromised by the group structure or by board members also being members of the board of other entities in the same group. In particular, such a securities settlement facility should consider specific procedures for preventing and managing conflicts of interest, including with respect to intra-group outsourcing arrangements.

2.9.1. Where a securities settlement facility is part of a wider corporate group, there may be the potential for conflicts to arise between the obligations and interests of the securities settlement facility and those of other entities in the group, or the group as a whole. For example, where a securities settlement facility utilises staff or other resources that are employed or owned by other group entities, there may be circumstances in which it is in the interests of the group to withhold the provision of those resources – for instance, if it appears likely that the securities settlement facility may enter external administration. A securities settlement facility should therefore ensure that it has sufficient independence in decision making and management such that potential conflicts will not prevent it from fulfilling its obligations. This may include consideration of whether adequate arrangements exist to manage potential conflicts arising from board composition – i.e. where directors of other group entities are members of the

securities settlement facility's board – or any intra-group outsourcing arrangements (including the sharing of staff or other resources) that exist between the securities settlement facility and other group entities.

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

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

#### **Explanatory noteGuidance**

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

~~3.1.~~ ~~An FMI~~ securities settlement facility 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.~~securities settlement facility. ~~This~~ risk-management frameworks should be subject to periodic review.

#### **Identification of risks**

~~3.1.1.~~ ~~3.3.2.~~—To establish a sound risk-management framework, ~~an FMI~~a securities settlement facility should first identify the range of risks that arise within the ~~FMI~~securities settlement facility and the risks it directly bears from or poses to its participants, its participants' customers, and other entities. It should identify those risks that could materially affect its ability to perform or to provide services as expected. Typically these include legal, ~~credit, liquidity,~~ and operational risks. ~~An FMI, and in some cases may include credit and liquidity risks.~~ A securities settlement facility should also consider other relevant and material risks, such as market (or price), concentration, and general business risks, as well as risks that do not appear to be significant in isolation, but when combined with other risks become material. The consequences of these risks may have significant reputational effects on the ~~FMI~~securities settlement facility and may undermine ~~an FMI's~~a securities settlement facility's financial soundness as well as the stability of the broader financial markets. In identifying risks, ~~an FMI~~a securities settlement facility should take a broad perspective and identify the risks that it bears from other entities, such as other FMIs, money settlement banksagents, liquidity providers, service providers, and any entities that could be materially affected by the ~~FMI's~~securities settlement facility's inability to provide services. For example, the relationship between ~~an SSS~~a securities settlement facility and ~~an LVPS~~a large-value payment system to achieve DvP settlement can create system-based interdependencies.

#### **Comprehensive risk policies, procedures, and controls**

~~3.1.2.~~ ~~3.3.3.~~—~~An FMI's~~A securities settlement facility's board and senior management are ultimately responsible for managing the ~~FMI's~~securities settlement facility's risks (see PrincipleSSF

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

### Information and control systems

3.1.3. ~~3.3.4.~~—In addition, an FMI a securities settlement facility should employ robust information and risk-control systems to provide the FMI securities settlement facility with the capacity to obtain timely information necessary to apply risk-management policies and procedures. In particular, these systems should allow for the accurate and timely measurement and aggregation of risk exposures across the FMI securities settlement facility, the management of individual risk exposures and the interdependencies between them, and the assessment of the impact of various economic and financial shocks that could affect the FMI securities settlement facility. Where relevant, information systems should also enable the FMI securities settlement facility to monitor ~~its~~ credit and liquidity exposures, overall credit and liquidity limits, and the relationship between these exposures and limits.<sup>16</sup>

3.1.4. ~~3.3.5.~~—Where appropriate, an FMI a securities settlement facility should also provide its participants and its participants' customers with the relevant information to manage and contain their credit and liquidity risks. An FMI A securities settlement facility may consider it beneficial to provide its participants and its participants' customers with information necessary to monitor their credit and liquidity exposures, overall credit and liquidity limits, and the relationship between these exposures and limits. ~~For example, where the FMI permits participants' customers to create exposures in the FMI that are borne by the participants, the FMI should provide participants with the capacity to limit such risks.~~

### Internal controls

3.1.5. ~~3.3.9.~~—An FMI A securities settlement facility also should have comprehensive internal processes to help the board and senior management monitor and assess the adequacy and effectiveness of an FMI's a securities settlement facility's risk-management policies, procedures, systems, and controls. While business-line management serves as the first "line of defence," the adequacy of and adherence to control mechanisms should be assessed regularly through independent compliance programmes and independent audit external reviews.<sup>17</sup> A robust internal-audit function can provide an independent assessment of the effectiveness of an FMI's a securities settlement facility's risk-management and control processes. An emphasis on the adequacy of controls by senior management and the board as well as internal audit can also help counterbalance a business-management culture that may favour business interests over establishing and adhering to appropriate controls. In addition, proactive engagement of audit and internal control functions when changes are under

<sup>16</sup> These information systems should permit, where practicable, the provision of real-time information to enable participants to manage risks. If an FMI a securities settlement facility does not provide real-time information, it should provide clear, full, updated information to participants throughout the day (as frequently as possible) and consider appropriate enhancements to its systems.

<sup>17</sup> Internal audits should be performed by qualified and independent individuals who did not participate in the creation of the control mechanisms. ~~At times the FMI may find it necessary to engage a team of external auditors. The securities settlement facility should subject its risk-management processes to external independent review, at a minimum on an annual basis (see SSF Standard 2 on governance).~~



consideration can also be beneficial. Specifically, ~~FMI~~securities settlement facilities that involve their internal-audit function in pre-implementation reviews will often reduce their need to expend additional resources to retrofit processes and systems with critical controls that had been overlooked during initial design phases and construction efforts.

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

3.2.1. A securities settlement facility should ensure that it has sufficient risk controls and other arrangements in place to comply with the SSF Standards, and address any other systemic risk implications of its activities. In accordance with a securities settlement facility's risk-management framework, these arrangements may place financial and other obligations on participants, such as ex ante-agreed arrangements for the provision of liquid resources and allocations of uncovered losses or liquidity shortfalls (see SSF Standard 4 on credit risk, SSF Standard 6 on liquidity risk, and SSF Standard 11 on participant-default rules and procedures), or minimum operational requirements (see SSF Standard 14 on operational risk). Such obligations should be proportional to the nature and magnitude of the risk that individual participants' activities pose to the safety of the securities settlement facility. In general, obligations placed on a participant with limited and conservative activities should differ from those placed on a participant with extensive and risky activities. For the purposes of this Standard, financial obligations do not include minimum capital requirements for participants, which are dealt with under SSF Standard 15 on access and participation requirements.

3.3. A securities settlement facility should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the ~~FMI~~securities settlement facility.

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

3.4. An-FMIA securities settlement facility should regularly review the material risks it bears from and poses to other entities (such as other FMIs, ~~money settlement agents~~settlement banks, liquidity providers, and service providers) as a result of interdependencies, and develop appropriate risk-management tools to address these risks.

3.4.1. 3.3.7.—An-FMIA securities settlement facility should regularly review the material risks it bears from and poses to other entities (such as other FMIs, ~~money settlement banks~~agents, liquidity providers, or service providers) as a result of interdependencies and develop appropriate risk-management tools to address these risks (see also ~~Principle 20~~SSF Standard 17 on FMI links). In particular, an-FMIA securities settlement facility should have effective risk-management tools to manage all relevant risks, including the legal, ~~credit, liquidity~~, general business, and operational risks that it bears from and poses to other entities, in order to limit the effects of disruptions from and to such entities as well as disruptions from and to the broader financial markets. These tools should include business-continuity arrangements that allow for rapid recovery and resumption of critical operations and services in the event of operational disruptions (see ~~Principle 17~~SSF Standard 14 on operational risk), liquidity risk-management techniques (see ~~Principle 7~~SSF Standard 6 on liquidity risk), and recovery or orderly wind-down plans should the

~~FM securities settlement facility~~ become non-viable.<sup>18</sup> Because of the interdependencies between and among systems, ~~an FM securities settlement facility~~ should ensure that its crisis-management arrangements allow for effective coordination among the affected entities, including cases in which its own viability or the viability of an interdependent entity is in question.

**3.5.** ~~An FM securities settlement facility~~ 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 FM securities settlement facility~~ should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, ~~an FM securities settlement facility~~ should also provide relevant authorities with the information needed for purposes of resolution planning.

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

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

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

### **Explanatory note Guidance**

*~~This Standard applies only to a securities settlement facility that assumes credit risk as principal. In general, a securities settlement facility operating in Australia would not be expected to assume credit risk as principal. The design of the securities settlement facility and the scope of its activities should minimise the potential for such~~*

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<sup>18</sup> Although TRs are typically not exposed to financial risks from their recordkeeping activities, they may be a part of a network linking various entities that could include CCPs, dealers, custodians, and service providers, and therefore should ensure that they effectively manage and minimise their own risks to reduce the potential for systemic risk to spread to such linked entities.

risk to arise. In the event that it did assume credit risk as principal, the facility should consult with the Reserve Bank to identify clearly the circumstances in which such risk was assumed.

~~3.4.1.~~—Credit risk is broadly defined as the risk that a counterparty will be unable to meet fully its financial obligations when due or at any time in the future. The default of a participant (and its affiliates) has the potential to cause severe ~~disruptions~~disruption to ~~an FMI~~an FMI securities settlement facility, its other participants, and the financial markets more broadly.<sup>19</sup> Therefore, ~~an FMI~~an FMI securities settlement facility should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its ~~payment, clearing, and~~ settlement processes (see also ~~Principle~~Principle ~~SSF Standard 3~~ on the framework for the comprehensive management of risks, ~~Principle~~Principle ~~9~~9 ~~SSF Standard 8~~ on money settlements, ~~and Principle~~and Principle ~~16~~16 ~~SSF Standard 10 on exchange-of-value systems, and SSF Standard 13~~ on custody and investment risks). Credit exposure may arise in the form of current exposures, potential future exposures, or both.<sup>20</sup> Current exposure, in this context, is defined as the loss that ~~an FMI (or in some cases, its participants)~~an FMI securities settlement facility would face immediately if a participant were to default.<sup>21</sup> Potential future exposure is broadly defined as any potential credit exposure that ~~an FMI~~an FMI securities settlement facility could face at a future point in time.<sup>22</sup> The type and level of credit exposure faced by ~~an FMI~~an FMI securities settlement facility will vary based on its design and the credit risk of the counterparties concerned.<sup>23</sup>

#### **Credit risk in payment systems**

~~3.4.2.~~—~~Sources of credit risk. A payment system may face credit risk from its participants, its payment and settlement processes, or both. This credit risk is driven mainly by current exposures from extending intraday credit to participants.~~<sup>24</sup> For example, a central bank that operates a payment system and provides intraday credit will face current exposures. A payment system can avoid carrying over current exposures to the next day by requiring its participants to refund any credit extensions before the end of the day. Intraday credit can lead to potential future exposures even when the FMI accepts collateral to secure the credit. A payment system would face potential future exposure if the value of collateral posted by a participant to cover intraday credit were to fall below the amount of credit extended to the participant by the FMI, leaving a residual exposure.

~~3.4.3.~~—~~Sources of credit risk in deferred net settlement systems. A payment system that employs a DNS mechanism may face financial exposures arising from its relationship with its participants or its payment and settlement processes. A DNS payment system may explicitly guarantee settlement, whether the guarantee is provided by the FMI itself or its participants. In such systems, the guarantor of the arrangement would face current exposure if a participant were not to meet its payment or settlement obligations. Even in a DNS system that does not have an explicit guarantee, participants in the payment system may still face settlement risk vis-à-vis each other. Whether this risk involves credit exposures or liquidity exposures, or a combination of both, will depend on the type and scope of obligations, including any contingent obligations, the participants bear. The type of obligations will, in turn, depend on factors such as the payment system's design, rules, and legal framework.~~

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<sup>19</sup>—An affiliate is defined as a company that controls, is controlled by, or is under common control with the participant. Control of a company is defined as (a) ownership, control, or holding with power to vote 20 percent or more of a class of voting securities of the company; or (b) consolidation of the company for financial reporting purposes.

<sup>20</sup>—See also BCBS, *The application of Basel II to trading activities and the treatment of double default effects*, April 2005, p 4 (joint paper with IOSCO); See also BCBS, *International convergence of capital measurement and capital standards*, June 2006, annex 4, pp 254-257 (various definitions of transactions and risks; see especially, definitions of “current exposure” and “peak exposure”).

<sup>21</sup> Current exposure is technically defined as the larger of zero or the market value (or replacement cost) of a transaction or portfolio of transactions within a netting set with a counterparty that would be lost upon the default of the counterparty.

<sup>22</sup> Potential future exposure is technically defined as the maximum exposure estimated to occur at a future point in time at a high level of statistical confidence. Potential future exposure arises from potential fluctuations in the market value of a participant's open positions between the time they are incurred or reset to the current market price and the time they are liquidated or effectively hedged.

<sup>23</sup> In considering itsany credit exposure to a central bank, on a case-by-case basis an FMI securities settlement facility may take into account the special characteristics of the central bank.

<sup>24</sup>—Many payment systems do not face credit risk from their participants or payment and settlement processes, although they may face significant liquidity risk.

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

~~3.4.5.— Mitigating and managing credit risk. A payment system should mitigate its credit risks to the extent possible. A payment system can, for example, eliminate some of its or its participants' credit risks associated with the settlement process by employing an RTGS mechanism. In addition, a payment system should limit its current exposures by limiting intraday credit extensions and, where relevant, avoid carrying over these exposures to the next day by requiring participants to refund any credit extensions before the end of the day.<sup>25</sup> Such limits should balance the usefulness of credit to facilitate settlement within the system against the payment system's credit exposures.~~

~~3.4.6.— In order to manage the risk from a participant default, a payment system should consider the impact of participant defaults and robust techniques for managing collateral. A payment system should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (equity can be used after deduction of the amount dedicated to cover general business risk) (see Principle 5 on collateral and Principle 15 on general business risk).<sup>26</sup> By requiring collateral to cover the credit exposures, a payment system mitigates, and in some cases eliminates, its current exposure and may provide participants with an incentive to manage credit risks they pose to the payment system or other participants. Further, this collateralisation reduces the need in a DNS payment system to unwind payments should a participant default on its obligations. Collateral or other equivalent financial resources can fluctuate in value, however, so the payment system should establish prudent haircuts to mitigate the resulting potential future exposure.~~

~~3.4.7.— A DNS payment system that explicitly guarantees settlement, whether the guarantee is from the FMI itself or from its participants, should maintain sufficient financial resources to cover fully all current and potential future exposures using collateral and other equivalent financial resources. A DNS payment system in which there is no settlement guarantee, but where its participants face credit exposures arising from its payment and settlement processes, should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.<sup>27</sup> A higher level of coverage should be considered for a payment system that creates large exposures or that could have a significant systemic impact if more than two participants and their affiliates were to default.~~

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

**4.1.1. 3.4.8.— Sources of credit risk. An SSSA securities settlement facility** may face a number of credit risks from its participants or its settlement processes. **An SSS faces A securities settlement**

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<sup>25</sup>— A central bank often avoids using limits on a participant's credit because of its role as a monetary authority and liquidity provider.

<sup>26</sup>— Equity may only be used up to the amount held in sufficiently liquid net assets. Such use of equity should be strictly limited to avoiding disruptions in settlement when collateral is not available in a timely manner.

<sup>27</sup>— If the financial exposure faced by the DNS payment system is a liquidity exposure, then Principle 7 would apply.

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

4.2. An FMIA securities settlement facility should identify sources of credit risk, routinely measure and monitor credit exposures; and use appropriate risk-management tools to control these risks. To assist in this process, a securities settlement facility should ensure it has mechanisms in place to calculate exposures to participants in real time, and to receive and review timely and accurate information on participants' credit standing.

4.2.1. ~~3.4.10. Measuring and monitoring credit risk.~~ An SSSA securities settlement facility should frequently and regularly measure and monitor its credit risks throughout the day using timely information. ~~An SSSA securities settlement facility~~ should ensure it has access to adequate information, such as appropriate collateral valuations, to allow it to measure and monitor its current exposures and degree of collateral coverage. If credit risk exists between participants, the ~~SSS~~securities settlement facility should provide the capacity to participants to measure and monitor their current exposures to each other in the system or adopt rules that require participants to provide relevant exposure information. Current exposure should be relatively straightforward to measure and monitor; however, potential future exposure may require modelling or estimation. In order to monitor its risks associated with current exposure, ~~an SSSa securities settlement facility~~ should monitor market conditions for developments that could affect these risks, such as collateral values. In order to estimate its potential future exposure and associated risk, ~~an SSSa securities settlement facility~~ should model possible changes in collateral values and market conditions over an appropriate liquidation period. ~~An SSSA securities settlement facility~~, where appropriate, needs to monitor the existence of large exposures to its participants and their customers. Additionally, it should monitor any changes in the creditworthiness of its participants through the systematic review of timely information on financial standing, business activities and profile, and potential interdependencies.

4.2.2. ~~3.4.11. Mitigating and managing credit risk.~~ An SSSA securities settlement facility should mitigate its credit risks to the extent possible. ~~An SSSA securities settlement facility~~ should, for example, eliminate its or its participants' principal risk associated with the settlement process by employing an exchange-of-value settlement system (see ~~Principle 12~~SSF Standard 10 on exchange-of-value settlement systems). The use of a system that settles securities and funds on a gross, obligation-by-obligation basis (DvP model 1) would further reduce credit and liquidity exposures among participants and between participants and the ~~SSS~~securities settlement facility. In addition, ~~an SSSa securities settlement facility~~ should limit its current exposures by strictly limiting intraday credit the extensions and, where relevant, overnight credit extensions.<sup>28</sup> ~~Such limits should balance the usefulness of credit to facilitate settlement within the system against the SSS's credit exposures.~~

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

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<sup>28</sup> — A central bank often avoids using limits on a participant's credit because of its role as a monetary authority and liquidity provider.

- 4.3.1. ~~If a securities settlement facility determines that a participant's credit standing may be in doubt, it should have the authority to impose additional credit risk controls on the participant. These may include placing restrictions on the level or types of activities that the participant can undertake, or calling for additional collateral from the participant. In extreme cases, the securities settlement facility may need to consider suspending the participant (see SSF Standard 11 on participant-default rules and procedures and SSF Standard 15 on access and participation requirements).~~
- 4.4. ~~A payment system or SSSA securities settlement facility~~ 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~~SSF Standard 5 on collateral). In the case of a DNS ~~payment system or DNS SSS~~securities settlement facility in which there is no settlement guarantee, but where its participants face credit exposures arising from its ~~payment, clearing, and~~ settlement processes, such ~~an FM~~the facility 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.
- 4.4.1. ~~3.4.9. Sources of credit risk in deferred net settlement systems. An SSSA securities settlement facility~~ may settle securities on a gross basis and funds on a net basis (DvP model 2) or settle both securities and funds on a net basis (DvP model 3). Further, ~~an SSSa securities settlement facility~~ that uses a DvP model 2 or 3 settlement mechanism may explicitly guarantee settlement, whether the guarantee is by the ~~FM~~securities settlement facility itself or by its participants. In such systems, this guarantee represents an extension of intraday credit from the guarantor. ~~In an SSS~~In a securities settlement facility that does not provide an explicit settlement guarantee, participants may face settlement risk vis-à-vis each other if a participant defaults on its obligations. Whether this settlement risk involves credit exposures, liquidity exposures, or a combination of both will depend on the type and scope of the obligations, including any contingent obligations, the participants bear. The type of obligations will, in turn, depend on factors such as the ~~SSS's~~securities settlement facility's design, rules, and legal framework.
- 4.4.2. ~~3.4.12.~~In order to manage the risk from a participant default, ~~an SSSa securities settlement facility~~ should consider the impact of participant defaults and use robust techniques for managing collateral. ~~An SSSA securities settlement facility~~ should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (equity can be used after deduction of the amount dedicated to cover general business risk) (see ~~Principle~~SSF Standard 5 on collateral and ~~Principle 15~~SSF Standard 12 on general business risk).<sup>29</sup> By requiring collateral to cover ~~the~~ credit exposures, ~~an SSSa securities settlement facility~~ mitigates, and in some cases eliminates, its current exposures and may provide participants with an incentive to manage the credit risks they pose to the ~~SSS~~securities settlement facility or other participants. Further, this collateralisation allows ~~an SSSa securities settlement facility~~ that employs a DvP model 2 or 3 mechanism to avoid unwinding transactions or to mitigate the effect of an unwind should a participant default on its obligations. Collateral and other equivalent financial resources can fluctuate in value, however, so the ~~SSS~~securities settlement facility needs to establish prudent haircuts to mitigate the resulting potential future exposures.
- 4.4.3. ~~3.4.13. An SSSA securities settlement facility~~ that uses a DvP model 2 or 3 mechanism and explicitly guarantees settlement, whether the guarantee is from the ~~FM~~securities settlement facility itself or from its participants, should maintain sufficient financial resources to cover fully, with a high degree of confidence, all current and potential future exposures using collateral and other equivalent financial resources. ~~An SSSA securities settlement facility~~ that uses a DvP model 2 ~~or 3~~ mechanism and does not explicitly guarantee settlement, but where its participants face credit exposures arising from its ~~payment, clearing, and~~ settlement processes,

<sup>29</sup> Equity may only be used up to the amount held in sufficiently liquid net assets. Such use of equity should be strictly limited to avoiding disruptions in settlement when collateral is not available in a timely manner.

should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.<sup>30</sup> DvP model 3 mechanisms do not create credit exposures for participants due to the contemporaneous settlement of linked obligations. A higher level of coverage should be considered for an SSSa securities settlement facility that has large exposures or that could have a significant systemic impact if more than two participants and their affiliates were to default.

~~3.4.14. — Sources of credit risk. A CCP typically faces both current and potential future exposures because it typically holds open positions with its participants. Current exposure arises from fluctuations in the market value of open positions between the CCP and its participants.<sup>31</sup> Potential future exposure arises from potential fluctuations in the market value of a defaulting participant's open positions until the positions are closed out, fully hedged, or transferred by the CCP following an event of default.<sup>32</sup> For example, during the period in which a CCP neutralises or closes out a position following the default of a participant, the market value of the position or asset being cleared may change, which could increase the CCP's credit exposure, potentially significantly.<sup>33</sup> A CCP can also face potential future exposure due to the potential for collateral (initial margin) to decline significantly in value over the close-out period.~~

~~3.4.15. — Measuring and monitoring credit risk. A CCP should frequently and regularly measure and monitor its credit risks throughout the day using timely information. A CCP should ensure that it has access to adequate information to allow it to measure and monitor its current and potential future exposures. Current exposure is relatively straightforward to measure and monitor when relevant market prices are readily available. Potential future exposure is typically more challenging to measure and monitor and usually requires modelling and estimation of possible future market price developments and other variables and conditions, as well as specifying an appropriate time horizon for the close-out of defaulted positions. In order to estimate the potential future exposures that could result from participant defaults, a CCP should identify risk factors and monitor potential market developments and conditions that could affect the size and likelihood of its losses in the close-out of a defaulting participant's positions. A CCP should monitor the existence of large exposures to its participants and, where appropriate, their customers. Additionally, it should monitor any changes in the creditworthiness of its participants.~~

~~3.4.16. — Mitigating and managing credit risk. A CCP should mitigate its credit risk to the extent possible. For example, to control the build-up of current exposures, a CCP should require that open positions be marked to market and that each participant pay funds, typically in the form of variation margin, to cover any loss in its positions' net value at least daily; such a requirement limits the accumulation of current exposures and therefore mitigates potential future exposures. In addition, a CCP should have the authority and operational capacity to make intraday margin calls, both scheduled and unscheduled, from participants. Further, a CCP may choose to place limits on credit exposures in some cases, even if collateralised. Limits on concentrations of positions or additional collateral requirements may also be warranted.~~

~~3.4.17. — A CCP typically uses a sequence of prefunded financial resources, often referred to as a "waterfall," to manage its losses caused by participant defaults. The waterfall may include a defaulter's~~

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<sup>30</sup>— If the financial exposure faced by the DNS SSS is a liquidity exposure, then principle 7 would apply.

<sup>31</sup>— For example, for a CCP that pays and collects variation margin (after marking positions to market and then, upon completion of the variation cycle, resetting the value of positions to zero daily), the current exposure is the difference between the current (that is, at the moment) value of open positions and the value of the positions when the CCP last marked them to market for the purpose of collecting variation margin.

<sup>32</sup>— For positions that are marked to market and settled daily, potential future exposure is typically related to the interval between the last daily mark-to-market and the point the position is closed out. That is, potential future exposure includes uncovered current exposure stemming from the price development from the last mark-to-market to the time of close out, full hedging, or transfer.

