

C2. Financial Stability Standards for Securities Settlement Facilities

The Financial Stability Standards for Securities Settlement Facilities (SSF Standards) are made up of 19 headline standards, each of which is accompanied by a number of more detailed sub-standards. In assessing whether a facility has met each of the SSF Standards, the Reserve Bank takes into account associated guidance.¹

The following provides details of how ASX Settlement and Austraclear observe each of the SSF Standards (including sub-standards). It also sets out the Bank's assessment of how well ASX Settlement and Austraclear complied with each of the SSF Standards as at 30 June.²

Standard 1: Legal basis

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.

ASX Settlement	Austraclear
Observed	Observed

1.1 A securities settlement facility should be a legal entity which is separate from other entities that may expose it to risks unrelated to those arising from its function as a securities settlement facility.

ASX Settlement and Austraclear are wholly-owned subsidiaries of ASX Settlement Corporation Limited, which is itself a wholly owned subsidiary of ASX Limited. As separate legal entities, each of the ASX securities settlement facilities' (SSFs') securities settlement activities are separate from the activities conducted by each of the other ASX clearing and settlement (CS) facilities and the rest of the ASX Group, notwithstanding the sharing of operational resources across multiple entities within the group.

ASX Settlement's services are limited to: settlement services for the ASX market; settlement arrangements for Approved Market Operators (AMOs) through the Trade Acceptance Service (TAS); a DvP settlement service for transactions in non-ASX-listed securities undertaken on trading platforms operated by Approved Listing Market Operators (ALMOs) through the Settlement Facilitation Service; and the mFund Settlement Service for subscriptions and redemption transactions in unlisted managed funds. Accordingly, ASX Settlement does not provide any services that have a distinct profile from, or pose additional risks to, its activity of operating an SSF.

Austraclear provides settlement services and related depository services for debt securities, and settlement services for derivatives traded on the ASX 24 market and for payments to meet margin obligations arising in ASX Clear and ASX Clear (Futures), in accordance with the Austraclear

1 The standards and guidance are available at <<https://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/standards/securities-settlement-facilities/2012/>>.

2 For an explanation of the Bank's Assessment approach and the ratings scale used, see the introduction to Appendix C.

Regulations and Procedures. ASX Collateral Management Services Pty Limited (ASX Collateral), a related legal entity within the ASX Group and a wholly owned subsidiary of ASX Operations Pty Limited, acts as a Special Purpose Participant in Austraclear. ASX Collateral operates a centralised collateral management service (CCMS) under which exchange of title to debt securities occurs in Austraclear.

Austraclear also offers settlement services for foreign currency payments and securities, currently covering payments denominated in RMB (see SSF Standard 8). The foreign currency settlement service is designed to operate independently from Austraclear's AUD services. Austraclear's ancillary services do not have a distinct profile from, or pose additional risks to, its activity of operating an SSF.

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

Legal basis

ASX Settlement's settlement and netting arrangements and Austraclear's settlement arrangements for transactions entered into by their respective participants require a high degree of legal certainty. Key components of the legal framework under which the SSFs operate are listed below:

- The ASX SSFs each hold a CS facility licence under Part 7.3 of the Corporations Act. This licence is administered by the Australian Securities and Investments Commission (ASIC) in consultation with the Bank. The Minister acts as ultimate decision-maker on licensing matters, although this responsibility has been delegated to authorised ASIC officers since April 2016.³
- ASX Settlement has defined Operating Rules and Procedures and Austraclear has defined Regulations and Procedures. Under Section 822B of the Corporations Act, these Operating Rules and Regulations have effect as a contract under seal between: the relevant ASX SSF and each of its respective participants and issuers; each participant and each other participant; and each participant and each issuer. The Operating Rules, Regulations and Procedures set out the rights and obligations of participants and the relevant SSF, including in the event of default or suspension.
- The netting arrangements contained in ASX Settlement's Operating Rules are protected as an 'approved netting arrangement' under Part 3 of the *Payment Systems and Netting Act 1998* (PSNA), and the finality of money settlements is supported by the approval of the Reserve Bank Information and Transfer System (RITS) as a 'Real-time Gross Settlement (RTGS) system' under Part 2 of the PSNA (see SSF Standard 1.5).
- ASX Settlement is a 'prescribed CS facility' for the purposes of Part 7.11, Division 4, of the Corporations Act. Section 1074D of the Corporations Act protects the validity of the transfer of a financial product effected through a prescribed CS facility in accordance with that facility's Operating Rules. Section 10 of the ASX Settlement Operating Rules specifies when transactions are taken to be settled.
- The finality of settlements undertaken by Austraclear is protected by its approval, and the approval of RITS, as an 'RTGS system' under Part 2 of the PSNA (see SSF Standard 1.5).