<sup>33</sup>— A CCP may close out a defaulting participant's positions by entering the market to buy or sell contracts identical but opposite to the net positions held by the defaulting participant at current market prices (see Principle 13 on participant default rules and procedures). (The CCP may alternatively auction the defaulting participant's positions to other participants, whether in whole or in parts). During the liquidation period, market prices on the open positions can change, exposing the CCP to additional liquidation costs until the point of close-out. To mitigate this risk, a CCP may also temporarily hedge the defaulter's positions by entering into positions with values that are negatively correlated with the values of the positions held by the defaulting participant. The CCP's liquidation cost therefore not only includes the uncovered current exposure that would exist at the time of default but also the potential future exposure associated with relevant changes in market prices during the liquidation period.

initial margin, the defaulter's contribution to a prefunded default arrangement, a specified portion of the CCP's own funds, and other participants' contributions to a prefunded default arrangement.<sup>34</sup> Initial margin is used to cover a CCP's potential future exposures, as well as current exposures not covered by variation margin, to each participant with a high degree of confidence.<sup>35</sup> However, a CCP generally remains exposed to residual risk (or tail risk) if a participant defaults and market conditions concurrently change more drastically than is anticipated in the margin calculations. In such scenarios, a CCP's losses may exceed the defaulting participant's posted margin. Although it is not feasible to cover all such tail risks given the unknown scope of potential losses due to price changes, a CCP should maintain additional financial resources, such as additional collateral or a prefunded default arrangement, to cover a portion of the tail risk.

3.4.18. — 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. As discussed more fully in Principle 6 on margin, a CCP should establish initial margin requirements that are commensurate with the risks of each product and portfolio. Initial margin should meet an established single-tailed confidence level of at least 99 percent of the estimated distribution of future exposure.<sup>36</sup> For a CCP that calculates margin at the portfolio level, this standard applies to the distribution of future exposure of each portfolio. For a CCP that calculates margin at more granular levels, such as at the subportfolio level or product level, the standard must be met for the corresponding distributions of future exposure.

3.4.19. — In addition to fully covering its current and potential future exposures, a CCP should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios involving extreme but plausible market conditions. Specifically, a CCP that is involved in activities with a more complex risk profile (such as clearing financial instruments that are characterised by discrete jump-to-default price changes or that are highly correlated with potential participant defaults) or that is systemically important in multiple jurisdictions, should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. Determinations of whether a CCP is systemically important in multiple jurisdictions should include consideration of, among other factors, (a) the location of the CCP's participants, (b) the aggregate volume and value of transactions that originate in each jurisdiction in which it operates, (c) the proportion of its total volume and value of transactions that originate in each jurisdiction in which it operates, (d) the range of currencies in which the instruments it clears are cleared or settled, (e) any links it has with FMIs located in other jurisdictions, and (f) the extent to which it clears instruments that are subject to mandatory clearing obligations in multiple jurisdictions. All other 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 (see Principle 2 on governance), the amount of total financial resources it maintains.

3.4.20. — A CCP should determine the amount and regularly test the sufficiency of its total financial resources through stress testing. A CCP should also conduct reverse stress tests, as appropriate, to test how severe stress conditions would be covered by its total financial resources. Because initial margin is a key component of a CCP's total financial resources, a CCP should also test the adequacy of its initial margin

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34— Prefunded default arrangements for loss mutualisation and other pooling of resources arrangements involve trade-offs that a CCP should carefully assess and balance. For example, a CCP may be able to protect itself against defaults in extreme conditions more efficiently using pooled resources, as the costs are shared among participants. The lower cost provides an incentive to increase the available financial resources so that the CCP is more financially secure. The pooling of resources, however, also increases the interdependencies among participants. The proportion of assets used to absorb a default that is pooled across participants versus the proportion that is segregated, such as margins, should balance the safety and soundness of the CCP against the increased interdependencies among participants in order to minimise systemic risk.

35— Other resources may be used in place of initial margin; however, these resources should be prefunded and of equivalent or stronger quality in comparison to prudently designed margin arrangements.

36— This concept parallels the technical definition of potential future exposure as a risk measure. See footnote 22.



requirements and model through backtesting and sensitivity analysis, respectively (see Principle 6 for further discussion on testing of the initial margin requirements and model):

3.4.21.—Stress testing. A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP's required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP's participants increases significantly. A full validation of a CCP's risk management model should be performed at least annually.<sup>37</sup>

3.4.22.—In conducting stress testing, a CCP should consider a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods.<sup>38</sup> Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.<sup>39</sup> Extreme but plausible conditions should not be considered a fixed set of conditions, but rather, conditions that evolve. Stress tests should quickly incorporate emerging risks and changes in market assumptions (for example, departures from usual patterns of co-movements in prices among the products a CCP clears).<sup>40</sup> A CCP proposing to clear new products should consider movements in prices of any relevant related products.

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

4.5. An FMI securities settlement facility 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 securities settlement facility. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI securities settlement facility may borrow from liquidity providers. These rules and procedures should also indicate the FMI securities settlement

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37—Although a CCP may use the results of stress testing to assess the validity of the stress scenarios, models, and underlying parameters and assumptions, these aspects should not be arbitrarily adjusted to control the adequacy of total financial resources. Stress scenarios, models, and underlying parameters and assumptions should be examined based on historical data of prices of cleared products and participants' positions and potential developments of these factors under extreme but plausible market conditions in the markets that the CCP serves. See paragraph 3.4.22.

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

39—See BCBS, *Principles for sound stress testing practices and supervision*, May 2009.

40—Dependence among exposures as well as between participants and exposures should be considered. If an FMI calculates exposures on a portfolio basis, then the dependence of the instruments within participants' portfolios needs to be stressed.

facility's process to replenish any financial resources that the FM securities settlement facility may employ during a stress event, so that the FM securities settlement facility can continue to operate in a safe and sound manner.

### Use of financial resources

4.5.1. ~~3.4.24.~~ The rules of an FMI securities settlement facility should expressly set out the waterfall, including the order and circumstances in which specific resources of the FM securities settlement facility can be used in a participant default (see ~~Principle 13~~ SSF Standard 11 on participant-default rules and procedures and ~~Principle 23~~ SSF Standard 18 on disclosure of rules, key policies and procedures, and market data). For the purposes of this ~~principle, an FMI Standard, a securities settlement facility~~ should not include as "available"/available' to cover credit losses from participant defaults those resources that are needed to cover current operating expenses, potential general business losses, or other losses from ~~other ancillary~~ activities in which the FM securities settlement facility is engaged (see ~~Principle 15~~ SSF Standard 1 on legal basis and SSF Standard 12 on general business risk). In addition, if an FMI securities settlement facility serves multiple markets (either in the same jurisdiction or multiple jurisdictions), its ability to use resources supplied by participants in one market to cover losses from a participant default in another market should have a sound legal basis, be clear to all participants, and avoid significant levels of contagion risk between markets and participants. The design of an FMI's securities settlement facility's stress tests should take into account the extent to which resources are pooled across markets in scenarios involving one or more participant defaults across several markets.

### Contingency planning for uncovered credit losses

4.5.2. ~~3.4.25.~~ In certain extreme circumstances, the post-liquidation value of the collateral and other financial resources that secure an FMI's securities settlement facility's credit exposures may not be sufficient to cover credit losses resulting from those exposures fully. An FMI securities settlement facility should analyse and plan for how it would address any uncovered credit losses. An FMI securities settlement facility 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 FM securities settlement facility. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI securities settlement facility may borrow from liquidity providers.<sup>41</sup> An FMI's securities settlement facility's rules and procedures should also indicate its process to replenish any financial resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

## Principle Standard 5: Collateral

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

### Explanatory note Guidance

3.5.1.—Collateralising any credit exposures protects an FMI securities settlement facility and, where relevant, its participants against potential losses in the event of a participant default (see ~~Principle~~ SSF Standard 4 on credit risk). Besides mitigating an FMI's securities settlement facility's own credit risk, the use of collateral can provide participants with incentives to manage the risks they pose to the FM securities

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

settlement facility or other participants. An FMI securities settlement facility should apply prudent haircuts to the value of the collateral to achieve a high degree of confidence that the liquidation value of the collateral will be greater than or equal to the obligation that the collateral secures in extreme but plausible market conditions.<sup>42</sup> Additionally, an FMI securities settlement facility should have the capacity to use the collateral promptly when needed.

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

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

5.1.2. 3.5.3.—Further, an FMI securities settlement facility should regularly adjust/review its requirements for acceptable collateral in accordance with changes in underlying risks. When evaluating types of collateral, an FMI securities settlement facility should consider potential delays in accessing the collateral due to the settlement conventions for transfers of the asset. In addition, participants should not be allowed to post their own debt or equity securities, or debt or equity of companies closely linked to them, as collateral.<sup>44</sup> More generally, an FMI securities settlement facility should mitigate specific wrong-way risk by limiting the acceptance of collateral that would likely lose value in the event that the participant providing the collateral defaults.<sup>45</sup> The FMI defaulted. The securities settlement facility should measure and monitor the correlation between a counterparty's creditworthiness and the collateral posted and take measures to mitigate the risks, for instance by setting more conservative haircuts.

5.1.3. 3.5.4.—If an FMI securities settlement facility plans to use assets held as collateral to secure liquidity facilities in the event of a participant default, the FMI securities settlement facility will also need to consider, in determining acceptable collateral, what will be acceptable as security to lenders offering liquidity facilities (see Principle 7 SSF Standard 6).

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

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<sup>42</sup>—The risk management methods of some FMIs may integrate the management of risk from participant positions with the risk from fluctuations in the value of collateral provided by participants.

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

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

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

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

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

5.3. A securities settlement facility should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.

5.3.1. 3.5.5.—To have adequate assurance of the collateral's value in the event of liquidation, an-FMI's securities settlement facility should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions. An-FMIA securities settlement facility should, at a minimum, mark its collateral to market daily. Haircuts should reflect the potential for asset values and liquidity to decline over the interval between their last revaluation and the time by which an-FMI's securities settlement facility can reasonably assume that the assets can be liquidated. Haircuts also should incorporate assumptions about collateral value during stressed market conditions and reflect regular stress testing that takes into account extreme price moves, as well as changes in market liquidity for the asset. If market prices do not fairly represent the true value of the assets, an-FMI's securities settlement facility should have the authority to exercise discretion in valuing assets according to predefined and transparent methods. An-FMI's A securities settlement facility's haircut procedures should be independently validated at least annually.<sup>46</sup>

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

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

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<sup>46</sup> Validation of the FMI's securities settlement facility's haircut procedures should be performed by personnel of sufficient expertise who are independent of the personnel that created and applied the haircut procedures. These expert personnel could be drawn from within the FMI's securities settlement facility. However, a review by personnel external to the FMI's securities settlement facility may also be necessary at times.

<sup>47</sup>— See also CGFS, *The role of margin requirements and haircuts in procyclicality*, March 2010.

~~FMI securities settlement facilities~~ and their participants in periods of low market stress because of higher collateral requirements, but result in additional protection and potentially less costly and less disruptive adjustments in periods of high market stress.

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

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

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

**5.6.1.** ~~3.5.8.~~ If ~~an FMI securities settlement facility accepts cross-border (or foreign)~~ collateral, it should identify and mitigate any additional risks associated with its use and ensure that it can be used in a timely manner.<sup>48</sup> A cross-border collateral arrangement can provide an efficient liquidity bridge across markets, help relax collateral constraints for some participants, and contribute to the efficiency of some asset markets. These linkages, however, can also create significant interdependencies ~~between a securities settlement facility and other FMIs~~ and risks to ~~FMIs the securities settlement facility~~ that need to be evaluated and managed ~~by the affected FMIs~~ (see also ~~Principle 17 SSF Standard 14~~ on operational risk and ~~Principle 20 SSF Standard 17~~ on FMI links). For example, ~~an FMI securities settlement facility~~ should have appropriate legal and operational safeguards to ensure that it can use the cross-border collateral in a timely manner and should identify and address any significant liquidity effects. ~~An FMI securities settlement facility~~ also should consider foreign-exchange risk where collateral is denominated in a currency different from that in which the exposure arises, and set haircuts to address the additional risk to a high level of confidence. ~~The FMI the securities settlement facility~~ should have the capacity to address potential operational challenges of operating across borders, such as differences in time zones or operating hours of foreign ~~CSDs central securities depositories~~ or custodians.

**5.7.** ~~An FMI securities settlement facility~~ should use a collateral management system that is well-designed and operationally flexible.

### Collateral management systems

**5.7.1.** ~~3.5.9.~~ ~~An FMI securities settlement facility~~ should use a well-designed and operationally flexible collateral management system. Such a system should accommodate changes in the ongoing monitoring and management of collateral. ~~Where appropriate, the system should allow for the timely calculation and execution of margin calls, the management of margin call disputes, and the accurate daily reporting of levels of initial and variation margin. Further,~~ A collateral management system should track the extent of reuse of collateral (both cash and non-cash) and the rights of ~~an FMI securities settlement facility~~ to the collateral provided to it by its

<sup>48</sup> Cross-border collateral has at least one of the following foreign attributes: ~~(a) with respect to the country in which the securities settlement facility's operations are based;~~ the currency of denomination; ~~(b);~~ the jurisdiction in which the assets are located; ~~(c);~~ or ~~(e)~~ the jurisdiction in which the issuer is established.

counterparties. ~~An FMI's~~Where appropriate, a securities settlement facility's collateral management system should also have functionality to accommodate the timely deposit, withdrawal, substitution, and liquidation of collateral.~~An FMI in each jurisdiction in which it operates. In particular, where the scope of Australian participation in the securities settlement facility is material, and where market conventions dictate, a securities settlement facility's collateral management system should have the capacity to accommodate the timely deposit, withdrawal, substitution and liquidation of collateral during Australian market hours. A securities settlement facility~~ should allocate sufficient resources to its collateral management system to ensure an appropriate level of operational performance, efficiency, and effectiveness. Senior management should ensure that the ~~FMI's~~securities settlement facility's collateral management function is adequately staffed to ensure smooth operations, especially during times of market stress, and that all activities are tracked and reported, as appropriate, to senior management.<sup>49</sup>

## Reuse of collateral

5.7.2. ~~3.5.10.~~ Reuse of collateral refers to the ~~FMI's~~securities settlement facility's subsequent use of collateral that has been provided by participants in the normal course of business. This differs from the ~~FMI's~~securities settlement facility's use of collateral in a default scenario during which the defaulter's collateral, which has become the property of the ~~FMI~~securities settlement facility, can be used to access liquidity facilities or can be liquidated to cover losses (see ~~Principle 13~~SSF Standard 11 on participant-default rules and procedures). ~~An FMI's~~ securities settlement facility should have clear and transparent rules regarding the reuse of collateral (see ~~Principle 23~~SSF Standard 18 on disclosure of rules, key policies and procedures, and market data). In particular, the rules should clearly specify when ~~an FMI's~~ securities settlement facility may reuse its participant collateral and the process for returning that collateral to participants. In general, ~~an FMI's~~ securities settlement facility should not rely on the reuse of collateral as an instrument for increasing or maintaining its profitability. However, ~~an FMI's~~ securities settlement facility may invest any cash collateral received from participants on their behalf (see ~~Principle 16~~SSF Standard 13 on custody and investment risks).

## [The SSF Standards do not incorporate Principle 6 on margin]

### Principle ~~7~~Standard 6: Liquidity risk

~~An FMI's~~ securities settlement facility should effectively measure, monitor, and manage its liquidity risk. ~~An FMI's~~ securities settlement facility 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~~securities settlement facility in extreme but plausible market conditions.

#### Explanatory noteGuidance

*This Standard applies primarily to a securities settlement facility that assumes liquidity risk as principal, although it also places some obligations where the design of a securities settlement facility generates liquidity risk exposures for its participants. In general, a securities settlement facility operating in Australia would not be expected to assume liquidity risk as principal. The design of the securities settlement facility and the scope of its activities should minimise the potential for such risk to arise. In the event that it did assume liquidity risk as principal, the facility should consult with the Reserve Bank to identify clearly the circumstances in which such risk was assumed.*

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

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

~~6.1.~~ ~~An FMI securities settlement facility~~ should have a robust framework to manage its liquidity risks from its participants, ~~commercial bank money settlement agents~~ settlement banks, nostro agents, custodian ~~banks~~, liquidity providers, and other entities.

### Sources of liquidity risk

~~6.1.1.~~ ~~3.7.2.~~—~~An FMI securities settlement facility~~ should clearly identify its sources of liquidity risk and assess its current and potential future liquidity needs on a daily basis. ~~An FMI securities settlement facility~~ can face liquidity risk from the default of a participant. For example, if ~~an FMI securities settlement facility~~ extends intraday credit, implicitly or explicitly, to participants, such credit, even when fully collateralised, may create liquidity pressure in the event of a participant default. The ~~FMI securities settlement facility~~ might not be able to convert ~~quickly~~ the defaulting participant's collateral into cash at short notice. ~~If an FMI does not have sufficient cash to meet all of its payment obligations to participants, there will be a settlement failure.~~ ~~An FMI securities settlement facility~~ can also face liquidity risk from ~~its any commercial bank money settlement banks~~ agents, nostro agents, custodian ~~banks~~, and liquidity providers, as well as linked FMIs and service providers, if they fail to perform as expected. Moreover, as noted above, ~~an FMI securities settlement facility~~ may face additional risk from entities that have multiple roles within the ~~FMI securities settlement facility~~ (for example, a participant that also serves as the ~~FMI's securities settlement bank~~ facility's money settlement agent or liquidity provider). These interdependencies and the multiple roles that an entity may ~~serve~~ assume within ~~an FMI securities settlement facility~~ should be taken into account by the ~~FMI~~. ~~3.7.3.~~—~~An FMI securities settlement facility~~. A ~~securities settlement facility~~ that employs a ~~deferred net settlement~~ (DNS) mechanism may ~~also~~ create direct liquidity exposures between participants. ~~For example, in a payment system that uses a multilateral net settlement mechanism, participants may face liquidity exposures to each other if one of the participants fails to meet its obligations. Similarly, in an SSS~~ In a ~~securities settlement facility~~ that uses a DvP model 2 or 3 settlement mechanism and does not guarantee settlement, participants may face liquidity exposures to each other if one of the participants fails to meet its obligations (see SSF Standard 10 on exchange-of-value settlement systems).<sup>50</sup> ~~A long-standing concern is that these types of systems may address a potential settlement failure by unwinding transfers involving the~~

<sup>50</sup>—See also Annex D on summary of designs of payment systems, SSSs, and CCPs, and CPSS, *Delivery versus payment in securities settlement systems*, September 1992.

~~defaulting participant.<sup>51</sup> An unwind imposes liquidity pressures (and, potentially, replacement costs) on the non-defaulting participants. If all such transfers must be deleted, and if the unwind occurs at a time when money markets and securities lending markets are illiquid (for example, at or near the end of the day), the remaining participants could be confronted with shortfalls of funds or securities that would be extremely difficult to cover. The potential total liquidity pressure of unwinding could be equal to the gross value of the netted transactions.~~

## Managing liquidity risk

~~6.1.2. 3.7.6.— An FMI securities settlement facility should also~~ regularly assess its design and operations to manage, ~~and where possible reduce,~~ liquidity risk in the system. ~~An FMI securities settlement facility~~ that employs a DNS mechanism may be able to reduce its or its participants' liquidity risk by using alternative settlement designs, such as ~~new real-time gross settlement (RTGS)~~ designs with liquidity-saving features or a continuous or extremely frequent batch settlement system: ~~(see SSF Standard 10 on exchange-of-value systems)~~. In addition, it could reduce the liquidity demands of its participants by providing participants with sufficient information or control systems to help them manage their liquidity needs and risks. Furthermore, ~~an FMI securities settlement facility~~ should ensure that it is operationally ready to manage the liquidity risk caused by participants' or other entities' financial or operational problems. Among other things, ~~the FMI securities settlement facility that does not settle its funds obligations directly in central bank money (see SSF Standard 9 on money settlements)~~ should have the operational capacity to reroute payments, where feasible, on a timely basis in case of problems with a correspondent bank.

~~6.1.3. 3.7.7.— An FMI has A securities settlement facility may use~~ other risk-management tools ~~that it can use~~ to manage its ~~or, where relevant, its participants'~~ liquidity risk. ~~To mitigate and manage liquidity risk stemming from a participant default, an FMI could use, either individually or in combination, exposure limits, collateral requirements, and prefunded default arrangements. For instance,~~ to mitigate and manage liquidity risks from the late-day submission of payments or other transactions, ~~an FMI securities settlement facility~~ could adopt rules or financial incentives for timely submission. ~~And~~ to mitigate and manage liquidity risk stemming from a service provider or a linked FMI, ~~an FMI securities settlement facility~~ could use, individually or in combination, selection criteria, concentration or exposure limits, and collateral requirements. For example, ~~an FMI securities settlement facility~~ should seek to manage or diversify its settlement flows and liquid resources to avoid excessive intraday or overnight exposure to one entity. This, however, may involve trade-offs between the efficiency of relying on an entity and the risks of being overly dependent on that entity. ~~These tools are often also used by an FMI to manage its credit risk.~~

~~6.2. An FMI securities settlement facility~~ 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.

~~6.2.1. 3.7.4.— An FMI securities settlement facility~~ 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 any~~ use of intraday liquidity. In particular, ~~an FMI securities settlement facility~~ should understand and assess the value and concentration of its daily settlement and funding flows through ~~its any money~~ settlement ~~banks agents~~, nostro agents, and other intermediaries. ~~An FMI securities settlement facility~~ also should be able to monitor on a daily basis the level of liquid assets (such as cash, securities, other assets held in custody, and investments) that it holds. ~~An FMI securities settlement facility~~ should be able to determine the value of its available liquid assets, taking into account the appropriate haircuts

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<sup>51</sup>—Unwinding involves deleting some or all of the defaulting participant's provisional funds transfers and, in an SSS, securities transfers and then recalculating the settlement obligations of the other participants.



on those assets (see ~~Principle 5 on collateral and Principle 6 on margin~~). SSF Standard 5 on collateral).

~~6.2.2.~~ In a DNS system, ~~the FMI's securities settlement facility~~ should provide sufficient information and analytical tools to help its participants measure and monitor their liquidity risks in the ~~FMI's securities settlement facility~~. As part of this, the securities settlement facility should ensure that all participants understand how their settlement obligations might change in the event that a participant (or its settlement bank) failed to meet its funding obligations and the securities settlement facility had to recalculate other participants' obligations in a multilateral net settlement batch.

~~6.2.3.~~ 3.7.5.—If an FMI's securities settlement facility maintains prearranged funding arrangements, the FMI's securities settlement facility should also identify, measure, and monitor its liquidity risk from the liquidity providers of those arrangements. An FMI's securities settlement facility should obtain a high degree of confidence through rigorous due diligence that each liquidity provider, whether or not it is a participant in the FMI's securities settlement facility, would have the capacity to perform as required under the liquidity arrangement and is subject to commensurate regulation, supervision, or oversight of its liquidity risk-management requirements. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, the liquidity provider's potential access to credit from the relevant central bank may be taken into account.

~~6.3.~~ A payment system or SSSA securities settlement facility, 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.

~~6.3.1.~~ 3.7.8—An FMI's securities settlement facility should ensure that it has sufficient liquid resources, as determined by regular and rigorous stress testing, to effect settlement of any payment obligations that it faces as principal with a high degree of confidence under a wide range of potential stress scenarios. A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday or multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions. In some instances, a payment system or SSS securities settlement facility may need to have sufficient liquid resources to effect settlement of payment obligations over multiple days to account for any potential liquidation of collateral that is outlined in the FMI's securities settlement facility's participant-default procedures. (see SSF Standard 6.8 on liquidity stress testing).

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

**6.4.** For the purpose of meeting its minimum liquid resource requirement, ~~an FMI's a securities settlement facility'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 a securities settlement facility~~ has access to routine credit at the central bank of issue, the ~~FMI securities settlement facility~~ may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.

~~3.7.10.— For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If an FMI has access to routine credit at the central bank of issue, the FMI may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed. However, such access does not eliminate the need for sound risk management practices and adequate access to private sector liquidity resources.<sup>52</sup>~~

**6.5.** ~~An FMIA securities settlement facility~~ may supplement its qualifying liquid resources with other forms of liquid resources. If the ~~FMI securities settlement facility~~ does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if ~~an FMIA securities settlement facility~~ 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 FMIA securities settlement facility~~ should not assume the availability of emergency central bank credit as a part of its liquidity plan.

**6.5.1.** ~~3.7.11.— An FMI A securities settlement facility~~ may consider using ~~such non-qualifying liquid~~ resources within its liquidity risk management framework in advance of, or in addition to, using its qualifying liquid resources. This may be particularly beneficial where liquidity needs exceed qualifying liquid resources, where qualifying liquid resources can be preserved to cover a future default, or where using other liquid resources would cause less liquidity dislocation to the ~~FMI's participants and the financial system as a whole. Even if an FMI does not have access to routine central bank credit, it should take account of what collateral is typically accepted by the relevant central bank of issue, as such assets may be more likely to be liquid in stressed circumstances. In any case, an FMI should not assume the availability of emergency central bank credit as a part of its liquidity plan.~~ ~~securities settlement facility's participants and the financial system as a whole.~~

**6.6.** ~~An FMIA securities settlement facility~~ 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 securities settlement facility~~ or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. ~~An FMIA securities settlement facility~~ should regularly test its procedures for accessing its liquid resources at a liquidity provider.

~~3.7.12.— If an FMI has prearranged funding arrangements, the FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid~~

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<sup>52</sup>—The authority or authorities with primary responsibility for an FMI will assess the adequacy of an FMI's liquidity risk management procedures, considering the views of the central banks of issue in accordance with Responsibility E.

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

6.6.1. ~~3.7.13.~~ An FMIA securities settlement facility should have detailed procedures for using its liquid resources to complete settlement during a liquidity shortfall. An FMI's A securities settlement facility's procedures should clearly document the sequence for using each type of liquid resource (for example, the use of certain assets before prearranged funding arrangements). These procedures may include instructions for accessing cash deposits or overnight investments of cash deposits, executing same-day market transactions, or drawing on prearranged liquidity lines. ~~In addition, an FMI, including any pre-committed liquidity allocation mechanisms involving participants established under the securities settlement facility's rules. In addition, a securities settlement facility~~ should regularly test its procedures for accessing its liquid resources at a liquidity provider, including by activating and drawing down test amounts from committed credit facilities and by testing operational procedures for conducting same-day repos. A securities settlement facility should also adequately plan for the renewal of prearranged funding arrangements with liquidity providers in advance of their expiration.

6.7. An FMIA securities settlement facility with access to central bank accounts, payment services, or securities services should use these services, where practical, to enhance its management of liquidity risk.

6.7.1. If an FMIA securities settlement facility has access to central bank accounts, payment services, securities services, or collateral management services, it should use these services, where practical, to enhance its management of liquidity risk. Cash balances at the central bank of issue, for example, offer the highest liquidity (see Principle 9 SSF Standard 8 on money settlements).

6.8. An FMIA securities settlement facility should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMIA securities settlement facility should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI securities settlement facility and to use these results to evaluate the adequacy of, and adjust, its liquidity risk-management framework. In conducting stress testing, an FMIA securities settlement facility 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 securities settlement facility, include all entities that might pose material liquidity risks to the FMI securities settlement facility (such as commercial bank money settlement agents settlement banks, nostro agents, custodian banks custodians, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. In all cases, an FMIA securities settlement facility should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.

6.8.1. ~~3.7.15.~~ An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a

variety of extreme but plausible market conditions.<sup>53</sup> Scenarios should also consider the design and operation of the FMI, include all entities that might pose material liquidity risks to the FMI (such as settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. ~~An FMI~~ As part of a securities settlement facility's assessment of the sufficiency of its liquid resources through stress testing, it should also consider any strong inter-linkages or similar exposures between its participants, as well as the multiple roles that participants may play with respect to the risk management of the ~~FMI's~~ securities settlement facility, and assess the probability of multiple failures and the contagion effect among its participants that such failures may cause.

~~6.8.2.~~ ~~3.7.17. Frequency of stress testing.~~ Liquidity stress testing should be performed on a daily basis using standard and predetermined parameters and assumptions. In addition, on at least a monthly basis, ~~an FMI's~~ securities settlement facility should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for achieving the ~~FMI's~~ securities settlement facility's identified liquidity needs and resources in light of current and evolving market conditions. ~~An FMI's~~ securities settlement facility should perform stress testing more frequently when markets are unusually volatile, when they are less liquid, or when the size or concentration of positions held by its participants increases significantly. A full validation of ~~an FMI's~~ a securities settlement facility's liquidity risk-management model should be performed at least annually.

~~6.8.3.~~ ~~3.7.16. Reverse stress tests.~~ ~~An FMI's~~ securities settlement facility should also conduct, as appropriate, reverse stress tests aimed at identifying the extreme default scenarios and extreme market conditions for which the ~~FMI's~~ securities settlement facility's liquid resources would be insufficient. In other words, these tests identify how severe stress conditions would be covered by the ~~FMI's~~ securities settlement facility's liquid resources. ~~An FMI's~~ securities settlement facility should judge whether it would be prudent to prepare for these severe conditions and various combinations of factors influencing these conditions. Reverse stress tests require ~~an FMI's~~ securities settlement facility to model extreme market conditions that may go beyond what are considered extreme but plausible market conditions in order to help understand the sufficiency of liquid resources given the underlying assumptions modelled. Modelling very extreme market conditions can help ~~an FMI's~~ securities settlement facility determine the limits of its current model and resources; however, it requires the ~~FMI's~~ securities settlement facility to exercise judgment when modelling different markets and products. ~~An FMI's~~ securities settlement facility should develop hypothetical very extreme scenarios and market conditions tailored to the specific risks of the markets and of the products it serves. Reverse stress tests should be considered a helpful risk-management tool but they need not, necessarily, drive ~~an FMI's~~ a securities settlement facility's determination of the appropriate level of liquid resources.

~~6.9.~~ ~~An FMI's~~ securities settlement facility should establish explicit rules and procedures that enable the ~~FMI's~~ securities settlement facility 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~~ securities settlement facility'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.

~~6.9.1.~~ ~~3.7.18.~~ In certain extreme circumstances, the liquid resources of ~~an FMI's~~ securities settlement facility or its participants required under SSF Standard 6.3 may not be sufficient to meet the payment obligations of the ~~FMI's~~ securities settlement facility to its participants ~~or the payment obligations of participants to each other within the FMI.~~<sup>54</sup> In a stressed environment, for

<sup>53</sup>—See BCBS, *Principles for sound stress testing practices and supervision*, May 2009.

<sup>54</sup> These exceptional circumstances could arise from unforeseen operational problems or unanticipated rapid changes in market conditions.

example, normally liquid assets held by an FMIA securities settlement facility may prove not to be sufficiently liquid to obtain same-day funding, or the liquidation period may be longer than expected. An FMIA securities settlement facility should establish explicit rules and procedures that enable the FMI securities settlement facility 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 securities settlement facility'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.

**6.9.2.** 3.7.19—If an FMIA securities settlement facility allocates potentially uncovered liquidity shortfalls to its participants, the FMI securities settlement facility should have clear and transparent rules and procedures for the allocation of shortfalls. These procedures could involve a funding arrangement between the FMI securities settlement facility and its participants, the mutualisation of shortfalls among participants according to a clear and transparent formula, or the use of liquidity rationing (for example, reductions in payouts to participants). Any allocation rule or procedure must be discussed thoroughly with and communicated clearly to participants, as well as be consistent with participants' respective regulatory liquidity risk-management requirements. Furthermore, an FMIA securities settlement facility should consider and validate, through simulations and other techniques and through discussions with each participant, the potential impact on each participant of any such same-day allocation of liquidity risk and each participant's ability to bear proposed liquidity allocations.

## **Principle 8 Standard 7: Settlement finality**

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

### **Explanatory note Guidance**

**3.8.1.**—An FMIA securities settlement facility should be designed to provide clear and certain final settlement of payments, transfer instructions, or other obligations. Final settlement is defined as the irrevocable and unconditional transfer of an asset or financial instrument, or the discharge of an obligation by the FMI securities settlement facility or its participants in accordance with the terms of the underlying contract.<sup>55</sup> A payment, transfer instruction, or other obligation that an FMIA securities settlement facility accepts for settlement in accordance with its rules and procedures should be settled with finality on the intended value date.<sup>56</sup> ~~The value date is the day on which the payment, transfer instruction, or other obligation is due and the associated funds and securities are typically available to the receiving participant.~~<sup>57</sup> Completing final settlement by the end of the value date is important because deferring final settlement to the next -business day can create both credit and liquidity pressures for an FMI's securities settlement facility's participants and other stakeholders, and potentially be a source of systemic risk. Where necessary or preferable, an FMIA securities settlement facility should provide intraday or real-time settlement finality to reduce settlement risk. This will be necessary where transactions are settled through an intraday multilateral net batch or on a real-time basis.

**3.8.2.**—Although some FMI securities settlement facilities guarantee settlement, this principle Standard does not necessarily require an FMIA securities settlement facility to provide such a guarantee. Instead, this principle Standard requires FMI securities settlement facilities to clearly define the point at which the

<sup>55</sup> Final settlement (or settlement finality) is a legally defined moment. See also Principle 8 Standard 1 on legal basis.

<sup>56</sup> The value date of an FMI's securities settlement facility's settlement activity might not necessarily coincide with the exact calendar date if the FMI securities settlement facility introduces night-time settlement.

<sup>57</sup>— This principle is not intended to discourage an FMI from offering a facility for entering transaction details in advance of the value date.

settlement of a payment, transfer instruction, or other obligation is final, and to complete the settlement process no later than the end of the value date, and preferably earlier ~~in~~ on the value date. Similarly, this ~~principle~~Standard is not intended to eliminate fails to deliver in securities trades.<sup>58</sup> The occurrence of non-systemic amounts of such failures, although potentially undesirable, should not by itself be interpreted as a failure to satisfy this ~~principle~~.<sup>59</sup>Standard. However, ~~an FMI's~~ securities settlement facility should take steps to mitigate both the risks and the implications of such failures to deliver securities (see ~~Principle, in particular, SSF Standard 4~~ on credit risk, ~~Principle 7 and SSF Standard 6~~ on liquidity risk, ~~and other relevant principles~~).

~~7.1. An FMI's~~A securities settlement facility's rules and procedures should clearly define the point at which settlement is final.

~~7.1.1. 3.8.3.—~~An FMI'sA securities settlement facility's rules and procedures should clearly define the point at which settlement is final. A clear definition of when settlements are final also greatly assists in a resolution scenario such that the positions of the participant in resolution and other affected parties can be quickly ascertained.

~~7.1.2. 3.8.4.—~~An FMI'sA securities settlement facility's legal framework and rules generally determine finality. ~~For a transaction to be considered final,~~ the legal basis governing the ~~FMI's~~securities settlement facility, including ~~the relevant~~ insolvency law, must acknowledge the discharge of a payment, transfer instruction, or other obligation between the ~~FMI's~~securities settlement facility and system participants, or between or among participants, ~~for the transaction to be considered final.~~An FMI (see SSF Standard 1.5). ~~Where relevant, a securities settlement facility~~ should take reasonable steps to confirm the effectiveness of cross-border recognition and protection of cross-system settlement finality, especially when it is developing plans for recovery or orderly wind-down or providing ~~the Reserve Bank and other~~ relevant authorities ~~with~~ information relating to its resolvability. Because of the complexity of legal frameworks and system rules, particularly in the context of cross-border settlement where legal frameworks are not harmonised, a well-reasoned legal opinion is generally necessary to establish the point at which finality takes place (see also ~~Principle-SSF Standard 1~~ on legal basis).

~~7.2. An FMI~~The securities settlement facility 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 SSSA~~ securities settlement facility should consider adopting RTGS or multiple-batch processing during the settlement day.

## Same-day settlement

~~7.2.1. 3.8.5.—~~An FMI'sA securities settlement facility's processes should be designed to complete final settlement, at a minimum no later than the end of the value date. This means that any payment, transfer instruction, or other obligation that has been submitted to and accepted by ~~an FMI's~~ securities settlement facility in accordance with its risk-management ~~process~~ and other relevant acceptance criteria should be settled on the intended value date. ~~An FMI's~~ securities settlement facility that is not designed to provide final settlement on the value date (or same-day settlement) would not satisfy this ~~principle~~Standard, even if the transaction's settlement date is adjusted back to the value date after settlement. This is because, in most ~~of~~ such arrangements, there is no certainty that final settlement will occur on the value date as expected. Further, deferral of final settlement to the next -business day can entail overnight risk exposures. For example, if ~~an SSS or CCP's~~ securities settlement facility conducts its money settlements using instruments or arrangements that involve next-day settlement, a participant's default on its settlement obligations between the initiation and finality of settlement could pose significant credit and liquidity risks to the ~~FMI's~~securities settlement facility and its other participants.<sup>60</sup>

<sup>58</sup> These fails typically occur because of miscommunication between the counterparties, operational problems in the delivery of securities, or failure to acquire a specific security associated with the trade by a specific point in time.

<sup>59</sup> In certain markets, participants may have adopted the convention of rescheduling delivery until the trade finally settles.

<sup>60</sup> In most cases, next-day settlements over weekend periods involve multi-day settlement risk.

## Intraday settlement

~~7.2.2. 3.8.6.~~ Depending on the type of obligations that ~~an FMIA securities settlement facility~~ settles, the use of intraday settlement, either in multiple batches or in real time, may be necessary or desirable to reduce settlement risk.<sup>61</sup> ~~As such, some types of FMIs, such as LVPs and SSSs; Accordingly, a securities settlement facility~~ should consider adopting RTGS or multiple-batch settlement to complete final settlement intraday. ~~RTGS is the real-time settlement of payments, transfer instructions, or other obligations individually on a transaction-by-transaction basis. Batch settlement is the settlement of groups of payments, transfer instructions, or other obligations together at one or more discrete, often pre-specified times during the processing day.~~ With batch settlement, the time between the acceptance and final settlement of transactions should be kept short.<sup>62</sup> To speed up settlements, ~~an FMIA securities settlement facility~~ should encourage its participants to submit transactions promptly. To validate the finality of settlement, ~~an FMIA securities settlement facility~~ also should inform its participants of their final account balances and, where practical, settlement date and time as quickly as possible, preferably in real time.<sup>63</sup>

~~7.2.3. 3.8.7.~~ The use of multiple batch settlement and RTGS involves different trade-offs. Multiple-batch settlement based on a DNS mechanism, for example, may expose participants to settlement risks for the period during which settlement is deferred. These risks, if not sufficiently controlled, could result in the inability of one or more participants to meet their financial obligations. Best practice is for securities settlement facilities to provide real-time finality by settling individual transactions on an RTGS basis. Indeed, this is required under SSF Standard 10 where the trades settled by a securities settlement facility are individually large. ~~Conversely~~ However, while an RTGS system can mitigate or eliminate these settlement risks, it requires participants to have sufficient liquidity to cover all their outgoing payments and can therefore require relatively large amounts of intraday liquidity. This liquidity can come from various sources, including balances at a central bank or commercial bank, incoming payments, and intraday credit. An RTGS system may be able to reduce its liquidity needs by implementing a queuing facility or other liquidity-saving mechanisms.<sup>64</sup> ~~Where trade values are small, a securities settlement facility may alternatively utilise batch settlement (see SSF Standard 10 on exchange-of-value settlement systems). The use of multiple such batches reduces liquidity needs compared with an RTGS system, while limiting the build-up of exposures between participants that can occur under batch settlement.~~

~~7.3. An FMIA securities settlement facility~~ should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.

~~7.3.1. 3.8.8.~~ ~~An FMIA securities settlement facility~~ should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant. In general, ~~an FMIA securities settlement facility~~ should prohibit the unilateral revocation of accepted and unsettled payments, transfer instructions, or other obligations after a certain point or time in the settlement day, so as to avoid creating liquidity risks. In all cases, cutoff times and materiality rules for exceptions should be clearly defined. The rules should make clear that changes to operating hours are exceptional and require individual justifications. For example, ~~an FMIA securities settlement facility~~ may want to permit extensions for reasons connected ~~with the implementation of monetary policy or widespread~~ broader financial market disruption. If extensions are allowed for participants with operating problems to complete

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<sup>61</sup> For example, intraday or real-time finality is sometimes necessary for monetary policy or payments operations, settlement of back-to-back transactions, intraday margin calls by ~~CEPs~~ central counterparties, or safe and efficient cross-border links between ~~CSDs that perform settlement functions~~ central securities depositories

<sup>62</sup> Transactions, in certain circumstances, may be settled on a gross basis although through multiple batches during the operating day.

<sup>63</sup> Nominal value date might not necessarily coincide with local settlement date.

<sup>64</sup> See also CPSS, *New developments in large value payment systems*, May 2005.

processing, the rules governing the approval and duration of such extensions should be clear to participants.

## Principle 9 ~~Standard 8~~: Money settlements

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

### ~~Explanatory note~~ Guidance

~~3.9.1. — An FMI securities settlement facility typically needs to conduct money settlements with or between its participants for a variety of purposes, such as the settlement of individual payment obligations, and funding and defunding activities, and the collection and distribution of margin payments.<sup>65</sup> To conduct such money settlements, an FMI securities settlement facility can use central bank money or commercial bank money, or a combination of the two. Central bank money is a liability of a central bank, in this case in the form of deposits held at the central bank, which can be used for settlement purposes. Where individual payment obligations are settled in commercial bank money, exposures are typically created between commercial banks, which are ultimately settled in central bank money. A securities settlement facility may not specify how participants fund their obligations. However, the securities settlement facility, its participants, any commercial settlement banks and any commercial bank money settlement agents should take into account the risks associated with alternate money settlement arrangements.~~

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

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

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

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~~65 — It should be noted, however, that the settlement of payment obligations does not always require a transfer of monies; in some cases, an offsetting process can discharge obligations.~~



**8.1.** ~~An FMI securities settlement facility~~ should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.

**8.1.1.** ~~3.9.3.—An FMI should conduct its money settlements using central bank money, where practical and available, to avoid credit and liquidity risks.~~ With the use of central bank money, a payment obligation is typically discharged by providing the ~~FMI or securities settlement facility~~, its participants, ~~or its participants' commercial settlement banks~~, with a direct claim on the central bank; that is, the ~~relevant central bank is the money settlement agent, and the~~ settlement asset is central bank money. Central banks have the lowest credit risk and are the source of liquidity with regard to their currency of issue. ~~Indeed, one of the fundamental purposes of central banks is to provide a safe and liquid settlement asset. Where individual trade values are large, and settlement obligations arise in Australian dollars between participants, final settlement must occur across Exchange Settlement Accounts at the Reserve Bank. However,~~ the use of central bank money, ~~however,~~ may not always be practical or available. For example, ~~an FMI or its participants a securities settlement facility~~ may not have direct access to ~~all relevant~~ central bank accounts and payment services: ~~in all relevant jurisdictions~~. A multicurrency ~~FMI securities settlement facility~~ that has access to all relevant central bank accounts and payment services may find that some central bank payment services do not operate, or provide finality, at the times when it needs to make money settlements.

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

**8.2.1.** ~~3.9.4.—An alternative to the use of central bank money is commercial bank money. When settling in commercial bank money, a payment obligation is typically discharged by providing the FMI securities settlement facility or its participants with a direct claim on the relevant commercial bank money settlement agent. To conduct settlements in commercial bank money, an FMI securities settlement facility and its participants need to establish accounts with at least one commercial bank, and likely hold intraday or overnight balances, or both. The use of commercial bank money to settle payment obligations, however, can create additional credit and liquidity risks for the FMI securities settlement facility and its participants. For example, if the commercial bank conducting money settlement becomes agent became insolvent, the FMI securities settlement facility and its participants may not have immediate access to their settlement funds or ultimately receive the full value of their funds. It also creates operational dependencies on the relevant commercial bank(s).~~

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

**8.3.1.** ~~3.9.5.—If an FMI securities settlement facility uses a commercial bank money settlement agent (or a non-bank deposit-taking institution) for its money settlements, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement bank this arrangement. For example, an FMI securities settlement facility should limit both the probability of being exposed to a commercial settlement the bank's failure and limit the potential losses and liquidity pressures to which it would be exposed in the event of such a failure. An FMI securities settlement facility should establish and monitor adherence to strict criteria for its commercial bank money settlement banks agents that take into account, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. Under these criteria, a commercial bank money settlement~~

**bank agent** should be subject to effective banking regulation and supervision. It should also be creditworthy, be well capitalised, and have ample liquidity from the marketplace or the central bank of issue. Where money settlements take place in Australian dollars, a securities settlement facility should only utilise an authorised deposit-taking institution (ADI) that holds an Exchange Settlement Account at the Reserve Bank and has been approved to act as an agent for RTGS payments by the Australian Prudential Regulation Authority.

**8.3.2.** ~~3.9.6. In addition, an FMI should take further steps to limit its credit exposures and liquidity pressures by diversifying the risk of a commercial settlement bank failure, where reasonable, through use of multiple commercial settlement banks. In some jurisdictions, however, there may be only one commercial settlement bank that meets appropriate criteria for creditworthiness and operational reliability. Additionally, even with multiple commercial settlement banks, the extent to which risk is actually diversified depends upon the distribution or concentration of participants using different commercial settlement banks and the amounts owed by those participants.<sup>66</sup> Even where ultimate settlement occurs in central bank money, many participants in a securities settlement facility may not have direct access to accounts with the relevant central bank. They will therefore typically use the services of commercial settlement banks to effect money settlements or carry out funding and defunding activities. These commercial settlement banks play an important role in the smooth functioning of the settlement process and therefore the securities settlement facility should establish similar criteria to those described in paragraph 8.3.1 around their financial and operational capacity to fulfil this role (see also SSF Standard 11 on participant-default rules and procedures).~~

**8.3.3.** ~~An FMI~~In addition, a securities settlement facility should monitor and manage the ~~full range and concentration of exposures to its and its commercial settlement banks~~participants' credit and liquidity exposures to commercial bank money settlement agents and commercial settlement banks. The securities settlement facility should consider the diversification of its and its participants' exposures to commercial banks in the settlement process and assess its potential losses and liquidity pressures as well as those of its participants in the event ~~that the of the failure of a commercial bank money settlement agent or commercial settlement bank with the largest share of activity were to fail.~~(see also SSF Standard 16 on tiered participation arrangements).

**8.4.** ~~If an FMI~~If a securities settlement facility conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks.

**8.4.1.** ~~3.9.7. If money settlement does not occur in central bank money and the FMI conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks. In such an arrangement, an FMI~~Where a securities settlement facility conducts money settlements on its own books, it offers cash accounts to its participants, and a payment or settlement obligation is discharged by providing ~~an FMI's~~a securities settlement facility's participants with a direct claim on the ~~FMI's~~securities settlement facility itself. The credit and liquidity risks associated with a claim on ~~an FMI's~~a securities settlement facility are therefore directly related to the ~~FMI's~~securities settlement facility's overall credit and liquidity risks. ~~One way an FMI could~~A securities settlement facility should look to minimise these risks ~~is to limit by limiting~~its activities and operations to clearing and settlement and closely related processes: (see SSF Standard 1.1). Further, to settle payment obligations, the ~~FMI's~~securities settlement facility could be established as a supervised special-purpose financial institution and limit the provision of cash accounts to ~~only~~participants.<sup>67</sup> In some cases, ~~an FMI's~~a securities settlement facility can further mitigate risk by having participants fund and defund their cash accounts at

<sup>66</sup>—The concentration of an FMI's exposure to a commercial settlement bank can be further exacerbated if the commercial settlement bank has multiple roles with respect to the FMI. For example, an FMI may use a particular commercial settlement bank that is also a participant in the FMI for depositing and investing funds, for depositing and transferring securities, and for back-up liquidity resources. See Principle 7 on liquidity risk.

<sup>67</sup>—Depending on local laws, these special-purpose institutions would generally be required to have banking licenses and be subject to prudential supervision.

the FMI securities settlement facility using central bank money. In such an arrangement, an FMI securities settlement facility is able to back the settlements conducted on its own books with balances that it holds in its account at the central bank.

**8.5.** An FMI's securities settlement facility's legal agreements with any commercial bank money settlement agents, and participants' agreements with commercial settlement banks, should state clearly when transfers on the books of the relevant commercial bank~~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 securities settlement facility and its participants to manage credit and liquidity risks.

**8.5.1.** ~~3.9.8.~~—In settlements involving either central bank or commercial bank money, a critical issue is the timing of the finality of funds transfers. These transfers should be final when effected (see also Principle 8 SSF Standard 1 on legal basis and Principle 8 SSF Standard 7 on settlement finality). To this end, an FMI's securities settlement facility's legal agreements with any settlement banks~~should state clearly when transfers on the books of individual commercial bank money settlement banks are expected to occur, that transfers are to be final when effected, and that agent should contain clear provisions regarding the finality of funds received~~ transfers. The securities settlement facility should ~~be transferable as soon as possible, at a minimum by~~ communicate the effect of the day and ideally intraday, in order to enable the FMI and its ~~these provisions to~~ participants ~~to manage credit and liquidity risks.~~ Participants' legal agreements with commercial settlement banks should similarly provide clarity in relation to these matters. If an FMI securities settlement facility conducts intraday money settlements ~~(for example, to collect intraday margin)~~, the arrangement should provide real-time finality or intraday finality at the times when an FMI securities settlement facility wishes to effect money settlement.

## [The SSF Standards do not incorporate Principle 10 on physical deliveries]

### **Principle 11 Standard 9: Central securities depositories**

A CSDA securities settlement facility operating a central securities depository 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 CSDA securities settlement facility operating a central securities depository should maintain securities in an immobilised or dematerialised form for their transfer by book entry.