The legal basis of the ASX SSFs' activities is reviewed by ASX Legal whenever it judges that there are material amendments to the Operating Rules, Regulations or Procedures.

³ While the Minister has delegated responsibility for certain decisions under Chapter 7 of the Corporations Act to authorised ASIC officers, the Minister may still exercise the powers delegated by 'calling up' the matter.

The legal basis for the operation of the CCMS in Austraclear and the status of ASX Collateral as a Special Purpose Participant is set out in the Austraclear Regulations. Legal arrangements between ASX Collateral and customers of the CCMS (which must be Full Participants) are set out in standard-form Collateral Management Service Agreements. The standard-form Service Agreements specify the nature of services that the Collateral Manager provides to users. These agreements are between ASX Collateral and users of the collateral service; Austraclear is not a party to these contracts.

The Austraclear Regulations provide for settlement instructions to be submitted to Austraclear by a Collateral Manager admitted as a Special Purpose Participant and acting as agent for its customers, which must be admitted as Full Participants.

Rights and interests

The rights and interests of ASX Settlement, its participants and, where relevant, its participants' customers in securities held in CHESS are defined in ASX Settlement's Operating Rules and Procedures (see SSF Standard 9).

Similarly, the rights and interests of Austraclear, its participants and, where relevant, its participants' customers in securities deposited with Austraclear are defined in Austraclear's Regulations and Procedures (see SSF Standard 9).

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

Section 822A of the Corporations Act establishes a framework to prescribe the matters that must be dealt with in ASX Settlement's Operating Rules, Austraclear's Regulations and those that may instead be considered under their Procedures. Operating Rule changes are subject to a Ministerial disallowance process, although the Minister's role in this process is delegated to authorised ASIC officers.

ASX Settlement's Operating Rules and Procedures and Austraclear's Regulations and Procedures are published on the ASX public website and the Customer Portal, ASX's restricted participant website. These documents are supplemented with explanatory material to support participants' (and prospective participants') understanding of the risks they face through participation in the system. In addition to the Operating Rules, Regulations and Procedures, publicly available material includes high-level descriptions of both SSFs' operations and settlement process, business continuity arrangements, fees and charges and ASX Clear's Default Management and Recovery Framework (DMRF) (as it applies to ASX Settlement participants that also participate in ASX Clear).

There is a clear process for changing ASX Settlement's Operating Rules and Procedures and Austraclear's Regulations and Procedures. In practice, proposed changes to Operating Rules or Regulations are submitted informally to ASIC. In consultation with the Bank, ASIC considers the proposed changes and advises ASX of any regulatory concerns. Once such concerns are satisfactorily addressed, ASIC invites formal submission of the proposed Operating Rule or Regulation changes, which triggers a 28-day disallowance period (referred to above), during which the Minister may choose to disallow the Operating Rule or Regulation changes. The Minister or delegate must consider a number of factors when deciding whether to disallow Operating Rule or Regulation changes, including whether the proposed changes are consistent with the public interest.⁴ In addition, the Minister or delegate must ensure that there has been adequate consultation with the Bank when

4 Section 827A of the Corporations Act sets out the matters the Minister must have regard to, available at <http://www.austlii.edu.au/au/legis/cth/consol_act/ca2001172/s827a.html>.

deciding whether to disallow Operating Rule or Regulation changes, and consider any advice and recommendations from the Bank and ASIC staff.⁵ If changes to the Operating Rules or Regulations are not disallowed by the Minister or delegate, they are notified to participants via the ASX website.

1.4 A 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.

The legal basis for the activities of ASX Settlement and Austraclear and the protections afforded by the approval of each facility under the relevant parts of the PSNA (see also SSF Standard 1.5) are described in the Disclosure Framework document available on ASX's public website. This document sets out in detail how each CS facility meets the requirements of each Principle within the *Principles for Financial Market Infrastructures* (PFMI) developed by the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) (see SSF Standard 18.4).⁶

On behalf of each licensed entity within the ASX Group, including all ASX CS facilities, ASX Limited submits an annual report to ASIC under section 792F of the Corporations Act that is shared with the Bank. This report sets out the extent to which each licensee has complied with its obligations under Chapter 7 of the Corporations Act.