#### Explanatory note Guidance

~~3.11.1.~~—A CSD is an entity that provides securities accounts and, in many countries, operates an SSS. A CSD also provides A securities settlement facility may operate a central securities depository. A central securities depository provides securities accounts, central safekeeping and asset services, which may include the administration of corporate actions and redemptions, and plays an important role in helping to ensure the integrity of securities issues.<sup>68</sup> Securities can be held at the CSD central securities depository either in physical (but immobilised) form or in dematerialised form (that is, as electronic records). The precise activities of a CSD central securities depository vary based on its jurisdiction and market practices. A CSDA central securities depository, for example, may be the official securities registrar and maintain the definitive record of legal ownership for a security; however, in some cases, another entity may serve as the official securities registrar. Further, the activities of a CSD central securities depository may vary depending on whether it operates in a jurisdiction with a direct or indirect holding arrangement or a combination of

<sup>68</sup>—Where an entity legally defined as a CSD or an SSS does not hold or facilitate the holding of assets or collateral owned by their participants, the CSD or SSS in general would not be required to have arrangements to manage the safekeeping of such assets or collateral.

both.<sup>69</sup> ~~A CSDA central securities depository~~ should have clear and comprehensive rules and procedures to ensure that the securities it holds on behalf of its participants are appropriately accounted for on its books and protected from risks associated with the other services that the ~~CSD~~central securities depository may provide.

9.1. ~~A CSDA securities settlement facility operating a central securities depository~~ 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. These rules and procedures should:

- (a) identify the type of title or interest held by participants for particular securities, to the extent such title or interest is recognised by the facility's rules and procedures;
- (b) clearly identify the way in which the transfer of (or any other forms of dealing with) securities and related payments can be effected through the facility; and
- (c) ensure that, to the extent permissible by law, the creditors of the operator of the securities settlement facility have no claim over securities or other assets held, deposited or registered by participants in the facility.

9.1.1. ~~3.11.2.~~ The preservation of the rights of issuers and holders of securities is essential for the orderly functioning of a securities market. ~~Therefore, a CSD should employ appropriate rules, procedures, and controls 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 the securities issues that it maintains. A CSD~~The rules and contractual arrangements of a securities settlement facility that operates a central securities depository that relate to title to securities should ensure that the securities settlement facility and its participants have a high degree of certainty regarding their rights and interests in securities held and recognised by the facility. The legal arrangements put in place by the facility should clearly state the title or interest held by participants. This Standard does not require that the securities settlement facility's rules address all forms of title, interest or dealing available, merely those it purports to recognise.

9.1.2. A securities settlement facility should, in particular, maintain robust accounting practices and perform end-to-end auditing to verify that its records are accurate and provide a complete accounting of its securities issues. If a ~~CSD~~securities settlement facility records the issuance of securities (alone or in conjunction with other entities), it should verify and account for the initial issuance of securities and ensure that newly issued securities are delivered in a timely manner. To further safeguard the integrity of the securities issues, a ~~CSD~~securities settlement facility operating a central securities depository should conduct periodic and at least daily reconciliation of the totals of securities issues ~~in the CSD~~it records for each issuer (or its issuing agent), and ensure that the total number of securities recorded ~~in the CSD~~ for a particular issue is equal to the amount of securities of that issue held on the ~~CSD's~~securities settlement facility's books. Reconciliation may require coordination with other entities if the ~~CSD~~securities settlement facility does not (or does not exclusively) record the issuance of the security or is not the official registrar of the security. For instance, if the issuer (or its issuing agent) is the only entity that can verify the total amount of an individual issue, it is important that the ~~CSD~~securities settlement facility and the issuer cooperate closely to ensure that the securities in circulation in a system correspond to the volume issued into that system. If the ~~CSD~~securities settlement facility is not the official securities registrar for the securities issuer, reconciliation with the official securities registrar ~~should be~~is required.

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<sup>69</sup> In a direct holding system, each beneficial or direct owner of the security is known to the ~~CSD~~central securities depository or the issuer. ~~In some countries, the use of direct holding systems is required by law.~~ Alternatively, an indirect holding system employs a multi-tiered arrangement for the custody and transfer of ownership of securities (or the transfer of similar interests therein) in which investors are identified only at the level of their custodian or intermediary. In either system, the shareholder list may be maintained by the issuer, ~~CSD~~central securities depository, securities registrar, or transfer agent.

- 9.1.3. The procedures of a securities settlement facility that operates a central securities depository should address the legal and operational mechanisms governing the transfer of title or interests between participants. The mechanisms for transfer should ensure that participants know with a high degree of certainty the timing of transfers, and the role of encumbrances, where relevant. Further, custody records should not be affected by any operational failure. Sufficient backup arrangements should be in place to ensure records are not lost even under extreme circumstances, and that they can be accessed in a reasonably timely fashion.
- 9.1.4. The rules and arrangements relating to title to securities should ensure an effective separation between the assets of the securities settlement facility and assets that the facility holds on behalf of its participants through its operation of a central securities depository. In the event of a securities settlement facility's insolvency, participants should have a high degree of certainty that securities held by the facility are immune from the claims of the securities settlement facility's creditors. Furthermore, effective separation will allow the transfer of assets from the insolvent securities settlement facility to participants or to an alternative securities settlement facility.
- 9.2. A CSD securities settlement facility operating a central securities depository should prohibit overdrafts and debit balances in securities accounts.
- 9.2.1. ~~3.11.3.~~ A CSDA securities settlement facility operating a central securities depository should prohibit overdrafts and debit balances in securities accounts to avoid credit risk and reduce the potential for the creation of securities. If a CSD securities settlement facility were to allow overdrafts or a debit balance in a participant's securities account in order to credit another participant's securities account, a CSD the securities settlement facility would effectively be creating securities and would affect the integrity of the securities issue.
- 9.3. ~~A CSDA securities settlement facility operating a central securities depository~~ should maintain securities in an immobilised or dematerialised form for their transfer by book entry. Where appropriate, a CSD securities settlement facility operating a central securities depository should provide incentives to immobilise or dematerialise securities.
- 9.3.1. ~~3.11.4.~~ A securities settlement facility can maintain securities in physical form or dematerialised form.<sup>70</sup> Securities held in physical form may be transferred via physical delivery or immobilised and transferred via book entry.<sup>71</sup> The safekeeping and transferring of securities in physical form, however, creates additional risks and costs, such as the risk of destruction or theft of certificates, increased processing costs, and increased time to clear and settle securities transactions. By immobilising securities and transferring them via book entry, a CSD securities settlement facility can improve efficiency through increased automation and reduce the risk of errors and delays in processing.<sup>72</sup> Dematerialising securities also eliminates the risk of destruction or theft of certificates. ~~A CSD~~Where possible, a securities settlement facility should therefore maintain securities in an immobilised or dematerialised form and transfer securities via book entry.<sup>73</sup> To facilitate the immobilisation of all physical securities of a particular issue, a global note representing the whole issue can be issued. In certain cases, however, immobilisation or dematerialisation within a CSD central securities depository operated by a securities settlement facility may not be legally possible or practicable. Legal requirements, for example, may limit the possible implementation or extent of immobilisation and dematerialisation. In such cases, a CSD securities settlement facility should provide incentives to immobilise or dematerialise securities.<sup>74</sup>

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<sup>70</sup>—Dematerialisation involves the elimination of physical certificates or documents of title that represent ownership of securities so that securities exist only as accounting records.

<sup>71</sup>—Immobilisation involves concentrating the location of securities in a depository and transferring ownership by book entry.

<sup>72</sup>—Improved efficiency through book-entry settlement also may support the development of more-liquid securities markets.

<sup>73</sup> Book-entry transfers also facilitate the settlement of securities through a DvP mechanism, thereby reducing or eliminating principal risk in settlement (see also [Principle 12 SSF Standard 10](#) on exchange-of-value settlement systems).

<sup>74</sup>—In addition, the relevant authorities will have a role in providing the necessary framework to support immobilisation or dematerialisation.

- 9.4. ~~A CSD~~ a securities settlement facility operating a central securities depository should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.
- 9.4.1. ~~3.11.5. A securities settlement facility~~ should protect assets against custody risk, including the risk of loss because of the ~~CSD's securities settlement facility's~~ negligence, misuse of assets, fraud, poor administration, inadequate recordkeeping, or failure to protect a participant's interests in securities or because of the ~~CSD's securities settlement facility's~~ insolvency or claims by the ~~CSD's securities settlement facility's~~ creditors. A ~~CSD securities settlement facility~~ should have rules and procedures consistent with its legal framework and robust internal controls to achieve these objectives.<sup>75</sup> Where appropriate, a ~~CSD securities settlement facility~~ should consider insurance or other compensation schemes to protect participants against misappropriation, destruction, and theft of securities.
- 9.5. A ~~CSD securities settlement facility operating a central securities depository~~ 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 a securities settlement facility operating a central securities depository~~ 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.
- 9.5.1. ~~3.11.6. A securities settlement facility that operates a central securities depository should employ a robust system that ensures the segregation of its own assets~~ from the securities belonging to its participants. In addition, the ~~CSD securities settlement facility~~ should segregate participants' securities from those of other participants through the provision of separate accounts. While the title to securities is typically held in ~~a CSD securities settlement facility (as operator of a central securities depository)~~, often the beneficial owner, or the owner depending on the legal framework, of the securities does not participate directly in the system. Rather, the owner establishes relationships with ~~CSD the securities settlement facility's~~ participants (or other intermediaries) that provide safekeeping and administrative services related to the holding and transfer of securities on behalf of customers. Where supported by the legal framework, a ~~CSD securities settlement facility~~ also should support operationally the segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings to another participant.<sup>76</sup> Where relevant, the segregation of accounts typically helps provide appropriate protection against the claims of ~~a CSD's securities settlement facility's~~ creditors or the claims of the creditors of a participant in the event of its insolvency.
- 9.6. A ~~CSD securities settlement facility operating a central securities depository~~ 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.
- 9.6.1. ~~3.11.7. If a CSD provides services other than~~ Since a securities settlement facility operating a central securities depository will typically provide services ancillary to central safekeeping and administration of securities, it should identify, measure, monitor, and manage the risks associated with those activities, particularly any credit and liquidity risks, consistent with the ~~respective principles in this report. Additional tools may be necessary to address these risks, including the need for the FMI to separate legally the other activities.~~ SSF Standards. For example, subject to SSF Standard 1.1, a CSD that operates an SSS securities settlement facility may provide a centralised securities lending facility to help facilitate timely settlement and reduce settlement fails, or may otherwise offer services that support the bilateral securities lending market. If the ~~CSD securities settlement facility~~ acts as a principal in a securities lending transaction, it should identify, monitor, and manage its risks, including potential credit and

<sup>75</sup>—The relevant authorities will have a role in providing the necessary framework to protect the CSD's participants' and their customers' assets.

<sup>76</sup> The customer's rights and interests to the securities held by the participant or the ~~CSD securities settlement facility operating the central securities depository~~ will depend upon the applicable legal framework. In some jurisdictions, a ~~CSD securities settlement facility~~ may be required to maintain records that would facilitate the identification of customer securities regardless of the type of holding system in effect.

liquidity risks, under the conditions set in [PrinciplesSSF Standard 4 on credit risk](#) and [7-SSF Standard 6 on liquidity risk](#). For example, the securities lent by the [ESDsecurities settlement facility](#) may not be returned when needed because of a counterparty default, operational failure, or legal challenge. The [ESDsecurities settlement facility](#) would then need to acquire the lent securities in the market, perhaps at a cost, thus exposing the [ESDsecurities settlement facility](#) to credit and liquidity risks.<sup>77</sup>

## **Principle 12 Standard 10: Exchange-of-value settlement systems**

[If an FMHf a securities settlement facility](#) 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.

### **Explanatory note Guidance**

**3.12.1.**—The settlement of a financial transaction by [an FMHf a securities settlement facility](#) may involve the settlement of two linked obligations, such as the delivery of securities against payment of cash or securities or the delivery of one currency against delivery of another currency.<sup>78</sup> In this context, principal risk may be created when one obligation is settled, but the other obligation is not (for example, the securities are delivered but no cash payment is received). Because this principal risk involves the full value of the transaction, substantial credit losses as well as substantial liquidity pressures may result from the default of a counterparty or, more generally, the failure to complete the settlement of both linked obligations. Further, a settlement default could result in high replacement costs (that is, the unrealised gain on the unsettled contract or the cost of replacing the original contract at market prices that may be changing rapidly during periods of stress). [An FMHf a securities settlement facility](#) should eliminate or mitigate these risks through the use of a DvP, DvD, or Pvp settlement mechanism.<sup>79</sup>

**10.1.** [An FMHf a securities settlement facility](#) 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 [FMHf securities settlement facility](#) settles on a gross or net basis and when finality occurs.

**10.1.1.** **3.12.2.** [An FMHf a securities settlement facility](#) that is an exchange-of-value settlement system should eliminate principal risk by linking the final settlement of one obligation to the final settlement of the other through an appropriate DvP, DvD, or Pvp settlement mechanism (see also [PrinciplesSSF Standard 4 on credit risk](#), [Principle 7-SSF Standard 6 on liquidity risk](#), and [Principle 8-SSF Standard 7 on settlement finality](#)). DvP, DvD, and Pvp settlement mechanisms eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation occurs. [If an FMHf a securities settlement facility](#) effects settlements using a DvP, DvD, or Pvp settlement mechanism, it should settle a high percentage of obligations through that mechanism. In the securities market, for example, a DvP settlement mechanism is a mechanism that links a securities transfer and a funds transfer in such a way as to ensure that delivery occurs if and only if the corresponding payment occurs.<sup>80</sup> [DvP. Similarly, a Pvp settlement mechanism is a mechanism which ensures that the final transfer of a payment in one currency occurs if and only if the final transfer of a payment in another](#)

<sup>77</sup>—See also CPSS, *Strengthening repo clearing and settlement arrangements*, September 2010.

<sup>78</sup> In some cases, the settlement of a transaction can be free of payment, for example, for the purposes of pledging collateral and repositioning securities. The settlement of a transaction may also involve more than two linked obligations, for example, for the purposes of some collateral substitutions where there are multiple securities or for premium payments related to securities lending in two currencies. These cases are not inconsistent with this [principleStandard](#).

<sup>79</sup> While DvP, DvD, and Pvp settlement mechanisms eliminate principal risk, they do not eliminate the risk that the failure of a participant could result in systemic disruptions, including liquidity dislocations.

<sup>80</sup>—Similarly, a Pvp settlement mechanism is a mechanism which ensures that the final transfer of a payment in one currency occurs if and only if the final transfer of a payment in another currency or currencies takes place. A DvD settlement mechanism is a securities settlement mechanism which links two or more securities transfers in such a way as to ensure that delivery of one security occurs if and only if the corresponding delivery of the other security or securities occurs.

currency or currencies takes place, and a DvD settlement mechanism is a securities settlement mechanism which links two or more securities transfers in such a way as to ensure that delivery of one security occurs if and only if the corresponding delivery of the other security or securities occurs.

10.1.2. A securities settlement facility should eliminate or mitigate credit risk by appropriate system design. This requires that the facility's rules and procedures ensure that settlement of transactions in the facility occurs on a DvP basis. DvP (or PvP or DvD) can and should be achieved for both the primary and secondary markets. The settlement of two obligations can be achieved in several ways and varies by how trades or obligations are settled, either on a gross basis (trade-by-trade) or on a net basis, and the timing of when finality occurs.

10.2. Where individual trade values are large, a securities settlement facility that is an exchange-of-value settlement system should eliminate principal risk by providing for contemporaneous real-time gross settlement of linked obligations. However, where trade values are small, a securities settlement facility that is an exchange-of-value settlement system may alternatively provide for contemporaneous settlement of linked obligations in a multilateral net batch. Only where trade values are small, and where operational requirements necessitate, may linked obligations settle non-contemporaneously.

10.2.1. 3.12.3. The final settlement of two linked obligations can be achieved either on a gross basis or on a net basis.<sup>81</sup> For example, an SSS Typically, exchange-of-value settlement can settle be achieved in one of three ways:

- where the final transfers of both payment and/or securities and funds between trade counterparties required to extinguish linked obligations occur contemporaneously and on a gross trade-by-trade basis throughout the settlement day. Alternatively, an SSS can settle in real time (i.e. DvP model 1)
- where final securities transfers are settled on a gross trade-by-trade basis throughout the day but settle funds in real time, with final payment transfers settled on a multilateral net basis at the end of the day or at certain times during the day. An SSS can also settle both processing cycle (i.e. DvP model 2)<sup>82</sup>
- where both final securities and funds transfers and/or final payment transfers required to extinguish linked obligations occur contemporaneously on a multilateral net basis at the end of the day or at certain times during the day processing cycle (DvP model 3).

Regardless of whether an FMI a securities settlement facility settles on a gross or net basis, the legal, contractual, technical, and risk-management framework should ensure that the settlement of an obligation is final if and only if the settlement of the corresponding obligation is final.

3.12.4. DvP, DvD, and PvP can be achieved through different timing arrangements. Strictly speaking, DvP, DvD, and PvP do not require a simultaneous settlement of obligations. In some cases, settlement of one obligation could follow the settlement of the other. For example, when an SSS does not itself provide cash accounts for settlement, it may first block the underlying securities in the account of the seller.<sup>83</sup> The SSS may then request a transfer of funds from the buyer to the seller at the settlement bank for funds transfers. The securities are delivered to the buyer or its custodian if and only if the SSS receives confirmation of settlement of the cash leg from the settlement bank. In such DvP arrangements, however, the length of time between the blocking of securities, the settling of cash, and the subsequent release and

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<sup>81</sup> For a discussion of stylised models of DvP settlement, see CPSS, Delivery versus payment in securities systems, September 1992.

<sup>82</sup> Given the separation of securities and funds transfers in such a system, intraday finality of securities settlement can only be achieved if securities transfers are collateralised or otherwise guaranteed.

<sup>83</sup> In this context, DvP could be achieved through a link between an SSS and a payment system. The SSS settles the securities leg of the transaction while the payment system settles the cash leg. However, in the context of these principles this arrangement is not considered an FMI link, but a DvP system.



~~delivery of the blocked securities should be minimised.<sup>84</sup> Further, blocked securities must not be subject to a claim by a third party (for example, other creditors, tax authorities, or even the SSS itself) because these claims would give rise to principal risk.~~

~~10.2.2. The timing of exchange-of-value settlement of trades is important. Where the final contemporaneous transfers of securities and/or payments required to extinguish linked obligations occur either in real time throughout the day, or on a multilateral net basis at the end of the processing cycle, principal risk is eliminated. On the other hand, where final transfer of securities occurs in real time, but final payment is deferred until some later time, sellers of securities remain exposed to principal risk, which must therefore be managed.~~

~~10.2.3. Where settlement involves the exchange of a security for payment (a DvP transaction), the settlement of obligations requires up to three steps:~~

- ~~• the security (or title over the security) needs to be transferred from seller to buyer~~
- ~~• payment must be transferred from the buyer to the seller, either across accounts with the securities settlement facility's money settlement agent (which may be the central bank of issue), or using the services of a commercial settlement bank~~
- ~~• where the buyer and seller use a different commercial settlement bank, funds must be transferred from the account of the buyer's settlement bank to the account of the seller's settlement bank with the money settlement agent (see SSF Standard 8 on money settlements).~~

~~10.2.4. Contemporaneous performance of the three steps involved in a DvP transaction requires that:~~

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

~~10.2.5. Notwithstanding that contemporaneous multilateral net settlement of securities and/or final payment transfers eliminates principal risk, there is a prospect that net obligations may be sufficiently large that a participant default triggering recalculation of the net settlement batch causes survivors to face liquidity pressures (see SSF Standard 6 on liquidity risk). Furthermore, even where batch recalculation does not give rise to sizeable swings in liquidity requirements for participants, the dependencies between participants in a net batch settlement model are such that problems with a single participant can nevertheless cause delays and uncertainty for all participants.~~

~~10.2.6. Where individual trade values are large, therefore, a securities settlement facility should settle linked obligations using trade-by-trade settlement on a real-time basis. Only where trade values are not large may the payment transfers and/or final securities transfers required to extinguish linked obligations occur on a multilateral net basis. Even where trade values are small, linked settlements should occur contemporaneously unless this is precluded by operational requirements. Where netting is involved, the securities settlement facility should ensure that it has taken steps to ensure the certainty of netting arrangements (see SSF Standard 1 on legal basis). The securities settlement facility should, at a minimum, ensure that the final and irrevocable settlement of obligations is completed by the end of the settlement day.~~

~~10.2.7. Operational requirements that necessitate non-contemporaneous settlement of linked obligations refer to practical matters arising out of the nature of the security and payment being~~

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~~84—An SSS that settles securities transactions on a net basis with an end-of-day finality arrangement could meet this requirement by providing a mechanism that allows intraday finality.~~

exchanged that preclude contemporaneous settlement. This may occur, for example, where title must be exchanged by individual physical delivery and, as a practical matter, payment is by other than electronic transfer.

## **Principle 13** Standard 11: Participant-default rules and procedures

An FMIA securities settlement facility 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 FM securities settlement facility can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

### Explanatory note Guidance

3.13.1.—Participant-default rules and procedures facilitate the continued functioning of an FMIA securities settlement facility in the event that a participant fails to meet its obligations. These rules and procedures help limit the potential for the effects of a participant’s failure to spread to other participants and undermine the viability of the FM securities settlement facility. Key objectives of default rules and procedures should, where relevant, include ~~(a)~~; ensuring timely completion of settlement, even in extreme but plausible market conditions; ~~(b)~~ minimising losses for the FM securities settlement facility and for non-defaulting participants; ~~(c)~~ limiting disruptions to the market; ~~(d)~~ providing a clear framework for accessing FM securities settlement facility liquidity facilities as needed; and ~~(e)~~ managing and closing out the defaulting participant’s positions and liquidating any applicable collateral in a prudent and orderly manner. ~~In some instances, managing a participant default may involve hedging open positions, funding collateral so that the positions can be closed out over time, or both. An FMI may also decide to auction or allocate open positions to its participants.~~<sup>85</sup>—To the extent consistent with these objectives, an FMIA securities settlement facility should allow non-defaulting participants to continue to manage their positions and transactions as normal.

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

### **Rules and procedures**

11.1.1. 3.13.2. An FMIA securities settlement facility should have default rules and procedures that enable the FM securities settlement facility to continue to meet its any obligations to non-defaulting participants in the event of a participant default. An FMIA securities settlement facility should explain clearly in its rules and procedures what circumstances constitute a participant default, addressing both financial and operational defaults.<sup>86</sup> An FMIA securities settlement facility should describe the method for identifying a default. In particular, an FMIA securities settlement facility should specify whether a declaration of default is automatic or discretionary, and if discretionary, which person or group shall exercise that discretion. Key aspects to be considered in designing the rules and procedures include ~~(a)~~; the actions that an FMIA securities settlement facility can take when a default is declared; ~~(b)~~ the extent to which such actions are automatic or discretionary; ~~(c)~~ potential changes to the normal settlement practices, should these changes be necessary in extreme circumstances, to ensure timely settlement; ~~(d)~~ the management of transactions at different stages of processing; ~~(e)~~ the

<sup>85</sup>—An OTC derivatives CCP may need to consider requiring participants to agree in advance to bid on the defaulting participant’s portfolio and, should the auction fail, accept an allocation of the portfolio. Where used, such procedures should include consideration of the risk profile and portfolio of each receiving participant before allocating positions so as to minimise additional risk for the non-defaulting participants.

<sup>86</sup> An operational default occurs when a participant is not able to meet its obligations due to an operational problem, such as a failure in information technology systems.

expected treatment of proprietary and customer transactions and accounts; ~~(f)~~ the probable sequencing of actions; ~~(g)~~ the roles, obligations, and responsibilities of the various parties, including non-defaulting participants; and ~~(h)~~ the existence of other mechanisms that may be activated to contain the impact of a default. ~~An FMI's securities settlement facility~~ should involve its participants, ~~the Reserve Bank and other relevant~~ authorities, and other relevant stakeholders in developing its default rules and procedures (see ~~Principle 2 on~~ ~~SSF Standard~~ 2 on governance).

11.1.2. In the event of a participant default, financial and other obligations created for non-defaulting participants should be proportional to the scale and nature of participants' activities. Disproportionate obligations may place undue demands on participants at a time of wider market distress.