The ASX SSFs may seek independent legal opinions on relevant legal matters relating to significant new services, including any implications that their introduction may have for the legal basis of existing functionality. These opinions may, in some circumstances, be shared with participants or other stakeholders for their information, particularly to demonstrate that new Operating Rules or Regulations will have the intended legal effect.

1.5 A 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 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

The finality of ASX Settlement's settlement process, which is established in the ASX Settlement Operating Rules, is protected by:

- the approval of its netting arrangements under Part 3 of the PSNA; this approval ensures that netting in accordance with ASX Settlement's Rules and Procedures is legally certain.
- its designation as a 'prescribed CS facility' for the purposes of Part 7.11, Division 4 of the Corporations Act, in relation to the transfer of financial products effected through the settlement facility.

5 For more information see 'Guidelines for the Exercise of Powers Delegated to ASIC under Chapter 7 of the Corporations Act 2001', available at <<https://treasury.gov.au/publication/guidelines-for-the-exercise-of-powers-delegated-to-asic-2016/>>.

6 Available at <<http://www.asx.com.au/documents/asx-compliance/pfmi-disclosure-framework.pdf>>. Prior to 1 September 2014, CPMI was known as the Committee on Payment and Settlement Systems (CPSS).

The finality of Austraclear’s settlement process, which is established in the Austraclear Regulations, is protected by its approval as an ‘RTGS system’ under Part 2 of the PSNA. With this approval, a transaction settled in Austraclear at any time on the day on which a participant enters external administration has the same effect as if the participant had gone into external administration on the next day (in the case of a winding up) or as if the participant had not gone into external administration (in the case of other forms of external administration). Accordingly, in the event of insolvency all transactions settled on the day of the insolvency are irrevocable and cannot be unwound simply because of the event of external administration (i.e. they are protected from the ‘zero-hour’ rule).

In addition, to the extent that settlement in ASX Settlement or Austraclear depends on the settlement of interbank obligations in RITS, this is also protected from the zero-hour rule by the approval of RITS as an ‘RTGS system’ under Part 2 of the PSNA (see SSF Standard 8).

Enforceability of rules under external administration

ASX has identified no material legal risk to enforceability of ASX Settlement’s Operating Rules and Austraclear’s Regulations should the SSFs enter into external administration.

1.6 A securities settlement facility conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflicts of law 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.

Although the ASX SSFs’ operations are based in Australia, participants of ASX Settlement and Austraclear include subsidiaries and branches of entities that are domiciled in foreign countries. ASX Settlement’s Operating Rules and Austraclear’s Regulations are governed by Australian law and require that all of their respective participants submit to the jurisdiction of New South Wales courts.

ASX Legal’s analysis of potential conflicts of law across jurisdictions has identified no material legal risks.

Standard 2: Governance

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

ASX Settlement	Austraclear
Broadly observed	Broadly observed

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

The high-level objectives of the ASX SSFs are set out in the CS Boards’ Charter, which is available on the ASX public website. The objectives prioritise the boards’ responsibilities in the area of risk management and, in particular, the SSFs’ responsibility for complying with relevant financial stability standards (FSS).

The ASX SSFs' objectives recognise the public interest. These objectives are reflected in the ASX Limited Board Charter, which provides that the board has a responsibility to oversee the conduct of the ASX Group consistent with licence obligations, as well as public policy objectives directed at financial market and payments system integrity. The CS Boards' Charter also specifically acknowledges the boards' public interest responsibilities, as well as the ASX SSFs' obligations under Part 7.3 of the Corporations Act. These include that ASX Settlement and Austraclear, to the extent that it is reasonably practicable to do so, comply with relevant FSS and do all other things necessary to reduce systemic risk arising from their services, and that they provide their services in a fair and effective way. The CS Boards' Charter also notes that ASX's Cash Equities Clearing and Settlement Code of Practice reflects its commitment to comply with the *Regulatory Expectations for the Conduct of Cash Equity Clearing and Settlement Services in Australia*.⁷

To support the interests of its customers, ASX maintains a customer charter, which is referenced in the CS Boards' Charter and is available on the ASX public website⁸. The ASX customer charter establishes commitments that ASX: works with its customers to deliver products and services that meet their needs and provide them with choice; makes its products and services available on a non-discriminatory basis and on reasonable commercial terms; and manages its businesses and operations on a commercial basis to benefit its customers and provide appropriate returns to ASX shareholders. The ASX customer charter recognises ASX's role as a provider of critical infrastructure to the Australian financial markets and commits to make the necessary investments to ensure it can fulfil this role and provide confidence to market participants, investors and regulators.

The ASX SSFs' governance arrangements allow for appropriate consideration of stakeholder views. When considering new services or major operational or risk management changes, ASX uses stakeholder forums and other formal and informal consultation processes to communicate proposed changes to relevant stakeholders (see SSF Standard 2.8). Consultations and non-confidential responses to consultations are made available on the ASX public website. In addition, the ASX Group has disclosure obligations under the Corporations Act and Listing Rules, which it manages in accordance with those laws and rules.

2.2 A 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.

The governance arrangements of ASX Settlement and Austraclear are documented on the ASX public website. This documentation includes the charters of the ASX Limited Board, the CS Boards (which include the ASX Settlement Board and the Austraclear Board), and board committees. The charters provide information about the role and composition of the CS Boards and board committees. The CS Boards are responsible for the oversight and risk management of the ASX CS facilities (see SSF Standard 2.3). The board committees advise the ASX Limited Board on a number of matters:

- The Audit and Risk Committee is responsible for the oversight of ASX Group enterprise-wide risk. The committee monitors ASX's financial management, internal controls, audit function and legal compliance, and assists the CS Boards in fulfilling their responsibility for the oversight of risk management of the ASX CS facilities.

7 These are set out in the Council of Financial Regulators' *Regulatory Expectations for the Conduct of Cash Equity Clearing and Settlement Services in Australia*, available at <<https://www.cfr.gov.au/publications/cfr-publications/2016/regulatory-expectations-policy-statement/>>.

8 The CS Boards' Charter is available at <<https://www.asx.com.au/documents/about/CS-Board-Charter.pdf>>.

- The Remuneration Committee oversees the remuneration and incentive framework for the Managing Director and Chief Executive Officer (CEO), non-executive directors, senior executives, and ASX staff more generally (see SSF Standard 2.5).
- The Nomination Committee is responsible for reviewing matters relating to board composition and performance, succession planning, and training for non-executive board members (see SSF Standard 2.4).

The charters also provide information about key senior managers of the SSFs, including the Managing Director and CEO, and the Chief Risk Officer (CRO). Profiles of CS facility directors are also publicly available online. Key governance policies and charters are reviewed regularly by the relevant boards and committees. Each of the charters of the ASX Limited and the CS Boards are reviewed and approved by the respective board on an annual basis.

The ASX Limited Annual Report provides information about ASX Group's risk management arrangements, including the roles of boards, key committees, key subsidiary boards (including the CS Boards) and the roles of Group Executives who report directly to the Managing Director and CEO. Explanatory documentation on the ASX website also describes: the FSS and the Principles; group and business structure, including biographies of Group Executives; and risk management policies (in summary form). ASX's response to the CPMI-IOSCO Disclosure Framework also summarises key governance and risk management arrangements (see SSF Standard 18.4).

Under the Corporations Act, ASX must notify ASIC as soon as practicable after a person becomes or ceases to be a director, secretary or senior manager of the ASX SSFs, including when a person changes from one of those positions to another. Changes to these positions and senior risk management personnel are also notified to the Bank.

During the assessment period, an independent external review of ASX's technology governance, operational risk and control frameworks identified that ASX's three lines of defence model for risk management, in particular the risk management and compliance functions for operations and technology, had been under-resourced and lacked clarity regarding roles and responsibilities for risk activities across the organisation. ASX has commenced work to strengthen its three lines of defence model in these areas (see section 3.2).