## Use and sequencing of financial resources

11.1.3. 3.13.3. An FMI's securities settlement facility's default rules and procedures should enable the ~~FMI's~~ securities settlement facility to take timely action to contain losses and liquidity pressures, before, at, and after the point of participant default (see also ~~Principle 4 on~~ ~~SSF Standard~~ 4 on credit risk and ~~Principle 6 on~~ ~~SSF Standard~~ 6 on liquidity risk). ~~Specifically, an FMI's~~ Where relevant, a securities settlement facility's rules and procedures should allow the ~~FMI's~~ securities settlement facility to use promptly any financial resources that it maintains for covering losses and containing liquidity pressures arising from default, including liquidity facilities. The rules of the ~~FMI's~~ securities settlement facility should specify the order in which different types of resources will be used. This information enables participants to assess their potential future exposures from using the ~~FMI's~~ securities settlement facility's services. Typically, ~~an FMI's~~ securities settlement facility should first use assets provided by the defaulting participant, such as ~~margin or other~~ collateral, to provide incentives for participants to manage prudently the risks, particularly credit risk, they pose to ~~an FMI's~~ a securities settlement facility. The application of previously provided collateral should not be subject to prevention, stay, or reversal under applicable law and the rules of the ~~FMI's~~ securities settlement facility. A securities settlement facility should also have a credible and explicit plan for replenishing its resources over an appropriate time horizon following a participant default so that it can continue to operate in a safe and sound manner. In particular, the ~~FMI's~~ securities settlement facility's rules and procedures should define ~~the~~ any obligations of the non-defaulting participants to replenish the financial resources depleted during a default so that the time horizon of such replenishment is anticipated by non-defaulting participants without any disruptive effects.

~~3.13.4. A CCP should have rules and procedures to facilitate the prompt close out or transfer of a defaulting participant's proprietary and customer positions. Typically, the longer these positions remain open on the books of the CCP, the larger the CCP's potential credit exposures resulting from changes in market prices or other factors will be. A CCP should have the ability to apply the proceeds of liquidation, along with other funds and assets of the defaulting participant, to meet the defaulting participant's obligations. It is critical that a CCP has the authority to act promptly to contain its exposure, while having regard for overall market effects, such as sharp declines in market prices. A CCP should have the information, resources, and tools to close out positions promptly. In circumstances where prompt close out is not practicable, a CCP should have the tools to hedge positions as an interim risk management technique. In some cases, a CCP may use seconded personnel from non-defaulting participants to assist in the close out or hedging process. The CCP's rules and procedures should clearly state the scope of duties and term of service expected from seconded personnel. In other cases, the CCP may elect to auction positions or portfolios to the market. The CCP's rules and procedures should clearly state the scope for such action, and any participant obligations with regard to such auctions should be clearly set out. The close out~~

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<sup>87</sup>—The defaulting participant's assets do not include segregated customer collateral; such segregated collateral should not be used to cover losses resulting from a participant default, except in the case of a potential close out of segregated customer positions. See Principle 14 on segregation and portability.

~~of positions should not be subject to prevention, stay, or reversal under applicable law and the rules of the FMI.~~

~~11.2. An FMI's securities settlement facility should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules. This requires that the securities settlement facility should:~~

- ~~(a) require its participants to inform it immediately if they:
  - ~~(i) become subject to, or aware of the likelihood of external administration, or have reasonable grounds for suspecting that they will become subject to external administration; or~~
  - ~~(ii) have breached, or are likely to breach, a risk-control requirement of the securities settlement facility;~~~~
- ~~(b) allow for the cancellation or suspension of a participant or commercial settlement bank from the securities settlement facility:
  - ~~(i) if the participant or commercial settlement bank is in external administration; or~~
  - ~~(ii) if there is a reasonable suspicion that the participant or commercial settlement bank may become subject to external administration; and~~~~
- ~~(c) allow participant users of a commercial settlement bank which becomes subject to external administration, or which is reasonably likely to become subject to external administration, to quickly nominate a new commercial settlement bank.~~

~~11.2.1. This Standard is aimed at ensuring the timely settlement of obligations in the event that a participant or commercial settlement bank goes into external administration. The securities settlement facility should have a legally binding requirement for participants to notify it should they be in default or reasonably suspect that this is the case. Similar notification should be made in the event of a breach or likely breach of any risk-control requirement of the securities settlement facility. Any communication should be at an appropriately high level both within the participant organisation and the securities settlement facility. The impact that a participant or commercial settlement bank in external administration may have on other participants should be minimised through the existence of legally binding arrangements, the timely flow of information, and the institution of appropriate controls and procedures. For a commercial settlement bank, this should include rules and procedures allowing its participant users to quickly nominate a new provider in the event that it enters external administration or is reasonably likely to do so. There is a difference between external administration and cases where a participant may have sufficient assets to meet its obligations, yet be unable to complete settlement of its obligations due to operational failure or liquidity pressures. This distinction should be recognised in the rules of the securities settlement facility.~~

~~11.2.2. 3.13.5. An FMI's securities settlement facility should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in the rules. Management should ensure that the FMI's securities settlement facility has the operational capacity, including sufficient well-trained personnel, to implement its procedures in a timely manner. An FMI's securities settlement facility's rules and procedures should outline examples of when management discretion may be appropriate and should include arrangements to minimise any potential conflicts of interests. Management should also have internal plans that clearly delineate the roles and responsibilities for addressing a default and provide training and guidance to its personnel on how the procedures should be implemented. These plans should address documentation, information needs, and coordination when more than one FMI's securities settlement facility or authority is involved. In addition, timely communication with stakeholders, in particular with the Reserve Bank and other relevant authorities, is of critical importance. (see also SSF Standard 19 on regulatory reporting). The FMI's securities settlement facility, to the extent permitted, should clearly convey to affected stakeholders information that would help them to manage their own risks. The internal plan should be reviewed by~~

management and the relevant board committees at least annually or after any significant changes to the FMI's securities settlement facility's arrangements.

11.3. An FMI securities settlement system should publicly disclose key aspects of its default rules and procedures. Where a securities settlement facility settles via a multilateral net batch, arrangements for dealing with any unsettled trades of a defaulting participant that are not guaranteed by a central counterparty, such as reconstituting the multilateral net batch excluding the settlement obligations of the defaulting participant, should be clear to all participants and should be capable of being executed in a timely manner.

11.3.1. 3.13.6. To provide certainty and predictability regarding the measures that an FMI securities settlement facility may take in a default event, an FMI securities settlement facility should publicly disclose key aspects of its default rules and procedures, including: ~~(a)~~ the circumstances in which action may be taken; ~~(b)~~ who may take those actions; ~~(c)~~ the scope of the actions which may be taken, including the treatment of both proprietary and customer positions, funds, and other assets; ~~(d)~~ the mechanisms to address an FMI's any obligations of a securities settlement facility to non-defaulting participants; and ~~(e)~~ where direct relationships exist with participants' customers, the mechanisms to help address the defaulting participant's obligations to its customers. This transparency fosters the orderly handling of defaults, enables participants to understand their obligations to the FMI securities settlement facility and to their customers, and gives market participants the information they need to make informed decisions about their activities in the market. An FMI securities settlement facility should ensure that its participants and their customers, as well as the public, have appropriate access to the FMI's securities settlement facility's default rules and procedures and should promote their understanding of those procedures in order to foster confidence in the market in the event of a participant default.

11.3.2. Any arrangements for dealing with the unsettled trades of a defaulting participant should be clear to all securities settlement facility participants and capable of being executed in a timely manner. For example, in the case of a securities settlement facility that settles via a multilateral net batch, rules for any reconstitution of a multilateral net batch excluding any settlement obligations of a defaulting participant that have not been guaranteed by a central counterparty should be clearly stated and disclosed to participants. Sufficient information and tools should be made available to participants to assist in quantifying the potential magnitude of liquidity demands in the event of any such reconstitution of the batch, and taking appropriate steps to accommodate these demands (see SSF Standard 6.2 on liquidity risk). Reconstitution of the batch should provide for any requirements arising from a central counterparty's own rules for dealing with the inability of a clearing participant to settle arising from its own failure or that of a commercial settlement bank.

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

11.4.1. 3.13.7. An FMI securities settlement facility should involve relevant participants and other stakeholders in the testing and review of its default procedures. Such testing and review should be conducted at least annually ~~or~~ and following material changes to the rules and procedures to ensure that they are practical and effective. The periodic testing and review of default procedures is important to help the FMI securities settlement facility and its participants understand fully the procedures and to identify any lack of clarity in, or discretion allowed by, the rules and procedures. Such tests should include all relevant parties, or an appropriate subset, that would likely be involved in the default procedures, such as members of the appropriate board committees, participants, linked or interdependent FMIs, the Reserve Bank and other relevant authorities, and any related service providers. This is particularly important where an FMI securities settlement facility relies on non-defaulting participants or third parties to assist in the close-out process and where the default procedures have never been tested by

an actual default. The results of these tests and reviews should be shared with the FMI's securities settlement facility's board of directors, risk committee, and the Reserve Bank and other relevant authorities.

11.4.2. ~~3.13.8.~~ Furthermore, part of an FMI's a securities settlement facility's participant-default testing should include the implementation of the resolution regime for an FMI's a securities settlement facility's participants, as relevant. An FMI's a securities settlement facility should be able to take all appropriate steps to address the resolution of a participant. Specifically, the FMI's securities settlement facility, or if applicable a resolution authority, should be able to transfer a defaulting participant's open positions and customer accounts to a receiver, third party, or bridge financial company.

11.5. A securities settlement facility should demonstrate that its default-management procedures take appropriate account of interests in relevant jurisdictions, and in particular any implications for pricing, liquidity and stability in relevant financial markets.

11.5.1. A securities settlement facility should ensure that its default management procedures take appropriate account of interests across the jurisdictions in which it operates. A securities settlement facility's governance arrangements should ensure that these interests are taken into account (see SSF Standard 2 on governance). The actions that a securities settlement facility takes in the event of a default, such as any reconstitution of a multilateral net batch, could, through the impact on participants, potentially impact on pricing, liquidity and stability in certain financial markets. A securities settlement facility should consider these wider market impacts of its default-management actions, and take mitigating action to minimise market impacts where appropriate.

[The SSF Standards do not incorporate Principle 14 on segregation and portability]

### **Principle 15** Standard 12: General business risk

An FMI's a securities settlement facility 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.

#### Explanatory note Guidance

3.15.1.—An FMI's a securities settlement facility should have robust management and control systems to identify, monitor, and manage general business risk. General business risk refers to the risks and potential losses arising from an FMI's a securities settlement facility's administration and operation as a business enterprise that are neither related to participant default nor separately covered by financial resources under the SSF Standard 4 on credit risk or SSF Standard 6 on liquidity risk principles. General business risk includes any potential impairment of the FMI's securities settlement facility's financial position (as a business concern) as a consequence of a decline in its revenues or an increase in its expenses, such that expenses exceed revenues and result in a loss that must be charged against capital. Such impairment can be caused by a variety of business factors, including poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses. Business-related losses also may arise from risks covered by other principles standards, for example, legal risk (in the case of legal actions challenging the FMI's securities settlement facility's custody arrangements), investment risk affecting the FMI's securities settlement facility's resources, and operational risk (in the case of fraud, theft, or loss).<sup>88</sup> In these cases, general business risk may cause an FMI's a securities settlement facility to experience an extraordinary one-time loss as opposed to recurring losses.

<sup>88</sup> See also Principle SSF Standard 1 on legal basis, Principle 16 SSF Standard 13 on custody and investment risks, and Principle 17 SSF Standard 14 on operational risk.

**12.1.** An FMIA securities settlement facility should have robust management and control systems to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses.

### Identifying business risk

**12.1.1.** ~~3.15.2.~~ An FMIA securities settlement facility should identify and assess the sources of business risk and their potential impact on its operations and services, taking into account past loss events and financial projections. An FMIA securities settlement facility should assess and thoroughly understand its business risk and the potential effect that this risk could have on its cash flows, liquidity, and capital positions. In doing so, an FMIA securities settlement facility should consider a combination of tools, such as risk management and internal control assessments, scenario analysis, and sensitivity analysis. Internal control assessments should identify key risks and controls and assess the impact and probability of the risks and the effectiveness of the controls. Scenario analysis should examine how specific scenarios would affect the FM securities settlement facility. Sensitivity analysis should test how changes in one risk affect the FM securities settlement facility's financial standing, for example, conducting the analysis of how the loss of a key customer or service provider might impact the FM securities settlement facility's existing business activities. In some cases, an FMIA securities settlement facility may want to consider an independent assessment of specific business risks.

**12.1.2.** ~~3.15.3.~~ An FMIA securities settlement facility should clearly understand its general business risk profile so that it is able to assess its ability to either (a) to avoid, reduce, or transfer specific business risks, or (b) to accept and manage those risks. This requires the ongoing identification of risk-mitigation options that the FM securities settlement facility may use in response to changes in its business environment. When planning an expansion of activity, an FMIA securities settlement facility should conduct a comprehensive enterprise risk assessment. In particular, when considering any major new product, service, or project, the FM securities settlement facility should project forecast potential revenues and expenses as well as identify and plan how it will cover any additional capital requirements. Further, an FMIA securities settlement facility may eliminate or mitigate some risks by instituting appropriate internal controls or by obtaining insurance or indemnity from a third party.

### Measuring and monitoring business risk

**12.1.3.** ~~3.15.4.~~ Once an FMIA securities settlement facility has identified and assessed its business risk, it should measure and monitor these risks on an ongoing basis and develop appropriate information systems as part of a robust enterprise risk-management program. Key components of a robust enterprise risk-management program include establishing strong financial and internal control systems so that the FM securities settlement facility can monitor, manage, and control its cash flows and operating expenses and mitigate any business-related losses (see Principle 3 SSF Standard 3 on framework for the comprehensive management of risks). In particular, an FMIA securities settlement facility should minimise and mitigate the probability of business-related losses and their impact on its operations across a range of adverse business and market conditions, including the scenario that its viability as a going concern is questioned. An FMIA securities settlement facility should also ensure that it has rigorous and appropriate investment guidelines and monitoring procedures (see Principle 16 SSF Standard 13 on custody and investment risks).

**12.2.** An FMIA securities settlement facility 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 FMIA securities settlement facility 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.

- 12.2.1.** ~~3.15.5.~~ An FMI securities settlement facility should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses.<sup>89</sup> Equity allows an FMI securities settlement facility to absorb losses on an ongoing basis and should be permanently available for this purpose. The amount of liquid net assets funded by equity an FMI securities settlement facility 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.<sup>90</sup>
- 12.2.2.** ~~3.15.6.~~ In order to estimate the amount of liquid net assets funded by equity that a particular FMI securities settlement facility would need, the FMI securities settlement facility should regularly analyse and understand how its revenue and operating expenses may change under a variety of adverse business scenarios as well as how it might be affected by extraordinary one-time losses. This analysis should also be performed when a material change to the assumptions underlying the model occurs, either because of changes to the FMI securities settlement facility's business model or because of external changes. An FMI securities settlement facility needs to consider not only possible decreases in revenues but also possible increases in operating expenses, as well as the possibility of extraordinary one-time losses, when deciding on the amount of liquid net assets to hold to cover general business risk.
- 12.3.** An FMI securities settlement facility 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 securities settlement facility 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~~ SSF Standards 4 and 6. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.
- 12.3.1.** ~~{3.15.5}~~ Accordingly, an FMI securities settlement facility should maintain a viable plan to achieve recovery and orderly wind-down and should hold sufficient liquid net assets funded by equity to implement this plan.<sup>91</sup> The appropriate amount of liquid net assets funded by equity will depend on the content of the plan and, specifically, on the size of the FMI securities settlement facility, the scope of its activities, the types of actions included in the plan, and the length of time needed to implement them. An FMI securities settlement facility should also take into consideration the operational, technological, and legal requirements for participants to establish and move to an alternative arrangement in the event of an orderly wind-down. At a minimum, however, an FMI securities settlement facility should hold liquid net assets funded by equity equal to at least six months of current operating expenses.<sup>92</sup>
- 12.3.2.** ~~3.15.7.~~ Assets held by an FMI securities settlement facility to cover risks or losses other than business risk (for example, where relevant, the financial resources required under the SSF Standard 4 on credit risk and SSF Standard 6 on liquidity risk principles) ~~or to cover losses from other business lines that are unrelated to its activities as an FMI~~ should not be included when accounting for liquid net assets available to cover business risk.<sup>93</sup> However, any equity held

<sup>89</sup> If the FMI securities settlement facility's corporate structure is such that it cannot legally or institutionally raise equity (for example under certain structures of mutual ownership ~~or when the FMI is run by a central bank~~ or if the FMI is a new start-up and cannot initially raise the required level of equity), it should ensure an equal amount of equivalent loss-absorbing financial resources is available.

<sup>90</sup> Recovery could include recapitalising, replacing management, merging with another FMI securities settlement facility, revising business strategies (including cost or fee structures), or restructuring services provided.

<sup>91</sup> The requirement for liquid net assets funded by equity ensures that the assets held for the purposes of this Standard are sufficiently liquid to be available to mitigate any potential business risks in a timely manner, can only be used for business risk purposes, and are funded by equity rather than long term liabilities.

<sup>92</sup> Operating expenses may exclude depreciation and amortisation expenses for purposes of this calculation.

<sup>93</sup> Depending on the rules of the particular FMI securities settlement facility and the insolvency law of the jurisdiction in which it is established, the equity of an FMI securities settlement facility may ultimately be used if the resources that form the default backing are insufficient to cover the losses generated in the event of a participant default.



under international risk-based capital standards should be included where relevant and appropriate to avoid duplicate capital requirements.

- 12.4.** Assets held to cover general business risk should be of high quality and sufficiently liquid in order to allow the FMI securities settlement facility to meet its current and projected operating expenses under a range of scenarios, including in adverse market conditions.
- 12.4.1.** ~~3.15.8.~~ To ensure the adequacy of its own resources, an FMIA securities settlement facility should regularly assess and report its liquid net assets funded by equity relative to its potential business risks to ~~its regulators~~ the Reserve Bank and other relevant authorities (see also SSF Standard 19 on regulatory reporting).
- 12.5.** An FMIA securities settlement facility 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.
- 12.5.1.** ~~3.15.9.~~ An FMIA securities settlement facility should provide a viable capital plan for maintaining an appropriate level of equity. The capital plan should specify how an FMIA securities settlement facility would raise new capital if its equity capital were to fall close to or below the amount needed. This plan should be approved by the board of directors (or an appropriate board committee), reviewed at least annually and updated regularly. An FMIA appropriate. A securities settlement facility may also need to consult its participants and others during the development of its plan.
- 12.5.2.** ~~3.15.10.~~ ——— In developing a capital plan, an FMIA securities settlement facility should consider a number of factors, including its ownership structure and any insured business risks. For example, an FMIA securities settlement facility should determine if and to what extent specific business risks are covered by ~~(a)~~ explicit insurance from a third party, ~~or (b)~~ explicit indemnity agreements from a parent, owners, or participants (for example, general loss-allocation provisions and parent guarantees), which would be realisable within the recovery or orderly wind-down time frame. Given the contingent nature of these resources, an FMIA securities settlement facility should use conservative assumptions when taking them into account for its capital plan. Furthermore, these resources should not be taken into account when assessing the FMI securities settlement facility's capital adequacy.

## **Principle 16** Standard 13: Custody and investment risks

An FMIA securities settlement facility 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 A securities settlement facility's investments should be in instruments with minimal credit, market, and liquidity risks.

### Explanatory note Guidance

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

A securities settlement facility should ensure that its investment strategy is consistent with its overall risk-management strategy. Resources held by a securities settlement facility to cover credit, liquidity or general business risks should not be exposed to credit, market or liquidity risks (including through concentrated

exposures to investment counterparties) that may compromise the ability of the securities settlement facility to use these resources when needed.

13.1. An FMIA securities settlement facility 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.

13.1.1. 3.16.2. An FMIA securities settlement facility should mitigate its custody risk by using only supervised and regulated entities with robust accounting practices, safekeeping procedures, and internal controls that fully protect its own and its participants' assets- (if any). It is particularly important that assets held in custody are protected against claims of a custodian's creditors. The custodian should have a sound legal basis supporting its activities, including the segregation of assets (see also Principle SSF Standard 1 on legal basis and Principle 11 SSF Standard 9 on ESDs central securities depositories). The custodian also should have a strong financial position to be able to sustain losses from operational problems or ancillary non-custodial activities. An FMIA

13.2. An FMIA securities settlement facility should have prompt access to its assets and the assets provided by participants, when required.

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

13.3. An FMIA securities settlement facility should evaluate and understand its exposures to its custodian banks custodians, taking into account the full scope of its relationships with each.

13.3.1. 3.16.3. An FMIA securities settlement facility should evaluate and understand its exposures to its custodians- banks, taking into account the full scope of its relationships with each custodian bank. For example, a financial institution may serve as a custodian bank to an FMIA to a securities settlement facility as well as a money settlement bank and agent or liquidity provider to the FM securities settlement facility. The custodian bank also might be a participant in the FM securities settlement facility and offer clearing services to other participants. An FMIA securities settlement facility should carefully consider all of its relationships with a particular custodian bank to ensure that its overall risk exposure to an individual custodian remains within acceptable concentration limits. Where feasible, an FMIA securities settlement facility could consider using multiple custodians for the safekeeping of its assets to diversify its exposure to any single custodian. For example, a CCP may want to use one custodian for its margin assets and another custodian for its prefunded default arrangement. Such a CCP, however, may The securities settlement facility would, however, need to balance the benefits of risk diversification against the benefits of pooling resources at one or a small number of custodians. In any event, an FMIA securities settlement facility should monitor the concentration of risk exposures to, and financial condition of, its custodian banks custodians on an ongoing basis.

13.4. An FMIA securities settlement facility'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.

13.4.1. 3.16.4. An FMIA securities settlement facility's strategy for investing its own and its any participants' assets should be consistent with its overall risk-management strategy and fully disclosed to its participants. When making its investment choices, the FM securities settlement facility should not allow pursuit of profit to compromise its financial soundness and liquidity risk management. Investments should be secured by, or be claims on, high-quality obligors to mitigate the credit risk to which the FM securities settlement facility is exposed. Within these

parameters, a securities settlement facility should have a high degree of confidence that its own capital would be sufficient to withstand losses associated with the failure of any individual non-government investment counterparty. This implies the imposition of conservative limits on the size and concentration of counterparty exposures. In considering its overall credit-risk exposures to individual obligors, a securities settlement facility should also take into account other relationships with the obligor that create additional exposures, such as where an obligor is also a participant or an affiliate of a participant in the securities settlement facility. In addition, a securities settlement facility should not invest participant assets in the participant's own securities or those of its affiliates.

~~13.4.2.~~ Also, because the value of an FMI'sBecause the value of a securities settlement facility's investments may need to be realised quickly, investments should allow for quick liquidation with little, if any, adverse price effect. For example, an FMIa securities settlement facility could invest in overnight reverse repo agreements backed by liquid securities with low credit risk. An FMI should carefully consider its overall credit risk exposures to individual obligors, including other relationships with the obligor that create additional exposures such as an obligor that is also a participant or an affiliate of a participant in the FMI. In addition, an FMI should not invest participant assets in the participant's own securities or those of its affiliates. If an FMI'sIn allowing for quick liquidation with minimal adverse price effect, a securities settlement facility should also impose limits on the concentration of certain assets in its investment portfolio. If a securities settlement facility's own resources can be used to cover losses and liquidity pressures resulting from a participant default, the investment of those resources should not compromise the FMI'ssecurities settlement facility's ability to use them when needed.

## **Principle 17**Standard 14: Operational risk

An FMIa securities settlement facility 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'ssecurities settlement facility's obligations, including in the event of a wide-scale or major disruption.

### Explanatory noteGuidance

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

### Identifying sources of and managing operational risk

14.1. A securities settlement facility should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.

14.1.1. ~~3.17.2.~~ An FMIa securities settlement facility should actively identify, monitor, and manage the plausible sources of operational risk and establish clear policies and procedures to address

them. Operational risk can stem from both internal and external sources. Internal sources of operational risk include inadequate identification or understanding of risks and the controls and procedures needed to limit and manage them, inadequate control of systems and processes, inadequate screening of personnel, and, more generally, inadequate management. External sources of operational risk include the failure of critical service providers or utilities or events affecting a wide metropolitan area such as natural disasters, terrorism, and pandemics. Both internal and external sources of operational risk can lead to a variety of operational failures that include ~~(a)~~; errors or delays in message handling; ~~(b)~~; miscommunication; ~~(c)~~; service degradation or interruption; ~~(d)~~; fraudulent activities by staff; and ~~(e)~~ disclosure of confidential information to unauthorised entities. ~~If an FMI~~ If a securities settlement facility provides services in multiple time zones, it may face increased operational risk due to longer operational hours and less downtime for maintenance. ~~An FMI~~ A securities settlement facility should identify all potential single points of failure in its operations.<sup>94</sup> Additionally, ~~an FMI~~ a securities settlement facility should assess the evolving nature of the operational risk it faces on an ongoing basis (for example, pandemics and cyber-attacks), so that it can analyse its potential vulnerabilities and implement appropriate defence mechanisms.