2.3 The roles and responsibilities of a 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.

Ultimate responsibility for the oversight of risks faced by ASX Settlement and Austraclear lies with the ASX Limited Board and each SSF's respective board. The ASX Limited Board is accountable for the overall management of the ASX Group. Its responsibilities include:

- reviewing the ASX Group's corporate strategy and approving major initiatives
- overseeing and monitoring the ASX Group's performance consistent with its strategic goals, licence obligations and public policy objectives
- reviewing and approving financial plans, and monitoring financial performance
- appointing and assessing the performance of the Managing Director and CEO

- overseeing the risk management, internal control, and compliance functions, including the implementation of ASX's enterprise risk management policy
- ensuring that appropriate mechanisms are in place for identifying, controlling, monitoring and reporting significant risks
- reporting to, and communicating with, shareholders.

The ASX Limited Board Charter describes the responsibilities of the CS boards. The CS Boards provide oversight of the clearing and settlement operations of the CS subsidiaries, including the management of settlement risk. The CS Boards are responsible for (among other matters) overseeing the adequacy of management, systems and processes, and culture to achieve ongoing compliance with the FSS. The CS Boards' Charter elaborates on the roles and responsibilities of the ASX Settlement and Austraclear boards. The CS Boards' Charter places requirements on the structure of the CS Boards, including that the majority of directors and the Chair be independent. The ASX Settlement and Austraclear boards meet regularly and receive detailed reports on each SSF's business and operations, risk management and financial performance. During the assessment period, the ASX Settlement Board and the Austraclear Board (the Settlement Boards) each had eight formal meetings. In addition, the directors of ASX Settlement that are not also directors of ASX Limited met six times to consider conflict-sensitive matters.

Board performance is reviewed periodically by the relevant boards. The process may be facilitated by external independent consultants. A number of tools may be used, including review, skills matrices and surveys, and externally facilitated group discussions. Details of board performance reviews are set out in the ASX Limited Annual Report (the same process applies for the key subsidiary boards).

The CS Boards' Charter sets out how the boards address directors' interests and potential conflicts. Directors of the CS Boards must disclose all material personal interests (such as shareholdings, directorships and consultancy arrangements) which may potentially conflict with their duties. If there is a change in a director's material personal interests, the director must notify that change at the next meeting of the CS Boards. If there is a real possibility of a material conflict of interest and duty on a matter being voted on at a meeting of the CS Boards, the director must not be present for the discussion or vote related to that matter.

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

At the end of the assessment period:

- the ASX Limited Board had nine members, comprising the Chairman, the Managing Director and CEO, and seven non-executive directors
- the ASX Settlement Board comprised one executive director (the ASX Managing Director and CEO) and five independent non-executive directors, two of whom were members of the ASX Limited Board
- the Austraclear Board comprised one executive director (the ASX Managing Director and CEO) and seven independent non-executive directors, four of whom were members of the ASX Limited Board.

There are five directors that serve on all four CS Boards; one additional director serves on both the ASX Clear and ASX Settlement boards and three additional directors serve on both the ASX Clear (Futures) and Austraclear boards. The differences between the composition of the CS Boards, and

between the CS Boards and ASX Limited, are primarily for business reasons, but also support ASX's conflict handling arrangements (see SSF Standard 2.9).

As set out in the CS Boards' Charter, directors of the CS facilities are appointed by the relevant CS Boards with input from the Nomination Committee. In addition, the ASX Limited Board, may appoint or remove directors from the CS Boards. Directors are selected based on relevant skills and expertise. Two of the non-executive directors of ASX Settlement are also members of the ASX Limited Board, while the remaining three, including the Chair, are external directors appointed for their expertise in clearing and settlement operational and risk management matters. Four of the non-executive directors of Austraclear are also members of the ASX Limited Board, while the remaining three are external directors appointed for their expertise in clearing and settlement operational and risk management matters. This helps to ensure that directors have the capacity to conduct informed independent reviews of relevant issues. The directors of ASX Settlement and Austraclear have experience in senior roles across a range of financial sectors globally, including international banking, asset management, and financial, derivatives and capital markets.

The CS Boards' Charter sets out the ASX policy that the majority of directors on each CS Board must be independent. The *Board Policy and Guideline to Relationships Affecting Independent Status* is available on the ASX website.⁹ The independence of directors is assessed according to this policy, which is aligned to the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations* for listed companies. Each board considers whether directors are free of business or other relationships that could materially interfere with, or could reasonably be perceived to interfere with, the independent exercise of the director's judgement. The biographies of the directors, which show their relationship with other ASX Group companies, are set out on the ASX website.¹⁰

Selection, succession planning and training for board members are matters that are addressed by the Nomination Committee and boards at appropriate intervals. New directors receive a comprehensive induction co-ordinated by the Company Secretariat. The boards also receive regular briefings at board meetings, workshops, customer engagement meetings and site visits. This helps to ensure that directors are kept informed of relevant market and industry developments, and assists in developing the skills and technical knowledge of the boards.

Directors' fees at ASX Limited, ASX Settlement and Austraclear are considered at regular intervals by the ASX Limited Remuneration Committee. ASX's fee structure has been designed to assist it in attracting and retaining appropriately skilled and qualified non-executive directors and recognises the workload and level of skill and expertise that a director must have to effectively meet their responsibilities. Remuneration of directors is determined by the ASX Limited Board on the recommendation of the Remuneration Committee. In conducting a review, the ASX Limited Board may take advice from an external remuneration consultant. The process involves benchmarking against a group of peer companies. ASX reviewed its non-executive director fee structure in August 2017 and made changes that became effective in October 2017. Under the new fee structure, ASX Limited non-executive director remuneration comprises a single base fee (plus superannuation) in respect of a director's appointment to the ASX Limited Board and any committee or subsidiary boards (including the CS Boards). There were no changes to the fees paid to directors on the CS Boards who are not also directors of ASX Limited.

9 Available at <<https://www.asx.com.au/documents/about/ASXL-guidelines-affecting-independent-status.pdf>>.

10 Available at <<http://www.asx.com.au/about/board-and-management.htm>>.

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

ASX has clear and direct reporting lines between management and the CS Boards. These are set out in the CS Boards' Charter, along with the roles and responsibilities of the Managing Director and CEO, Chief Operating Officer (COO) and the CRO.

In the normal course, the Managing Director and CEO has responsibility for the overall operational and business management and profit performance of ASX, while the CRO has responsibility for the overall settlement risk management of the CS facilities and for ensuring that CS facility licence obligations are met. The COO is also responsible for the delivery of overall operations of the ASX Group and reports directly to the CEO, as does the CRO. The Chief Information Officer (CIO) and Executive General Manager Operations report to the COO. Both COO and CRO have a direct reporting line to the CS Boards and are entitled to attend and be heard at CS Board meetings. The CRO and COO are invited to attend and present at meetings of the ASX Limited Board and Audit and Risk Committee as required.

ASX has a remuneration policy and performance management framework in place, which aims to ensure that management personnel have an appropriate mix of skills and experience to discharge their responsibilities. The ASX Limited Remuneration Committee has delegated responsibility from the ASX Limited Board to conduct detailed examination of certain matters under ASX's remuneration and incentive framework, including succession plans, recruitment, and retention strategies. The committee also reviews the remuneration arrangements of the ASX Group directors and the remuneration and incentive framework for all ASX staff, including the Managing Director and CEO, the Deputy CEO, Group Executives and General Managers. The committee members are appointed by the ASX Limited Board, and must consist of at least three members, a majority of whom must be independent non-executive directors, and an independent chair who is not the Chairman of ASX Limited. The committee has direct access to ASX senior management and the authority to seek independent advice. The CS Boards have delegated responsibility to the committee for compensation arrangements and performance management processes relating to the CRO and COO. The CS Boards provide input on the setting of key performance indicators and may review the performance outcomes for these positions.

ASX carries out succession planning and management processes in order to promote leadership continuity in key positions, and develop intellectual depth and business knowledge. This includes the periodic review of a 'talent assessment tool' by Group Executives and Human Resources to identify and manage the development of high potential staff according to individual and business needs. Succession and contingency planning is conducted for Group Executives, General Managers and other key staff.

2.6 The board should establish a clear, documented risk management framework that includes the 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.

ASX has a documented risk management framework, which is described under SSF Standard 3.1. The ASX Limited Board has established a group-wide risk appetite statement. ASX intends to update its risk appetite statement by March 2019 in response to a finding of the external review of technology governance, operational risk and controls that the current statement lacks the level of detail required to be an effective decision-making tool. The CS Boards are responsible for the management of CS licensees within the risk appetite and operational tolerances set by the ASX Limited Board. The CS Boards are also responsible for approving and reviewing high-level risk management policies relevant to clearing and settlement operations. The boards have oversight of all new clearing and settlement risk policies and standards, as well as material changes to existing clearing and settlement policies and standards. Each board considers these policies in accordance with its respective obligations. Board feedback is incorporated before risk policies and standards are approved.