~~3.17.3. — A TR typically serves as a single source of information for a particular market, and it may be the central registry for certain trades. Therefore, a TR’s failure to perform as expected could cause significant disruption. The key risk of a TR is operational. Deficiencies in business continuity management, data integrity, and the safeguarding of data are a particular concern. Inadequate disclosure or faulty delivery of data by a TR to relevant authorities or the public could undermine the primary purpose of the TR. Access to timely and reliable data provides greater insights into the derivatives market and improves the ability of relevant authorities to oversee the markets it serves and its participants. Data recorded by a TR may also be used as inputs by the TR’s participants and potentially by other relevant infrastructures and service providers. Therefore, continuous availability of data stored in a TR is critical.<sup>95</sup> Also, a TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources. Where a TR provides access to another type of FMI, such as a CCP, the linked FMIs may be exposed to additional risks if the interface is not properly designed. FMIs establishing a link to a TR should ensure that the system and communication arrangements between the linked entities are reliable and secure such that the operation of the link does not pose significant reliability and security risks.~~

~~14.2. An FMI’s~~ A securities settlement facility’s board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the ~~FMI’s~~ securities settlement facility’s operational risk-management framework. Systems, operational policies, procedures, and controls should be reviewed, audited, and tested periodically and after significant changes.

~~14.2.1. 3.17.4. An FMI~~ A securities settlement facility should establish clear policies, procedures, and controls that mitigate and manage its sources of operational risk. Overall, operational risk management is a continuous process encompassing risk assessment, defining an acceptable tolerance for risk, and implementing risk controls. This process results in ~~an FMI~~ a securities settlement facility accepting, mitigating, or avoiding risks consistent with its operational-reliability objectives. ~~An FMI’s~~ A securities settlement facility’s governance arrangements are pertinent to its operational risk-management framework (see also Principle ~~SSF~~ Standard 2 on governance). In particular, ~~an FMI’s~~ a securities settlement facility’s board should explicitly define the roles and responsibilities for addressing operational risk and endorse the ~~FMI’s~~ securities settlement facility’s operational risk-management framework.

~~14.2.2. 3.17.5. To ensure the proper functioning of its risk controls, an FMI~~ a securities settlement facility should have sound internal controls. For example, ~~an FMI~~ a securities settlement facility should have adequate management ~~controls, such as~~ processes for setting operational

<sup>94</sup> A single point of failure is any point in a system, whether a service, activity, or process, that, if it fails to work correctly, leads to the failure of the entire system.

<sup>95</sup> The mitigation of operational risk is particularly important because the information maintained by a TR can support bilateral netting and be used to provide services directly to market participants or other providers (for example, portfolio compression), including other linked FMIs.

standards, measuring and reviewing performance, and correcting deficiencies. ~~There are many relevant~~A securities settlement facility may draw on international, national, and industry-level standards, guidelines, or recommendations ~~that an FMI may use~~ in designing its operational risk-management framework. Conformity with commercial standards can help ~~an FMI~~a securities settlement facility reach its operational objectives. For example, commercial standards exist for information security, business continuity, and project management. ~~An FMI~~A securities settlement facility should regularly assess the need to integrate the applicable commercial standards into its operational risk-management framework. In addition, ~~an FMI~~a securities settlement facility should seek to comply with relevant commercial standards in a manner commensurate with the ~~FMI's~~securities settlement facility's importance and level of interconnectedness.

14.2.3. ~~3.17.6. An FMI's~~A securities settlement facility's arrangements with participants, operational policies, and operational procedures should be periodically, and whenever necessary, tested and reviewed, especially after significant changes occur to the system or a major incident occurs. In order to minimize any effects of the testing on operations, tests should be carried out in a ~~"testing environment."~~environment. This testing environment should, to the extent possible, replicate the production environment (including the implemented security provisions, in particular, those regarding data confidentiality). Additionally, key elements of ~~an FMI's~~a securities settlement facility's operational risk-management framework should be audited periodically and whenever necessary. In addition to periodic internal audits, external ~~audits~~independent reviews may be necessary, depending on the ~~FMI's~~securities settlement facility's importance and level of interconnectedness. Consistent with the evolving nature of operational risk management, ~~an FMI's~~a securities settlement facility's operational objectives should be periodically reviewed to incorporate new technological and business developments.

14.2.4. ~~3.17.8. The FMI's~~A securities settlement facility's operational risk-management framework should include formal change-management and project-management processes to mitigate operational risk arising from modifications to operations, policies, procedures, and controls. Change-management processes should provide mechanisms for preparing, approving, tracking, testing, and implementing all changes to the system. Project-management processes, in the form of policies and procedures, should mitigate the risk of any inadvertent effects on ~~an FMI's~~a securities settlement facility's current or future activities due to an upgrade, expansion, or alteration to its service offerings, especially for major projects. In particular, these policies and procedures should guide the management, documentation, governance, communication, and testing of projects, regardless of whether projects are outsourced or executed ~~in-house~~internally.

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

### Operational reliability

14.3.1. ~~3.17.9. An FMI~~A securities settlement facility should have clearly defined operational-reliability objectives and should have policies in place that are designed to achieve those objectives. These objectives serve as benchmarks for ~~an FMI~~a securities settlement facility to evaluate its ~~efficiency and~~ effectiveness and evaluate its performance against expectations. These objectives should be designed to promote confidence among the ~~FMI's~~securities settlement facility's participants. Operational-reliability objectives should include the ~~FMI's~~securities settlement facility's operational-performance objectives and committed service-level targets. Operational-performance objectives and service-level targets should define both qualitative and quantitative measures of operational performance and should explicitly state the performance standards the ~~FMI~~securities settlement facility is intending to meet. The

FM securities settlement facility should monitor and assess regularly whether the system is meeting its established objectives and service-level targets. The system's performance should be reported regularly to senior management, relevant board committees, participants, the Reserve Bank and other relevant authorities. In addition, ~~an FMI's~~ securities settlement facility's operational objectives should be periodically reviewed to incorporate new technological and business developments.

### System availability

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

### Operational capacity

14.3.3. ~~3.17.11. — An FMI securities settlement facility~~ should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives, such as the required processing speed. ~~A TR, in particular, should have scalable capacity adequate to maintain historical data as required.~~ Capacity management requires that the FM securities settlement facility monitor, review, and test (including stress test) the actual capacity and performance of the system on an ongoing basis. ~~The FMI~~ The securities settlement facility should carefully forecast demand and make appropriate plans to adapt to any plausible change in the volume of business or technical requirements. These plans should be based on a sound, comprehensive methodology so that the required service levels and performance can be achieved and maintained. As part of its capacity planning, ~~an FMI's~~ securities settlement facility should determine a required level of redundant capacity, taking into account the FM's securities settlement facility's level of importance and interconnectedness, so that if an operational outage occurs, the system is able to resume operations and process all remaining transactions before the end of the day. (see SSF Standard 14.7).

### Physical and information security

14.3.4. ~~3.17.12. — An FMI securities settlement facility~~ should have comprehensive physical- and information-security policies that address all potential vulnerabilities and threats. In particular, ~~an FMI's~~ securities settlement facility should have policies effective in assessing and mitigating vulnerabilities in its physical sites from attacks, intrusions, and natural disasters. ~~An FMI securities settlement facility~~ also should have sound and robust information-security policies, standards, practices, and controls to ensure an appropriate level of confidence and trust in the FM securities settlement facility by all stakeholders. These policies, standards, practices, and controls should include the identification, assessment, and management of security threats and vulnerabilities for the purpose of implementing appropriate safeguards into its systems. Data should be protected from loss and leakage, unauthorised access, and other processing risks, such as negligence, fraud, poor administration, and inadequate recordkeeping. ~~An FMI's~~ A securities settlement facility's information-security objectives and policies should conform to commercially reasonable standards for confidentiality, integrity, authentication, authorisation, non-repudiation, availability, and auditability (or accountability).

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

## Access to resources

14.4.1. ~~3.17.7.~~ Because the proper performance of ~~an FMI's~~ a securities settlement facility's employees is a core aspect of any operational risk-management framework, ~~an FMI should employ a securities settlement facility should be able to access and utilise~~ sufficient, well-qualified personnel. ~~An FMI's~~ A securities settlement facility's personnel should be able to operate the system safely ~~and efficiently~~ and consistently follow operational and risk-management procedures during normal and abnormal circumstances. ~~An FMI's~~ A securities settlement facility should implement appropriate human resources policies to hire, train, and retain qualified personnel, thereby mitigating the effects of high rates of personnel turnover or key-person risk. Additionally, ~~an FMI's~~ a securities settlement facility should have appropriate human resources and risk-management policies to address fraud prevention. Where appropriate, a securities settlement facility should also have reliable access to technical expertise and other resources external to the securities settlement facility as necessary to ensure the security and reliability of key systems.

## Resources shared with a related body

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

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

14.5.1. ~~3.17.18A~~ A securities settlement facility is connected directly and indirectly to its participants, other FMIs, and its service and utility providers. Accordingly, the ~~FMI's~~ securities settlement facility should identify both direct and indirect effects on its ability to process and settle transactions in the normal course of business and manage risks that stem from an external operational failure of connected entities. These effects include those transmitted through its participants, which may participate in multiple FMIs. ~~In addition, an FMI's~~ Likewise, a securities settlement facility should ~~also~~ identify, monitor, and manage the risks it poses to its participants and that it faces from and poses to other FMIs (see ~~Principle 20~~ SSF Standard 17 on FMI links). To the extent possible, ~~interdependent FMI's~~ a securities settlement facility should coordinate business-continuity arrangements. ~~An FMI with interdependent FMIs.~~ A securities settlement facility also should consider the risks associated with its service and utility providers and the operational effect on the ~~FMI's~~ securities settlement facility if service or utility providers fail to perform as expected. ~~An FMI's~~ A securities settlement facility should provide reliable service, not only for the benefit of its direct participants, but also for all entities that would be affected by its ability to process transactions.

## Dependencies on service providers

14.5.2. The securities settlement facility should have a formal policy, determined by its board, which sets out the process for entering into, maintaining and exiting key outsourcing arrangements. Before an outsourcing arrangement is established, senior management should identify the business, operational and other risks involved and ensure that these risks can be adequately monitored and controlled by the facility, and that the Reserve Bank and other relevant

authorities are able to access sufficient information and effectively perform crisis-management actions (see SSF Standards 14.9, 14.10 and 14.11). The board should approve the establishment of any outsourcing arrangement for a key business activity and be informed on a regular basis of the performance of the service provider.

14.5.3. 3.17.21. — An FMI securities settlement facility that outsources operations to critical-service providers should also disclose the nature and scope of this dependency to its participants. In addition to these service providers (such as financial messaging providers), an FMI securities settlement facility is also typically dependent on the adequate functioning of utilities (such as power and telecommunication companies). As a result, an FMI securities settlement facility should identify the risks from its critical-service providers and utilities and take appropriate actions to manage these dependencies through appropriate contractual and organisational arrangements. An FMI securities settlement facility should inform its relevant authorities about the Reserve Bank of any such critical dependencies on critical utilities or service providers and utilities ensure that both it and take measuresthe Reserve Bank are able to allow these authorities to be informed about access sufficient information on the performance of these critical utilities or service providers and utilities. To that end, the FMI securities settlement facility may contractually provide for direct contacts between the critical-service provider and the relevant authority, Reserve Bank, or contractually ensure that the relevant authority can Reserve Bank is able to obtain specific reports from the critical-service provider, or the FMI. Alternatively the securities settlement facility may provide full information to the authoritythe Reserve Bank with relevant information that it receives from the critical-service provider.

14.5.4. [3.17.20] — Some service providers may be critical, such as those that generate environmental interdependencies, because several FMIs or some of their key participants rely upon their services.<sup>96</sup> A contractual relationship should be in place between the FMI and the critical service provider allowing the FMI and relevant authorities to have full access to necessary information. The contract shouldA securities settlement facility's contractual arrangements with critical-service providers should also ensure that the FMI's securities settlement facility's approval is mandatory before thea critical-service provider can itself outsource material elements of the service provided to the FMI securities settlement facility, and that in the event of such an arrangement, full access to the necessary information is preserved. Clear lines of communication should be established between the outsourcing FMI securities settlement facility and the critical-service provider to facilitate the flow of functions and information between parties in both ordinary and exceptional circumstances. (see SSF Standard 14.9). Additional controls may be required where outsourcing arrangements involve critical functions of the securities settlement facility or where relevant to crisis management (see SSF Standards 14.10 and 14.11).

14.5.5. Where a securities settlement facility operates in multiple jurisdictions, managing the risks that it poses to its participants may require it to provide adequate operational support to participants during market hours of each relevant jurisdiction. In particular, where it has material Australian-based participation, the securities settlement facility should provide an appropriate degree of operational support to its Australian-based participants during Australian market hours. The degree of operational support should be sufficient to allow participants to resolve operational issues on a timely basis during Australian market hours (or within a reasonable extension of these hours, where necessary).

14.6. A participant of a securities settlement facility should have complementary operational and business-continuity arrangements that are appropriate to the nature and size of the business

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



undertaken by that participant. The securities settlement facility's rules and procedures should clearly specify operational requirements for participants.

14.6.1. ~~3.17.19.~~——To manage the operational risks associated with its participants, ~~an FMI's~~ securities settlement facility should ~~consider establishing~~ establish minimum operational requirements for its participants (see also ~~Principle 18~~ SSF Standard 15 on access and participation requirements). ~~For example, an FMI may want to~~ A securities settlement facility should define operational and business-continuity requirements for participants in accordance with the participant's role and importance to the system, taking into consideration the nature and size of the business undertaken by each participant. These requirements should complement the securities settlement facility's own operational and business-continuity arrangements. Rules and procedures should clearly and fairly specify the requirements of participants in this regard. In some cases, ~~an FMI's~~ securities settlement facility may ~~want~~ wish to identify critical participants based on ~~the~~ consideration of transaction volumes and values, services provided to the ~~FMI's~~ securities settlement facility and other interdependent systems, and, more generally, the potential impact on other participants and the system as a whole in the event of a significant operational problem. Critical participants may need to meet some of the same operational risk-management requirements as the ~~FMI itself. An FMI's~~ securities settlement facility itself. A securities settlement facility should have clear and transparent criteria, methodologies, or standards for critical participants to ensure that their operational risks are managed appropriately.

#### Business-continuity arrangements

14.7. A securities settlement facility 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 Business continuity arrangements should provide appropriate redundancy of critical systems and appropriate mitigants for data loss. The business-continuity plan should be designed to enable the ~~FMI's~~ securities settlement facility to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The ~~FMI's~~ securities settlement facility should regularly test these arrangements.

#### Business-continuity management

14.7.1. ~~3.17.13.~~——Business-continuity management is a key component of ~~an FMI's~~ a securities settlement facility's operational risk-management framework. A business-continuity plan should have clearly stated objectives and should include policies and procedures that allow for the rapid recovery and timely resumption of critical operations following a disruption to a service, including in the event of a wide-scale or major disruption. ~~An FMI's~~ A securities settlement facility should explicitly assign responsibility for business-continuity planning and devote adequate resources to this planning. The plan should identify and address events that pose a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption, and should focus on the impact on the operation of critical infrastructures and services. ~~An FMI's~~ A securities settlement facility's business-continuity plan should ensure that the ~~FMI's~~ securities settlement facility can continue to meet agreed-upon service levels in such events. Both internal and external threats should be considered in the business-continuity plan, and the impact of each threat should be identified and assessed. In addition to reactive measures, ~~an FMI's~~ a securities settlement facility's business-continuity plan may need to include measures that prevent disruptions of critical operations. All aspects of the business-continuity plan should be clearly and fully documented and details of relevant procedures made available to participants.

14.7.2. ~~3.17.14.~~——The objectives of ~~an FMI's~~ a securities settlement facility's business-continuity plan should include the system's recovery time and recovery point. ~~An FMI's~~ securities

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

14.7.3. 3.17.15. — An FMI securities settlement facility should set up a secondary site with sufficient resources, capabilities, and functionalities and appropriate staffing arrangements that would not be affected by a wide-scale disruption and would allow the secondary site to take over operations if needed.<sup>97</sup> The secondary site should provide the level of critical services necessary to perform the functions consistent with the recovery-time objective and should be located at a geographical distance from the primary site that is sufficient to have a distinct risk profile.<sup>98</sup> Depending on the FMI securities settlement facility's importance and level of interconnectedness, the need and possibilities for a third site could be considered, in particular to provide sufficient confidence that the FMI securities settlement facility's business-continuity objectives will be met in all scenarios. An FMI securities settlement facility should also consider alternative arrangements (for example, manual paper-based procedures) to allow for the processing of time-critical transactions in extreme circumstances. Both primary and secondary (and any additional) sites should have sufficient capacity to process volumes that at least double projected stress volumes. This redundant capacity should be sufficient to ensure that each site is able to operate continuously and independently even in extreme circumstances.

14.7.4. 3.17.16. — An FMI's A securities settlement facility's business-continuity plan should also include clearly defined procedures for crisis and event management. The plan, for example, should address the need for rapid deployment of a multi-skilled crisis and event-management team as well as procedures to consult and inform participants, interdependent FMIs, the Reserve Bank and other relevant authorities, and others (such as service providers and, where relevant, the media) quickly on a timely basis. Communication with regulators, supervisors, and overseers the Reserve Bank and other relevant authorities is critical in case of a major disruption to an FMI's a securities settlement facility's operations or a wider market distress that affects the FMI securities settlement facility, particularly where relevant authorities might rely on data held by the FMI securities settlement facility may be critical for crisis management. Depending on the nature of the problem, communication channels with local civil authorities (for physical attacks or natural disasters) or computer experts (for software malfunctions or cyber-attacks) may also need to be activated. If an FMI's a securities settlement facility has global importance or critical linkages to one or more interdependent FMIs, it should set up, test, and review appropriate cross-system or cross-border crisis-management arrangements.

14.7.5. 3.17.17. — An FMI's A securities settlement facility's business-continuity plan and its associated arrangements should be subject to periodic review and testing. Tests should address various scenarios that simulate wide-scale disasters and intersite inter-site switchovers. An

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<sup>97</sup> A particular site may be primary for certain functions and secondary for others. It is not intended that an FMI's a securities settlement facility would be required to have numerous separate secondary sites for each of its essential functions.

<sup>98</sup> An FMI's A securities settlement facility should conduct a comparative risk analysis of the secondary site. The secondary site should in principle not be affected by an event that affects the primary site, with the exception of some very specific threats, such as a coordinated attack. Each site should have robust resilience based on the duplication of software and hardware, and the technology in place to replicate data between the various sites should be consistent with the chosen recovery-point objectives.

~~FMI's~~A securities settlement facility's employees should be thoroughly trained to execute the business continuity plan and participants, critical service providers, and linked FMIs should be regularly involved in the testing and be provided with a general summary of the testing results. The ~~FMI~~degree of participant involvement in the testing should be appropriate to the nature and size of the business undertaken by individual participants (see SSF Standard 14.8). The ~~securities settlement facility~~ should also consider the need to participate in industry-wide tests. ~~An FMI~~A securities settlement facility should make appropriate adjustments to its business continuity plans and associated arrangements based on the results of the testing exercises.

### Incident management

~~14.7.6. 3.17.10.~~ ~~An FMI~~A securities settlement facility should have comprehensive and well-documented procedures in place to record, report, analyse, and resolve all operational incidents. After every significant disruption, ~~an FMI~~a securities settlement facility should undertake a ~~"post-incident"~~'incident' review to identify the causes and any required improvement to the normal operations or business continuity arrangements. Such reviews should, where relevant, include the ~~FMI's~~securities settlement facility's participants. The details of the incident and conclusions of the review should be provided to the Reserve Bank on a timely basis (see SSF Standard 19.1(h)).

~~14.8.~~ A securities settlement facility should consider making contingency testing compulsory for the largest participants to ensure they are operationally reliable and have in place tested contingency arrangements to deal with a range of operational stress scenarios that may include impaired access to the securities settlement facility.

~~14.8.1.~~ An operational disruption to the largest participants of a securities settlement facility may pose significant risks to the securities settlement facility's own operational performance, either directly or through interdependencies with other participants or FMIs. A securities settlement facility should therefore consider requiring its largest participants to perform contingency tests for their own operations with a particular focus on reliability of access to the securities settlement facility, and to participate in the securities settlement facility's own contingency testing. Where interdependencies between the securities settlement facility and its largest participants are significant, there will be a strong case for these participants to be involved in the securities settlement facility's contingency tests. Large participants' contingency tests should address the operational reliability of the participants and should cover a range of stress scenarios, including impaired access to the securities settlement facility.

### Outsourcing

~~14.9.~~ A securities settlement facility that relies upon or outsources some of its operations to a related body, another FMI or a third-party service provider (for example, data processing and information systems management) should ensure that those operations meet the resilience, security and operational-performance requirements of these SSF Standards and equivalent requirements of any other jurisdictions in which it operates.

~~14.9.1. 3.17.20.~~ ~~An FMI~~A securities settlement facility that relies upon or outsources some of its operations to a related body, another FMI, or a third-party service provider (for example, data processing and information systems management), should ensure that those operations meet the ~~same~~resilience, security and operational requirements ~~they would need to meet if they were provided internally of the SSF Standards and equivalent requirements of any other jurisdiction in which it operates. Further, even when systems and processes are outsourced, the securities settlement facility remains responsible for those systems and processes.~~ The ~~FMI~~securities settlement facility should have robust arrangements for the selection and substitution of such providers, timely access to all necessary information, and ~~the proper~~appropriate controls and monitoring tools (see SSF Standard 14.5).

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

14.9.2. Where a securities settlement facility outsources a critical function – a function that is integral to the safe and effective provision of its core services as a securities settlement facility – a greater degree of scrutiny of such outsourcing arrangements may be appropriate. In scrutinising service providers in accordance with this Standard, a securities settlement facility that outsources critical functions should ensure that each provider of these critical services:

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

The securities settlement facility should inform the Reserve Bank of the arrangements it has in place to ensure that critical-service providers meet these requirements (see SSF Standard 14.10).

14.10. A securities settlement facility should consult with the Reserve Bank prior to entering into an outsourcing arrangement for critical functions. Any such arrangement should provide rights of access to the Reserve Bank to obtain sufficient information regarding the outsourcing provider's operation of the outsourced function.

14.10.1. Prior to entering into an outsourcing arrangement for a critical function, a securities settlement facility should consult with the Reserve Bank (see also SSF Standard 19 on regulatory reporting). As part of this consultation process, the securities settlement facility should provide the Reserve Bank with details of the arrangement, including provisions that satisfy the requirements of SSF Standards 14.5, 14.9, 14.10 and 14.11, and any other provisions necessary to comply with the operational requirements under the SSF Standards. The outsourcing arrangement should incorporate contractual rights of access for the Reserve Bank allowing it to seek information directly from the outsourcing provider in order to assess its operational performance and reliability with regard to the outsourced function (see SSF Standard 14.5).

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

14.11.1. A securities settlement facility should ensure that its operations, including any outsourcing arrangements, are organised in such a way that it is able to provide continuous and reliable service in a crisis, and that the Reserve Bank or other relevant authorities are able to take

effective action to manage or resolve a crisis. A securities settlement facility may need to consider contractual arrangements with outsourcing providers or other service providers that contain explicit provisions safeguarding continuity of service in crisis scenarios, including financial distress to the securities settlement facility.

14.11.2. A systemically important securities settlement facility should have robust arrangements to ensure continuity of service and facilitate effective crisis-management actions by the Reserve Bank or other relevant authorities. In assessing the systemic importance of a securities settlement facility, the Reserve Bank will consider factors such as:

- the size of the securities settlement facility in Australia (for example, the absolute number and value of transactions processed by the securities settlement facility in Australian dollar-denominated products, or its market share)
- the availability of substitutes for the securities settlement facility's services in Australia
- the nature and complexity of the products settled by the securities settlement facility
- the degree of interconnectedness with other parts of the Australian financial system.

14.11.3. A systemically important securities settlement facility that also has a strong connection to the Australian real economy and financial system should also organise its operations so as to facilitate resolution actions taken by the Reserve Bank or other relevant authorities. This may require that the securities settlement facility directly operate critical functions, or, for outsourced functions and to the extent supported by law, provide for contractual rights of access to any appointed statutory manager in a resolution scenario. These rights of access would need to survive termination of the outsourcing agreement. In determining whether a systemically important securities settlement facility has a strong connection to the Australian real economy and financial system, the following factors are likely to be relevant:

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

## **Principle 18** Standard 15: Access and participation requirements

An FMA securities settlement facility should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.

### Explanatory note **Guidance**

**3.18.1.**—Access refers to the ability to use an FMI's securities settlement facility's services and includes the direct use of the FMI's securities settlement facility's services by participants, including other market infrastructures (for example, trading platforms) and, where relevant, service providers (for example, matching and portfolio compression service providers). In some cases, this includes the rules governing indirect participation. An FMA securities settlement facility should allow for fair and open access to its services.<sup>99</sup> It should control the risks to which it is exposed by its participants by setting reasonable risk-related requirements for participation in its services. An FMA securities settlement facility should ensure that its participants and any linked FMIs have the requisite operational capacity, financial resources, legal powers, and risk-management expertise to prevent unacceptable risk exposure for the FMI securities settlement facility and other participants. An FMI's securities settlement facility's participation

<sup>99</sup>—Central banks, however, may exclude certain categories of financial institutions (such as non-deposit-taking institutions) from the FMIs that they operate, such as LVPS, because of legislative constraints or broader policy objectives.

requirements should be clearly stated and publicly disclosed so as to eliminate ambiguity and promote transparency.