Responsibilities under the high-level risk management policy relevant to SSF risk are distributed as follows:

- ASX's Settlement Risk Policy Framework provides a formal structure for the development, governance and review of settlement risk policies and standards, and is reviewed by the CS Boards on an annual basis. Reporting to the CS Boards occurs quarterly on the operation of the SSFs and their compliance with risk management policies and standards, and on broader management and operational matters. Internal Audit conducts a rotational risk-based independent audit program (see SSF Standard 2.7); this includes review of whether relevant operational functions comply with board-approved policies and standards, where necessary using external specialists to assist with reviews. The CS Boards may also request external reviews.
- The Audit and Risk Committee has responsibility for the oversight of the Enterprise Risk Management Framework.

During the assessment period, ASX introduced a new structure for its management committees:

- The Risk Committee is a senior management committee responsible for managing the framework associated with risk management of the ASX Group. The committee is chaired by the CRO, who exercises delegated authority from the CEO. The CRO is the sole decision-maker on the committee and the remaining committee members may provide recommendations to assist the CRO in making decisions. The Risk Committee replaces two previous committees – the Enterprise Risk Management Committee and the Capital and Liquidity Committee (CALCO).
- The Regulatory Committee is a senior management committee responsible for managing the processes associated with the development of ASX policies in relation to the licensed entities in the ASX Group, including the CS facilities. The committee is chaired by the ASX Group General Counsel and Company Secretary.
- The Technology, Operations and Security Committee is a senior management committee chaired by the COO. The primary responsibility of the committee is to oversee ASX's technology, operations and security strategies, and the investments that support such strategies. The COO is the sole decision-maker on the committee and the remaining committee members may provide recommendations to assist the COO in making decisions.
- Individual functions are responsible for: identifying business-specific risks; applying controls; maintaining risk management systems; reporting on the effectiveness of risk controls; and implementing enhancements and taking remedial action as appropriate. Each function is required to maintain a record of its risk profile, reviewing this on a six-monthly basis and

updating as appropriate. This record includes key risk indicators and action plans to address any identified risk that is not adequately mitigated. Documented policies and standards specify requirements for periodic formal review. More frequent reviews are undertaken where there are potential changes to technology, legal or regulatory requirements, or business drivers.

The Clearing and Settlement Operations and Settlement Services functions have responsibilities relevant to the management of settlement risks that are defined in ASX's Settlement Risk Policy Framework.

Directors are entitled to obtain independent advice. The ASX Limited Annual Report addresses directors' access to information, management and advice. To the extent that directors wish to seek independent advice, they can raise this in board meetings, with the Managing Director and CEO, or with the Chairman. ASX Settlement also obtains participant feedback on risk management matters through the Business Committee (see SSF Standard 2.8).

2.7 A securities settlement facility's operations, risk management processes, internal control mechanisms and accounts should be subject to internal audit and, where appropriate, periodic independent expert reviews. 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.

ASX maintains an internal audit plan that provides for a three-to-five-year review cycle of key operational and risk management processes, and internal control mechanisms that are governed by ASX's enterprise risk management framework, business continuity framework and enterprise compliance framework, using the internal audit methodology. The internal audit plan is approved by the ASX Limited Audit and Risk Committee, and those aspects of the audit plan that are relevant to the CS Boards are approved by those boards. ASX's internal audit arrangements are set out in an Internal Audit Charter, which is reviewed and approved by the ASX Limited Audit and Risk Committee every two years and made available on the ASX public website.

The internal audit function operates independently of other functions within ASX's Risk Group. Its principal objective is to 'provide independent, objective assurance and advisory activity designed to add value and improve the operations of ASX'. Its scope covers the policies, processes and procedures of all risk management and internal control systems. Internal Audit also has reporting lines to the Audit and Risk Committee and Managing Director and CEO for audit purposes and to the CRO for administrative purposes. Internal Audit also has reporting lines to the CS Boards for matters relating to the CS facilities. If a potential conflict arises between Internal Audit and the CRO, Internal Audit would use the reporting lines to the Managing Director and CEO, Audit and Risk Committee, or the CS Boards.