~~3.18.2.— Fair and open access to FMI services encourages competition among market participants and promotes efficient and low-cost payment, clearing, and settlement. Because an FMI often benefits from economies of scale, there is typically only one FMI, or a small number of FMIs, for a particular market. As a result, participation in an FMI may significantly affect the competitive balance among market participants. In particular, limiting access to an FMI's services may disadvantage some market participants (and their customers), other FMIs (for example, a CCP that needs access to a CSD), and service providers that do not have access to the FMI's services. Further, access to one or more FMIs may play an important role in a marketwide plan or policy for the safe and efficient clearing of certain classes of financial instruments and the promotion of efficient financial markets (including the reporting and recording of transaction data). An FMI's participation requirements should therefore allow for fair and open access, in all relevant jurisdictions, based on reasonable risk-related participation requirements. Moreover, open access may reduce the concentrations of risk that may result from highly tiered arrangements for payment, clearing, and settlement.~~

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

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

**15.1. An FMI's securities settlement facility 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.**

**15.1.1. Restrictions on access can result in highly tiered settlement arrangements and potentially give rise to concentration risks (see SSF Standard 16 on tiered participation arrangements). Care should therefore be taken that participation requirements allow for fair and open access, in all relevant jurisdictions, and do not arbitrarily limit access to a securities settlement facility's services.**

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

~~15.2. An FMI's~~A securities settlement facility's participation requirements should be justified in terms of the safety ~~and efficiency~~ of the ~~FMI's~~securities settlement facility and the markets it serves, be tailored to and commensurate with the ~~FMI's~~securities settlement facility's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk-control standards, ~~an FMI's~~a securities settlement facility should endeavour to set requirements that have the least ~~restrictive~~ impact on access that circumstances permit.

~~15.2.1. A securities settlement facility's participation requirements should be justified in terms of the safety of the securities settlement facility and the markets it serves, be tailored to the securities settlement facility's specific risks, be imposed in a manner commensurate with such risks, and be set out in the securities settlement facility's rules and publicly disclosed. The requirements should be objective and should not unnecessarily discriminate against particular classes of participants or introduce competitive distortions.~~<sup>100</sup> Operational requirements may include reasonable criteria relating to the participant's ability and readiness (for example, its ~~IT~~information technology capabilities) to use ~~an FMI's~~a securities settlement facility's services. Financial requirements may include reasonable risk-related capital requirements, ~~contributions to prefunded default arrangements~~collateralisation of exposures, and appropriate indicators of creditworthiness. Legal requirements may include appropriate licences and authorisations to conduct relevant activities as well as legal opinions or other arrangements that demonstrate that possible ~~conflict~~conflicts of ~~laws~~issues~~law~~ would not impede the ability of an applicant (for example, a foreign entity) to meet its obligations to the ~~FMI~~An FMI~~securities settlement facility~~. A securities settlement facility also may require participants to have appropriate risk-management expertise. ~~If an FMI~~If a securities settlement facility admits non-regulated entities, it should take into account any additional risks that may arise from their participation and design its participation requirements and risk-management controls accordingly.

~~3.18.6. 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 the FMI's specific risks, be imposed in a manner commensurate with such risks, and be publicly disclosed.~~<sup>101</sup> ~~The requirements should be objective and should not unnecessarily discriminate against particular classes of participants or introduce competitive distortions. For example, participation requirements based solely on a participant's size are typically insufficiently related to risk and deserve careful scrutiny. Subject to maintaining acceptable risk control standards, an FMI should endeavour to set requirements that have the least restrictive impact on access that circumstances permit. While restrictions on access should generally be based on reasonable risk-related criteria, such restrictions may also be subject to the constraints of local laws and policies of the jurisdiction in which the FMI operates.~~<sup>102</sup> ~~Requirements should also reflect the risk profile of the activity; an FMI may have different categories of participation based on the type of activity. For example, a participant in the clearing services of a CCP may be subject to a different set of requirements than a participant in the auctioning process of the same CCP.~~

~~15.2.2. 3.18.7.~~ To help address the balance between open access and risk, ~~an FMI should~~a securities settlement facility should set participation requirements and manage its participant-related risks through the use of real-time binding risk-management controls, ~~risk-sharing arrangements~~, and other operational arrangements that have the least ~~restrictive~~ impact on access ~~and competition~~ that circumstances permit. For example, ~~an FMI~~where a securities settlement facility assumes credit risk as principal, it can ~~use~~manage participant-related risks by using real-time binding credit limits or collateral requirements ~~to help it manage its credit~~

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<sup>100</sup> ~~A similar principle is set out in guidance to SSF Standard 11.1, in relation to the proportionality of obligations placed on non-defaulting participants in the event of a default.~~

<sup>101</sup> ~~Efficiency considerations may affect open access. For example, in some instances, factors such as minimum transaction volumes are relevant to operational efficiency. However, considerations based solely on efficiency should not be used to justify participation requirements that in fact act as unjustifiable barriers to entry.~~

<sup>102</sup> ~~For example, certain categories of financial institutions (such as non-deposit-taking institutions) may be excluded from certain FMIs, such as LVPS, because of local banking laws or policies. Conversely, some local laws, such as securities and antitrust laws, may require broader inclusion of classes of participants in certain types of FMIs, such as CCPs.~~

~~exposure to a particular participant~~. The permitted level of participation may be different for participants maintaining different levels of capital. Where other factors are equal, participants holding greater levels of capital may be permitted less restrictive risk limits or be able to participate in more functions within the ~~FMI~~. ~~The effectiveness of securities settlement facility~~. Such risk-management controls may mitigate the need for ~~an FMI's securities settlement facility~~ to impose onerous participation requirements that limit access. ~~An FMI's securities settlement facility~~ could also differentiate its services to provide different levels of access at varying levels of cost and complexity. For example, ~~an FMI's securities settlement facility~~ may ~~want~~ wish to limit full direct participation to certain types of entities, and to apply limits to the activities of, or provide indirect access to, others.<sup>103</sup> Participation requirements (and other risk controls) can be tailored to each class or tier of participants based on the risks each class or tier poses to the ~~FMI's securities settlement facility~~ and its participants.

15.2.3. When settling on behalf of other market participants, a direct participant assumes responsibility for the risks those market participants bring to the securities settlement facility and its participants. It is therefore important that the direct participant has appropriate financial and operational resources and risk-management arrangements to fulfil its obligations to the securities settlement facility and other participants arising from this activity. In some markets, there may be relatively few direct participants with the financial and operational resources to fulfil this role, and therefore the potential concentration of risks in a small number of direct participants may argue for closer monitoring and perhaps more stringent participation requirements for direct participants that provide settlement services to other market participants (see also SSF Standard 17 on tiered participation arrangements). Where tiering exists, each class of participation should be clearly defined and the participation requirements should be the same for all applicants of the same class.

15.3. An FMI's securities settlement facility 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.

15.3.1. 3.18.8. An FMI's securities settlement facility should monitor compliance with its participation requirements on an ongoing basis through the receipt of timely and accurate information. Participants should be ~~obligated~~ obliged to report any developments that may affect their ability to comply with ~~an FMI's securities settlement facility's~~ participation requirements. ~~An FMI's securities settlement facility~~ should have the authority to impose ~~more stringent restrictions or other additional~~ risk controls on a participant in situations where the ~~FMI's securities settlement facility~~ determines the participant poses heightened risk to the ~~FMI's securities settlement facility~~. For example, if a participant's ~~creditworthiness declines~~ credit standing comes into doubt, the ~~FMI's securities settlement facility~~ may require the participant to provide additional collateral or ~~reduce~~ may place restrictions on the ~~participant's credit limit~~. ~~An FMI's level or types of activities that the participant can undertake (see SSF Standard 4 on credit risk)~~. A securities settlement facility should consider additional reporting requirements for non-regulated institutions. ~~An FMI's securities settlement facility~~ should also have clearly defined and publicly disclosed procedures for, in extreme cases, facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements of the ~~FMI's securities settlement facility (see SSF Standard 4 on credit risk and SSF Standard 11 on participant-default rules and procedures)~~.

15.3.2. If a securities settlement facility has an appeals process for suspending or cancelling participation in the facility, the appeals process should not detract from the securities settlement facility's ability to suspend or cancel participation. For serious breaches, the

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<sup>103</sup> For example, an FMI may accept direct receipt of settlement instructions from indirect participants, which settle on the books of a direct participant. Indirect participants may or may not be explicitly recognised in an FMI's rules and subject to risk controls. In all cases, an indirect participant has a bilateral agreement with a direct participant.



preferable approach would provide for the suspension or cancellation to persist during an appeal, with reinstatement upon a successful appeal, rather than the suspension or cancellation being put on hold until an appeal is heard.

## **Principle 19 Standard 16: Tiered participation arrangements**

An FMI's securities settlement facility should identify, monitor, and manage the material risks to the FMI's securities settlement facility arising from tiered participation arrangements.

### **Explanatory note Guidance**

**3.19.1.**—Tiered participation arrangements occur when some firms (indirect participants) rely on the services provided by other firms (direct participants) to use the FMI's central payment, clearing, securities settlement, or recording facility's settlement facilities.<sup>104</sup>

**3.19.2.**—The dependencies and risk exposures (including credit, liquidity, and operational risks) inherent in these tiered arrangements can present risks to the FMI's securities settlement facility and its smooth functioning, as well as to the participants themselves and the broader financial markets.<sup>105</sup> For example, if an FMI's securities settlement facility has few direct participants but many indirect participants with large values or volumes of transactions, it is likely that a large proportion of the transactions processed by the FMI's securities settlement facility depend on a few direct participants. This will increase the severity of the effect on the FMI's securities settlement facility of a default of a direct participant or an operational disruption at a direct participant. The credit exposures in tiered relationships can also affect the FMI's securities settlement facility. If the value of an indirect participant's transactions is large relative to the direct participant's capacity to manage the risks, this may increase the direct participant's default risk. ~~In some cases, for example, CCPs offering indirect clearing will face credit exposures to indirect participants or arising from indirect participants' positions if a direct participant defaults.~~ There may also be legal or operational risk to the FMI's securities settlement facility if there is uncertainty about the liability for indirect participant transactions and how these transactions will be handled in the event of a default.<sup>106</sup> (see SSF Standard 1 on legal basis).

**3.19.3.**—The nature of these risks is such that they are most likely to be material where there are indirect participants whose business through the FMI's securities settlement facility is a significant proportion of the FMI's securities settlement facility's overall business or is large relative to that of the direct participant through which they access the FMI's securities settlement facility's services. Normally, the identification, monitoring, and management of risks from tiered participation will therefore be focused on ~~financial institutions that are~~ the immediate customers of direct participants and depend on the direct participant for access to an FMI's securities settlement facility's services.<sup>107</sup> In exceptional cases, however, tiered participation arrangements may involve a complex series of financial intermediaries or agents, which may require the FMI's securities settlement facility to look beyond the direct participant and its immediate customer. An important source of tiering is participants' use of commercial settlement banks to effect money settlements and carry out funding and defunding activities. This source of tiering is not directly addressed in this Standard, but rather is considered in SSF Standard 8.

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<sup>104</sup> For the purposes of this principle, ~~an FMI can have two types of relationships that affect~~ This Standard considers tiered participation arrangements. ~~The first that arise from the different relationships that participants may have with the securities settlement facility. One~~ type of relationship is with participants in the FMI's securities settlement facility that are bound by the FMI's securities settlement facility's rules and agreements. Such ~~"direct participants"~~ participants' and the management of the risks they present should be fully covered by the rules and agreements of the FMI's securities settlement facility and are generally dealt with in other ~~principles in this report. The SSF Standards.~~ A second type of relationship is with entities that are not bound by the rules of the FMI's securities settlement facility, but whose transactions are ~~cleared, settled, or recorded by or~~ through the FMI's securities settlement facility. These entities are defined as ~~"indirect participants"~~ participants' in the securities settlement facility in the FMI in this principle Standard.

<sup>105</sup> The risk issues will vary depending on the type of FMI. For TRs, only operational risk will be relevant.

<sup>106</sup> See Principle 1 on legal basis.

<sup>107</sup> CCPs that face credit exposures arising from the positions of indirect participants in the event of a direct participant's default, should identify, monitor, and manage material exposures to non-financial institutions.

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

~~16.1.~~ ~~An FMI securities settlement facility~~ 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 securities settlement facility~~ arising from such tiered participation arrangements.

~~16.1.1.~~ ~~3.19.5.~~ ~~An FMI securities settlement facility~~ may be able to obtain information relating to tiered participation through its own systems or by collecting it from direct participants. ~~An FMI securities settlement facility~~ should ensure that its procedures, rules, and agreements with direct participants allow it to gather basic information about indirect participants in order to identify, monitor, and manage any material risks to the ~~FMI securities settlement facility~~ arising from such tiered participation arrangements. This information should enable the ~~FMI securities settlement facility~~, at a minimum, to identify ~~(a);~~ the proportion of activity that direct participants conduct on behalf of indirect participants; ~~(b);~~ direct participants that act on behalf of a material number of indirect participants; ~~(c);~~ indirect participants with significant volumes or values of transactions in the system; ~~(d)~~ and indirect participants whose transaction volumes or values are large relative to those of the direct participants through which they access the ~~FMI securities settlement facility~~.<sup>108</sup>

~~16.2.~~ ~~An FMI securities settlement facility~~ should identify material dependencies between direct and indirect participants that might affect the ~~FMI securities settlement facility~~.

~~16.2.1.~~ ~~3.19.6.~~ ~~An FMI securities settlement facility~~ should identify material dependencies between direct and indirect participants that can affect the ~~FMI securities settlement facility~~. Indirect participants will often have some degree of ~~dependency~~dependence on the direct participant through which they access the ~~FMI securities settlement facility~~. In the case of ~~an FMI securities settlement facility~~ with few direct participants but many indirect participants, it is likely that a large proportion of the transactions processed by the ~~FMI securities settlement facility~~ would depend on the operational performance of those few direct participants. Disruption to the services provided by the direct participants – whether for operational reasons or because of a participant's default – could therefore present a risk to the smooth functioning of the system as a whole. The ~~FMI securities settlement facility~~ should identify and monitor material dependencies of indirect participants on direct participants so that the ~~FMI securities settlement facility~~ has readily available information on which significant indirect participants may be affected by problems at a particular direct participant.

~~16.2.2.~~ ~~3.19.7.~~ In some cases, issues at an indirect participant could affect the ~~FMI securities settlement facility~~. This is most likely to occur where a large indirect participant accesses ~~an FMI's securities settlement facility's~~ facilities through a relatively small direct participant; (see ~~SSF Standard 16.3~~). Failure of this significant indirect participant to perform as expected, such as by failing to meet its payment obligations, or stress at the indirect participant, such as that which causes others to delay payments to the indirect participant, may affect the direct participant's ability to meet its obligations to the ~~FMI FMI securities settlement facility~~. ~~Securities settlement~~

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<sup>108</sup> If satisfying this ~~key consideration~~Standard requires the collection of sensitive information that may advantage one party over another, the ~~FMI securities settlement facility~~ should ensure that the sensitive information is appropriately protected and used only for risk purposes rather than commercial purposes.

facilities should therefore identify and monitor the material dependencies of direct participants on indirect participants so that the FMI securities settlement facility has readily available information on how the FMI securities settlement facility may be affected by problems at an indirect participant, including which direct participants may be affected.

- 16.3. An FMI securities settlement facility should identify indirect participants responsible for a significant proportion of transactions processed by the FMI securities settlement facility and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI securities settlement facility in order to manage the risks arising from these transactions.

### Credit and liquidity risks in tiered participation arrangements

- 16.3.1. ~~3.19.8.~~ Tiered participation arrangements typically create credit and liquidity exposures between direct and indirect participants. The management of these exposures is the responsibility of the participants and, where appropriate, subject to supervision by their regulators. An FMI securities settlement facility is not expected to manage the credit and liquidity exposures between direct and indirect participants, although the FMI securities settlement facility may have a role in applying credit or position limits in agreement with the direct participant. An FMI securities settlement facility should, however, have access to information on concentrations of risk arising from tiered participation arrangements that may affect the FMI securities settlement facility, allowing it to identify indirect participants responsible for a significant proportion of the FMI securities settlement facility's transactions or whose transaction volumes or values are large relative to those of the direct participants through which they access the FMI securities settlement facility. A securities settlement facility should identify and monitor such risk concentrations.

- 16.3.2. ~~3.19.9.~~ ~~In a CCP, direct participants are responsible for the performance of their customers' financial obligations to the CCP. The CCP may, however, face an exposure to indirect participants (or arising from indirect participants' positions) if a direct participant defaults, at least until such time as the defaulting participant's customers' positions are ported to another participant or closed out.~~ If a participant default would leave the FMI securities settlement facility with a potential credit exposure related to an indirect participant's positions, the FMI securities settlement facility should ensure it understands and manages the exposure it would face. For example, the FMI securities settlement facility may set participation requirements that require the direct participant, on the FMI securities settlement facility's request, to demonstrate that it is adequately managing relationships with its customers to the extent that they may affect the FMI securities settlement facility. A securities settlement facility should also consider establishing concentration limits on exposures to indirect participants, where appropriate.

### Indirect participation and default scenarios

- 16.3.3. ~~3.19.10.~~ Default scenarios can create uncertainty about whether indirect participants' transactions have been settled or will be settled and whether any settled transactions will be unwound. Default scenarios can also raise legal and operational risks for the FMI securities settlement facility if there is uncertainty about whether the indirect or direct participant is liable for completing the transaction. An FMI securities settlement facility should ensure that a default, whether by a direct participant or by an indirect participant, does not affect the finality of indirect participants' transactions that have been processed and settled by the FMI securities settlement facility. A securities settlement facility should ensure that its rules and procedures are clear regarding the status of indirect participants' transactions at each point in the settlement process (including the point at which they become subject to the rules of the system and the point after which the rules of the system no longer apply) and whether such transactions would be settled in the event of an indirect or direct participant default. An FMI securities settlement facility should also ensure that it adequately understands its direct

participants' processes and procedures for managing an indirect participant's default. For example, the FMI securities settlement facility should know whether the indirect participant's queued payments can be removed or future-dated transactions rescinded and whether such processes and procedures would expose the FMI securities settlement facility to operational, reputational, or other risks.

### Encouraging direct participation

**16.3.4.** **3.19.11.** — Direct participation in an FMI securities settlement facility usually provides a number of benefits, some of which may not be available to indirect participants, such as real-time gross settlement, exchange-of-value settlement, or settlement in central bank money. Moreover, indirect participants are vulnerable to the risk that their access to an FMI securities settlement facility, their ability to make and receive payments and their ability to undertake and settle other transactions is lost if the direct participant on whom these indirect participants rely defaults or declines to continue their business relationship. If these indirect participants have large values or volumes of business through the FMI securities settlement facility, this may affect the smooth functioning of the FMI securities settlement facility. For these reasons, where an indirect participant accounts for a large proportion of the transactions processed by an FMI securities settlement facility, it may be appropriate to encourage direct participation. For example, an FMI securities settlement facility may in some cases establish objective thresholds above which direct participation would normally be encouraged (provided that the firm satisfies the FMI securities settlement facility's access criteria). Setting such thresholds and encouraging direct participation should be based on risk considerations rather than commercial advantage.<sup>109</sup>

**16.4.** An FMI securities settlement facility should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.

**16.4.1.** **3.19.12.** — An FMI securities settlement facility should regularly review risks to which it may be exposed as a result of tiered participation arrangements. If material risks exist, the FMI securities settlement facility should take mitigating action when appropriate. The results of the review process should be reported to the board of directors and updated periodically and after substantial amendments to an FMI securities settlement facility's rules.

## Principle 20 Standard 17: FMI links

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

### Explanatory note Guidance

**3.20.1.** — A link is a set of contractual and operational arrangements between two or more FMIs that connect the FMIs directly or through an intermediary. An FMI securities settlement facility may establish a link with a similar type of FMI another securities settlement facility for the primary purpose of expanding its services to additional financial instruments, markets, or institutions.<sup>110</sup> For example, a CSD securities settlement facility operating a central securities depository (referred to as an investor CSD central securities depository) may establish a link to another CSD central securities depository in which securities are issued or immobilised (referred to as an issuer CSD central securities depository) to enable a participant in the investor CSD securities settlement facility to access the services of the issuer CSD central securities

<sup>109</sup> See CGFS, *The macrofinancial implications of alternative configurations for access to central counterparties in OTC derivatives markets*, November, 2011, which notes that overly tiered arrangements can potentially increase systemic risk because of the concentration of credit and operational risk in direct participants.

<sup>110</sup> FMIs in all link arrangements should meet the requirement in key consideration 1 of Principle 18. Open access to other FMIs can be a pre-condition for the establishment of links between FMIs of the same type.

~~depository~~ through the participant's existing relationship with the ~~investor CSD~~.<sup>111</sup>~~securities settlement facility~~. A ~~CCP~~ may establish a link with another ~~CCP~~ to enable a participant in the first ~~CCP~~ to clear trades with a participant in the second ~~CCP~~ through the participant's existing relationship with the first ~~CCP~~. An ~~FMI~~~~securities settlement facility~~ may also establish a link with a different type of FMI. For example, a ~~CCP~~~~central counterparty~~ for securities markets ~~must~~ establish and use a link to a ~~CSD~~~~securities settlement facility operating a central securities depository~~ to receive and deliver securities. This ~~principle~~~~Standard~~ covers links between ~~CSDs~~, ~~CCPs~~, and ~~TRs~~~~securities settlement facilities~~, as well as ~~CSD-CCP~~~~links and~~ links between ~~TRs~~~~a securities settlement facility~~ and other ~~FMI~~~~types of FMI such as central counterparties, central securities depositories and trade repositories~~.<sup>112</sup> If an ~~FMI~~~~a securities settlement facility~~ establishes a link, it should identify, monitor, and manage its ~~links~~~~link~~-related risks, including legal, operational, credit, and liquidity risks.<sup>113</sup> Further, an ~~FMI~~~~a securities settlement facility~~ that establishes multiple links should ensure that the risks generated in one link do not affect the soundness of the other links and linked FMIs. Mitigation of such spill-over effects requires the use of effective risk-management controls, including additional financial resources or the harmonisation of risk-management frameworks across linked FMIs.

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

## Identifying link-related risks

**17.1.1.** ~~3:20-2~~ Before entering into a link arrangement and on an ongoing basis once the link is established, an ~~FMI~~~~a securities settlement facility~~ should identify and assess all potential sources of risk arising from the link arrangement. The type and degree of risk varies according to the design and complexity of the ~~FMI~~~~securities settlement facility~~ and ~~linked FMIs and~~ the nature of the relationship between them. In a simple case of a vertical link, for example, an ~~FMI~~~~a securities settlement facility~~ may provide basic services to another FMI, ~~or vice versa~~, such as a ~~CSD~~~~central securities depository~~ that provides securities transfer services to an ~~SSS~~~~a securities settlement facility~~. Such links typically pose only operational and custody risks. Other links, ~~such as an arrangement in which a CCP provides clearing services to another CCP~~, may be more complex and may pose additional ~~risk to FMI~~~~risks to the securities settlement facility~~, such as credit and liquidity ~~risk~~.<sup>114</sup> ~~Cross-margining by two or more CCPs may also pose additional risk because the CCPs may rely on each other's risk management systems to measure, monitor, and manage credit and liquidity risk (see Principle 6 on margin)~~~~risks~~. In addition, links between ~~different types of a securities settlement facility and other~~ FMIs may pose specific risks to ~~one or all of the securities settlement facility or other~~ FMIs in the link arrangement. For example, a ~~CCP~~~~central counterparty~~ may have a link with a ~~CSD~~~~securities settlement facility~~ that operates an ~~SSS~~~~a central securities depository~~ for the delivery of securities and settlement of margins. If the ~~CCP~~~~central counterparty~~ poses risks to the ~~CSD~~~~securities settlement facility~~, the ~~CSD~~~~facility~~ should manage those risks. In all cases, link arrangements should be designed such that ~~each~~

<sup>111</sup> The term CSD in this principle generally refers to a CSD that also operates an SSS. The use of this broader definition for CSD in this principle mirrors market convention in the discussion of FMI links.

<sup>112</sup> Links to payment systems are not addressed by this ~~principle~~~~Standard~~ because these links are addressed in ~~Principle 9~~~~SSF Standard 8~~ on money settlements.

<sup>113</sup> Prior to entering a link arrangement, an ~~FMI~~~~a securities settlement facility~~ should inform its participants of the expected effects on the ~~FMI~~~~securities settlement facility's~~ risk profile. See also ~~Principle 23~~~~SSF Standard 18~~ on disclosure of rules, key ~~policies and~~ procedures, and market data.

<sup>114</sup> A link between two or more CCPs may enable participants in a CCP in one market to clear transactions in another market through their existing arrangements. By broadening trading opportunities for market participants, without imposing all of the costs normally associated with establishing clearing relationships, links can deepen the liquidity in the affected markets. A link may also reduce the costs of systems development and operation faced by CCPs because it enables them to share these expenses.

~~FMI~~ the securities settlement facility is able to observe the ~~other principles in this report~~ SSF Standards.

## Managing operational risk

~~17.1.2.~~ ~~3-20.4. Linked FMI~~ The securities settlement facility should ~~provide~~ obtain an appropriate level of information about ~~the~~ each linked FMI's operations ~~to each other~~ in order for ~~each FMI~~ the securities settlement facility to perform effective periodic assessments of the operational risk associated with the link. In particular, ~~FMI~~ securities settlement facilities should ensure that risk-management arrangements and processing capacity are sufficiently scalable and reliable to operate the link safely for both the current and projected peak volumes of activity processed over the link (see ~~Principle 17~~ SSF Standard 14 on operational risk). Systems and communication arrangements between the securities settlement facility and linked FMIs also should be reliable and secure so that the link does not pose significant operational risk to the securities settlement facility and the linked FMIs. Any reliance by a ~~linked FMI~~ securities settlement facility on a critical-service provider should be disclosed as appropriate to the ~~other FMI~~ linked FMI and the securities settlement facility should require reciprocal disclosure from the linked FMI. In addition, a linked ~~FMI~~ securities settlement facility should identify, monitor, and manage operational risks due to complexities or inefficiencies associated with differences in time zones, particularly as these affect staff availability. Governance arrangements and change-management processes should ensure that changes in ~~one~~ the securities settlement facility or a linked FMI will not inhibit the smooth functioning of the link, related risk-management arrangements, or non-discriminatory access to the link (see ~~Principle~~ SSF Standard 2 on governance and ~~Principle 18~~ SSF Standard 15 on access and participation requirements).

## Managing financial risk

~~17.1.3.~~ ~~3-20.5. FMI~~ A securities settlement facility in a link arrangement should effectively measure, monitor, and manage ~~their~~ its financial risk, including custody risk, arising from the link arrangement. ~~FMI~~ A securities settlement facility should ensure that ~~they~~ it and ~~their~~ its participants have adequate protection of assets in the event of the insolvency of a linked FMI or a participant default in a linked FMI. Specific guidance on mitigating and managing these risks in CSD-CSD links and CCP-CCP links is provided below.

~~17.2.~~ A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the securities settlement facility and other FMIs involved in the link.

~~17.2.1.~~ ~~3-20.3. A link~~ A link involving a securities settlement facility should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the ~~FMI~~ involved in the link securities settlement facility. Cross-border links may present legal risk arising from differences between the laws and contractual rules governing the linked FMIs and their participants, including those relating to rights and interests, collateral arrangements, settlement finality, and netting arrangements (see ~~Principle~~ SSF Standard 1 on legal basis). For example, differences in law and rules governing settlement finality may lead to a scenario where a transfer is regarded as final in ~~one FMI but not final in the linked FMI~~. ~~In some jurisdictions, differences in laws may create uncertainties regarding the enforceability of CCP obligations assumed by novation, open offer, or other similar legal device. Differences in insolvency laws may unintentionally give a participant in one CCP a claim on the assets or other resources of the linked CCP in the event of the first CCP's default. To limit these uncertainties~~ the securities settlement facility but not final in the linked FMI, or vice versa. To limit any uncertainties arising from such a scenario, the respective rights and obligations of the linked FMIs and, where necessary, their participants should be clearly defined in the link agreement. The terms of the link agreement should also set out, in cross-jurisdictional contexts, an unambiguous choice of law that will govern each aspect of the link.

17.3. Where relevant to its operations in Australia, a securities settlement facility should consult with the Reserve Bank prior to entering into a link arrangement with another FMI.

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

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

17.4. Linked CSDs A securities settlement facility operating a central securities depository that links to another central securities depository should measure, monitor, and manage the credit and liquidity risks arising from each othersuch links. Any credit extensions-between-CSDsextended to the linked central securities depository should be covered fully with high-quality collateral and be subject to limits.

17.4.1. 3:20.6- As part of its activities, an investor CSDa securities settlement facility operating a central securities depository may choose to establish a link with another CSDcentral securities depository. If such a link is improperly designed, the settlement of transactions across the link could subject participants to new or increased risks. In addition to legal and operational risks, linked CSDsthe securities settlement facility and theirits participants could also face credit and liquidity risks. For example, an operational failure or default in one CSDa linked central securities depository may cause settlement failures or defaults in a linked CSDsecurities settlement facility and expose participants in the linked CSDsecurities settlement facility, including participants that did not settle transactions across the link, to unexpected liquidity pressures or outright losses. A CSD'sThe default procedures of a linked central securities depository, for example, could affect a linked CSDsecurities settlement facility through loss-sharing arrangements. Linked CSDsA securities settlement facility operating a central securities depository that has a link with another central securities depository should therefore identify, monitor, and manage theits credit and liquidity risks arising from the linked entity-link arrangement. In addition, any credit extensions-between-CSDsextended to the linked central securities depository should be fully covered fully by high-quality collateral and be subject to limits.<sup>115</sup> Further,

17.4.2. 3:20.8- Furthermore, a securities settlement facility operating a central securities depository and any linked CSDscentral securities depository should have robust reconciliation procedures to ensure that their respective records are accurate and current. Reconciliation is a procedure to verify that the records held by the linked CSDs match for transactions processed across the link. This process is particularly important when three or more CSDscentral securities depositories are involved in settling transactions (that is, the securities are held in safekeeping by one CSDcentral securities depository or custodian while the seller and the buyer participate in one or more of the linked CSDs) (see also Principle 11 on CSDscentral securities depositories).

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<sup>115</sup> In exceptional cases, other adequate collateral may be used to secure credit extensions between CSDs subject to the review and assessment by the relevant authorities. See also principle 4 on credit risk, principle 5 on collateral, and principle 7 on liquidity risk.

17.5. Provisional transfers of securities between linked CSDs a securities settlement facility operating a central securities depository and another central securities depository should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.

17.5.1. Some practices that may be utilised in links between a securities settlement facility operating a central securities depository and other central securities depositories deserve particularly rigorous attention and controls. In particular, provisional transfers of securities between linked CSDs a securities settlement facility operating a central securities depository and the linked central securities depository should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.

~~3.20.7. — An investor CSD should only establish links with an issuer CSD if the link arrangement provides a high level of protection for the rights of the investor CSD's participants. In particular, the investor CSD should use issuer CSDs that provide adequate protection of assets in the event that the issuer CSD becomes insolvent (see Principle 11 on CSDs). In some cases, securities held by an investor CSD can be subject to attachment by the creditors of the CSD or its participants and, as such, can also be subject to freezing or blocking instructions from local courts or other authorities. Further, if an investor CSD maintains securities in an omnibus account at an issuer CSD and a participant at the investor CSD defaults, the investor CSD should not use the securities belonging to other participants to settle subsequent local deliveries of the defaulting participant. The investor CSD should have adequate measures and procedures to avoid effects on the use of securities belonging to non-defaulting participants in a participant default scenario.~~

17.6. An investor CSD a securities settlement facility operating an investor central securities depository that uses an intermediary to operate a link with an issuer CSD central securities depository should measure, monitor, and manage the additional risks (including custody, credit, legal, and operational risks) arising from the use of the intermediary.

17.6.1. ~~3.20.9. If an investor CSD uses an intermediary to operate a link with an issuer CSD, the investor CSD should measure, monitor, and manage the additional risks (including custody, credit, legal, and operational risks) arising from the use of the intermediary. In an indirect CSD-CSD link, arrangement, a securities settlement facility operating an investor CSD central securities depository uses an intermediary (such as a custodian bank) to access the issuer CSD central securities depository. In such cases, the investor CSD securities settlement facility faces the risk that the custodian bank may become insolvent, act negligently, or commit fraud. Although a securities settlement facility operating an investor CSD central securities depository may not face a loss on the value of the securities, the ability of the investor CSD facility to use its securities might temporarily be impaired. The investor CSD The securities settlement facility should measure, monitor, and manage on an ongoing basis its custody risk (see also Principle 16 SSF Standard 13 on custody and investment risks) and provide evidence to the Reserve Bank and other relevant authorities that adequate measures have been adopted to mitigate this custody risk. In addition, the investor CSD securities settlement facility should ensure that it has adequate legal, contractual, and operational protections to ensure that its assets held in custody are segregated and transferable (see Principle 11 SSF Standard 9 on CSDs) central securities depositories). Similarly, a securities settlement facility operating an investor CSD central securities depository should ensure that its any money settlement banks or cash correspondents agents can perform as expected. In that context, the investor CSD securities settlement facility should have adequate information on the business continuity plans of its intermediary and the issuer CSD central securities depository to achieve a high degree of confidence that both entities will perform as expected during a disruptive event.~~

~~3.20.10. A CCP may establish links with one or more other CCPs. Although the details of individual link arrangements among CCPs differ significantly because of the varied designs of CCPs and the markets they serve, there are currently two basic types of CCP links: peer-to-peer links and participant links.~~



3.20.11. In a peer-to-peer link, a CCP maintains special arrangements with another CCP and is not subject to normal participant rules. Typically, however, the CCPs exchange margin and other financial resources on a reciprocal basis. The linked CCPs face current and potential future exposures to each other as a result of the process whereby they each net the trades cleared between their participants so as to create novated (net) positions between the CCPs. Risk management between the CCPs is based on a bilaterally approved framework, which is different from that applied to a normal participant.

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

3.20.13. Both types of links—peer-to-peer and participant links—may present new or increased risks that should be measured, monitored, and managed by the CCPs involved in the link. The most challenging issue with respect to CCP links is the risk management of the financial exposures that potentially arise from the link arrangement. Before entering into a link with another CCP, a CCP should identify and assess the potential spillover effects from the default of the linked CCP. If a link has three or more CCPs, each CCP should identify and assess the risks of the collective link arrangement. A network of links between CCPs that does not properly acknowledge and address the inherent complexity of multi-CCP links could have significant implications for systemic risk.

3.20.14. Exposures faced by one CCP from a linked CCP should be identified, monitored, and managed with the same rigour as exposures from a CCP's participants to prevent a default at one CCP from triggering a default at a linked CCP. Such exposures should be covered fully, primarily through the use of margin or other equivalent financial resources. In particular, 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 (see Principle 6 on margin). Financial resources used to cover inter-CCP current exposures should be prefunded with highly liquid assets that exhibit low credit risk. Best practice is for CCPs to have near real-time inter-CCP risk management. However, at a minimum, financial exposures among linked CCPs should be marked to market and covered on a daily basis. CCPs also need to consider and address the risks arising from links in designing their stress tests and calibrating their prefunded default arrangements. Linked CCPs should also take into account the effects that possible contributions to each other's prefunded default arrangements, exchange of margin, common participants, major differences in their risk management tools, and other relevant features may have on their risk management frameworks, especially in relation to the legal, credit, liquidity, and operational risks they face.

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

3.20.16. A CCP (the first CCP) will usually have to provide margin to a linked CCP for open positions. In some cases, the first CCP may not be able to provide margin that it has collected from its participants to the linked CCP because the first CCP's rules may prohibit the use of its participants' margin for any purpose other than to cover losses from a default of a participant in the first CCP, or the first CCP's legal or

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

3.20.17. Linked CCPs should maintain arrangements that are effective in managing the risks arising from the link; such arrangements often involve a separate default fund to cover that risk. In principle, the risk-management measures related to the link should not reduce the resources that a CCP holds to address other risks. The most direct way to achieve this outcome is for CCPs not to participate in each other's default funds, which may in turn mean that the CCP will need to provide additional margin. However, in arrangements in which CCPs have agreed, consistent with their regulatory framework, to contribute to each other's default funds, the linked CCPs should assess and mitigate the risks of making such contributions via specific conditions. In particular, funds used by a CCP to contribute to another CCP's default fund must represent prefunded additional financial resources and must not include resources used by the CCP to satisfy its regulatory requirements to hold sufficient capital or participant margin funds (or any other funds, including independent default fund resources) held by the CCP to mitigate the counterparty risk presented by its participants. The contributing CCP should further ensure that any consequent exposure of its own participants to the risk of a participant default in the linked CCP is fully transparent to and understood by its participants. The contributing CCPs may, for example, consider it appropriate to ensure the default fund contribution is made only by those of its participants that use the link, if applicable. Moreover, the resources provided by one CCP to another should be held in such a way that they are ring-fenced from other resources provided to that CCP. For example, securities could be held in a separate account at a custodian. Cash would need to be held in segregated accounts to be considered as acceptable collateral in this case.<sup>116</sup> Finally, in case of a participant default in the first CCP, the use of the linked CCP's contribution to the default fund of the first CCP could be restricted or limited. For example, the linked CCP's contribution to the default fund could be put at the bottom of the first CCP's default waterfall.

3.20.18. Link arrangements between CCPs will expose each CCP to sharing in potentially uncovered credit losses if the linked CCP's default waterfall has been exhausted. For example, a CCP may be exposed to loss mutualisation from defaults of a linked CCP's participants. This risk will be greater to the extent that the first CCP is unable directly to monitor or control the other CCP's participants. Such contagion risks can be even more serious in cases where more than two CCPs are linked, directly or indirectly, and a CCP considering such a link should satisfy itself that it can manage such risks adequately. Each CCP should ensure that the consequent exposure of its own participants to a share in these uncovered losses is fully understood and disclosed to its participants. CCPs may consider it appropriate to devise arrangements to avoid sharing in losses that occur in products other than those cleared through the link and to confine any loss sharing to only participants that clear products through the link. Depending on how losses would be shared, CCPs may need to increase financial resources to address this risk.

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

3.20.20. A TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources. A TR can establish links with another TR or with

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<sup>116</sup> In some jurisdictions, the legal framework will not protect the segregation of cash on the books of a commercial bank.

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

[The CCP Standards do not incorporate Principle 21 on efficiency and effectiveness]

[The CCP Standards do not incorporate Principle 22 on communication procedures and standards]

### **Principle 23 Standard 18: Disclosure of rules, key policies and procedures, and market data**

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

#### Explanatory note Guidance

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

**18.1.** A securities settlement facility should adopt clear and comprehensive rules, policies and procedures that are fully disclosed to participants. Relevant rules and key policies and procedures should also be publicly disclosed (including specific requirements relating to SSF Standards 1.4, 2.2, 11.3, 13.4, 15.2 and 15.3).

**18.1.1.** ~~3.23.2.~~ ~~An FMI securities settlement facility~~ should adopt clear and comprehensive rules, policies and procedures that are fully disclosed to participants. Relevant rules and key policies and procedures should also be publicly disclosed. A securities settlement facility's rules, policies and procedures are typically the foundation of the FMI securities settlement facility and provide the basis for participants' understanding of the risks they incur by participating in the FMI securities settlement facility.

**18.2.** An FMI securities settlement facility should disclose clear descriptions of the system's design and operations, as well as the FMI's securities settlement facility's and participants' rights and

obligations, so that participants can assess the risks they would incur by participating in the FMI securities settlement facility (see SSF Standards 2.8 and 8.5).

**18.2.1.** ~~As such,~~ Relevant rules, policies and procedures should include clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations of the securities settlement facility and its participants, so that participants can assess the risk they would incur by participating in the FMI securities settlement facility.<sup>117</sup> They should clearly outline the respective roles of participants and the FMI securities settlement facility as well as the rules, policies and procedures that will be followed in routine operations and non-routine, though foreseeable, events, such as a participant default (see Principle 13 SSF Standard 11 on participant-default rules and procedures). In particular, an FMI securities settlement facility should have clear and comprehensive rules, policies and procedures for addressing financial and operational problems within the system. For example, rules, policies and procedures should identify which parties are to be notified of specific events and the timetables for decision-making and notification. They should make clear the degree of discretion parties are able to exercise in taking decisions that can have a direct effect on the operation of the system.

**18.2.2.** ~~3.23.3.~~ In addition to disclosing all relevant rules, and key policies and procedures, an FMI securities settlement facility should have a clear and fully disclosed process for proposing and implementing changes to its rules, policies and procedures and for informing participants, and the Reserve Bank and other relevant authorities, of these changes. Similarly, the rules, policies and procedures should clearly disclose the degree of discretion that an FMI securities settlement facility can exercise over key decisions that directly affect the operation of the system, including in crises and emergencies (see also Principle SSF Standard 1 on legal basis and Principle SSF Standard 2 on governance). For example, an FMI's securities settlement facility's procedures may provide for discretion regarding the extension of operating hours to accommodate unforeseen market or operational problems. An FMI securities settlement facility also should have appropriate procedures to minimise any conflict-of-interest issues that may arise when authorised to exercise its discretion.

**18.3.** An FMI securities settlement facility should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the FMI's securities settlement facility's rules, policies and procedures and the risks they face from participating in the FMI securities settlement facility.

**18.3.1.** ~~3.23.4.~~ Participants bear primary responsibility for understanding the rules, policies, procedures, and risks of participating in an FMI securities settlement facility as well as the risks they may incur when the FMI securities settlement facility has links with other FMIs. An FMI securities settlement facility, however, should provide all documentation, training, and information necessary to facilitate participants' understanding of the FMI's securities settlement facility's rules, policies and procedures and the risks they face from participating in the FMI securities settlement facility. New participants should receive training before using the system, and existing participants should receive, as needed, additional periodic training. An FMI securities settlement facility should disclose to each individual participant stress-test scenarios used, individual results of stress tests, and other data to help each participant understand and manage the potential financial risks stemming from participation in the FMI.<sup>118</sup> securities settlement facility. For instance, participants should have access to sufficiently timely and broadly comprehensive data on equities securities lending to enable them to assess the potential implications for settlement risk. This is particularly important where equities securities loans are bilaterally negotiated and not novated to (or otherwise cleared through) a central counterparty, but nevertheless settled alongside centrally cleared exchange-traded transactions. Other relevant information that should be disclosed to participants, but typically

<sup>117</sup> Information should be disclosed to the extent it would not risk prejudicing the security and integrity of the FMI securities settlement facility or divulging commercially sensitive information, such as trade secrets or other intellectual property.

<sup>118</sup> In disclosing stress-test information, FMIs should avoid revealing information regarding the positions of individual participants.

not to the public, includes ~~key highlights~~relevant aspects of the ~~FMI's~~securities settlement facility's business continuity arrangements.<sup>119</sup>

~~18.3.2.~~ ~~3.23.5.~~ ~~An FMI~~A securities settlement facility is well placed to observe the performance of its participants and should promptly identify those participants whose behaviour demonstrates a lack of understanding of, or compliance with, applicable rules, policies, procedures, and risks of participation. In such cases, ~~an FMI~~a securities settlement facility should take steps to rectify any perceived lack of understanding by the participant and take other remedial action necessary to protect the ~~FMI~~securities settlement facility and its participants. This may include notifying senior management within the participant institution. In cases in which the participant's actions present significant risk or present cause for the participant's suspension, the ~~FMI~~securities settlement facility should notify the ~~appropriate regulatory, supervisory, Reserve Bank and oversight~~other relevant authorities.

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

~~18.4.~~ ~~An FMI~~A securities settlement facility should complete regularly and disclose publicly responses to the CPSS-IOSCO *Disclosure Framework for Financial Market Infrastructures*. ~~An FMI~~A securities settlement facility also should, at a minimum, disclose basic ~~data on transaction volumes~~risk and valuesactivity data, as directed by the Reserve Bank from time to time.

## Disclosure framework and other information

~~18.4.1.~~ ~~3.23.7.~~ ~~An FMI~~A securities settlement facility should complete regularly, and disclose publicly, responses to the CPSS-IOSCO *Disclosure Framework for Financial Market Infrastructures*. ~~The FMI~~The securities settlement facility should provide comprehensive and appropriately detailed disclosures to improve the overall transparency of the ~~FMI~~securities settlement facility, its governance, operations, and risk-management framework. In order for the disclosures to reflect correctly the ~~FMI's~~securities settlement facility's current rules, policies, procedures, and operations, the ~~FMI~~securities settlement facility should update its responses following material changes to the system or its environment. At a minimum, ~~an FMI~~a securities settlement facility should review its responses to the CPSS-IOSCO *Disclosure Framework for Financial Market Infrastructures* ~~every two years~~each year to ensure continued accuracy and usefulness.

~~18.4.2.~~ ~~3.23.8.~~ Other relevant information for participants and, more generally, the public could include general information on the ~~FMI's~~securities settlement facility's full range of activities and operations, such as the names of direct participants in the ~~FMI~~securities settlement facility, key times and dates in ~~FMI~~its operations, and its overall risk-management framework ~~(including its margin methodology and assumptions)~~.<sup>120</sup> ~~An FMI also should.~~<sup>121</sup> A securities settlement

<sup>119</sup> Information on business continuity that can undermine ~~an FMI's~~a securities settlement facility's safety and soundness, ~~such as the locations of back-up sites~~, should not be disclosed to the public. However, this information should be disclosed to the Reserve Bank and other relevant authorities.

<sup>120</sup> A clear description of the typical lifecycle of the transaction-clearing and settlement process under normal circumstances may also be useful for participants and the public. This information would highlight how the FMI processes a transaction, including the timeline of events, the validation and checks to which a transaction is subjected, and the responsibilities of the parties involved.

facility should also disclose its financial condition, financial resources to withstand potential losses; (where relevant), timeliness of settlements, and other performance statistics. With respect to data, an FMI securities settlement facility should, at a minimum, disclose basic data on transaction volumes and values.<sup>122</sup> The securities settlement facility should also disclose any additional data that the Reserve Bank may direct it to disclose from time to time.

## Forms of disclosure

18.4.3. ~~3.23.9.~~ An FMI securities settlement facility should make the relevant information and data it discloses as set forth in ~~this report~~ these SSF Standards readily available through generally accessible media, such as the internet, in ~~a language commonly used in financial markets~~ English in addition to ~~the any other~~ domestic language(s) of the jurisdiction in which the ~~FMI securities settlement facility~~ securities settlement facility is located. The data should be accompanied by robust explanatory documentation that enables users to understand and interpret the data correctly.

**[The CCP Standards do not incorporate Principle 24 on disclosure of market data by trade repositories]**

## **Standard 19: Regulatory reporting**

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

### Guidance

The Corporations Act 2001 and the SSF Standards impose requirements for notification to the Reserve Bank in certain circumstances. This Standard imposes additional reporting requirements.

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

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

- 19.1. A securities settlement facility should inform the Reserve Bank as soon as reasonably practicable if:
- (a) it breaches, or has reason to believe that it will breach:
    - (i) an SSF Standard; or
    - (ii) its broader legislative obligation to do, to the extent that it is reasonably practicable to do so, all things necessary to reduce systemic risk;
  - (b) it becomes subject to external administration, or has reasonable grounds for suspecting that it will become subject to external administration;
  - (c) a related body to the securities settlement facility becomes subject to external administration, or if the securities settlement facility has reasonable grounds for suspecting that a related body will become subject to external administration;
  - (d) a participant becomes subject to external administration, or if the securities settlement facility has reasonable grounds for suspecting that a participant will become subject to external administration;

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<sup>121</sup> A clear description of the typical lifecycle of the settlement process under normal circumstances may also be useful for participants and the public. This information would highlight how the securities settlement facility settles a transaction, and the responsibilities of the parties involved.

<sup>122</sup> TRs should also disclose data consistent with Principle 24.

- (e) a participant fails to meet its obligations under the securities settlement facility's risk-control requirements or has its participation suspended or cancelled because of a failure to meet the securities settlement facility's risk-control requirements;
- (f) it fails to enforce any of its own risk-control requirements;
- (g) it plans to make significant changes to its risk-control requirements or its rules, policies and procedures;
- (h) it or a service it relies on from a third party or outsourced provider experiences a significant operational disruption, including providing the conclusions of its post-incident review;
- (i) any internal audits or independent external expert reviews are undertaken of its operations, risk-management processes or internal control mechanisms;
- (j) its operations or risk controls are affected, or are likely to be affected, by distress in financial markets;
- (k) it has critical dependencies on utilities or service providers, including providing a description of the dependency and an update if the nature of this relationship changes;
- (l) it proposes to grant a security interest over its assets (other than a lien, right of retention or statutory charge that arises in the ordinary course of business);
- (m) it proposes to incur or permit to subsist any loans from participants or members unless such loans are subordinated to the claims of all other creditors of the securities settlement facility;  
or
- (n) any other matter arises which has or is likely to have a significant impact on its risk-control arrangements (see also SSF Standards 1.6, 14.10 and 17.3).

**19.2. A securities settlement facility should also provide to the Reserve Bank, on a timely basis:**

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