The role and performance of the internal audit function is regularly reviewed by the ASX Limited Audit and Risk Committee. Internal Audit is also reviewed by external independent auditors on a three-year cycle. Following the external review of technology governance and operational risk and control frameworks in late 2017, the next such audit will be aligned to the timeline for enhancing ASX's three lines of defence model, and is planned for 2019-20. The last such audit, conducted in October/November 2014, concluded that Internal Audit was appropriately carrying out its role as the key provider of assurance services within ASX, and was operating in accordance with the *International Standards for the Professional Practice of Internal Auditing*. The performance of the General Manager, Internal Audit is also assessed each year by the Audit and Risk Committee.

ASX has a clearly defined methodology for internal audit, based on the International Professional Practices Framework set out by the Institute of Internal Auditors.¹¹ The internal audit methodology allows for ad hoc reviews if, for example, material new risks are identified or other changes to ASX's business occur. This is a matter which the General Manager, Internal Audit and the Audit and Risk Committee consider. The CS Boards may also request ad hoc reviews.

During the assessment period, the Bank was notified of findings from internal audit reports and external reviews, including those related to ASX's operational risk management, technology governance and cyber resilience (also see SSF Standard 14). The reviews identified a number of weaknesses, including that information provided to executive and board forums was often in summarised form that lacked detailed analysis, and that there was limited formal sharing of information across the risk governance structure. ASX has made changes to its management committee structure and arrangements for Board meetings that are designed to address these concerns (see SSF Standard 2.6). Additional changes to address review findings are planned over coming years, including the implementation of a governance, risk and compliance system to support information requirements.

2.8 Governance arrangements should ensure that the 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 forums on operational arrangements, risk controls 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.

The interests of direct and indirect participants and other relevant stakeholders are recognised in the ASX Limited Board Charter, the CS Boards' Charter and the ASX Customer Charter (see SSF Standard 2.1).

The views of participants and other stakeholders are sought through formal and informal means. ASX routinely conducts public consultations when considering major changes to existing services or new service offerings. These consultations allow for written submissions and discussion in both bilateral and open forums. Participants' views may also be gathered through the induction program for new participants, as well as ongoing participant liaison and compliance checks.

Under ASX's *Code of Practice for Clearing and Settlement of Cash Equities in Australia* (the Code of Practice), ASX established the Business Committee, a stakeholder advisory body for ASX's cash market clearing and settlement services. The Business Committee comprises representatives of clearing participants, settlement participants, AMOs and industry associations representing relevant stakeholders. The key objective of the Business Committee is to provide user input to the boards of ASX Clear and ASX Settlement on the design, operation and development of the clearing and settlement services and infrastructure for the Australian cash equity market, and provide a formal mechanism for ASX Clear and ASX Settlement to consult users on their strategic plans and investment decisions in relation to these services. The Business Committee's proposals and recommendations are presented to the ASX Clear and ASX Settlement boards for consideration. Although the boards are not obliged to accept the committee's advice, they are required to provide reasons for any decision not to do so. Where it considers it appropriate, the Business Committee can appoint a Technical Committee

11 The Institute of Internal Auditors is the leading international organisation representing internal auditors. It has developed a set of standards that provides a framework for carrying out and evaluating the performance of internal audits.

to assist with the performance of its duties. For example, in December 2016 ASX formed a Technical Committee to consider matters related to CHES messaging and the adoption of the ISO 20022 messaging standard. During the assessment period, the Business Committee discussed a range of initiatives, including the CHES Replacement project, the performance of ASX's cash market clearing and settlement service and regulatory matters.

Austraclear also consults with a User Group to receive user feedback on Austraclear's design, operation and the development of its forward work plan. The User Group, which met twice in the assessment period, is currently made up of representatives from 14 of Austraclear's major participants and representatives from the Bank and the Australian Financial Markets Association. The User Group may convene technical working groups to examine and provide advice on specific matters as required.

2.9 A securities settlement facility that is part of a group of companies should ensure that measures are in place such that decisions taken in accordance with its obligations as a securities settlement facility cannot 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 intragroup outsourcing arrangements.

ASX has conflict-handling arrangements to manage potential conflicts of interest that its directors and staff may face. The potential for intragroup conflicts arising from ASX's group structure is addressed by intragroup service agreements, which set out the basis on which other group entities will provide services to the CS facilities and specify that the entities providing the services must have sufficient financial and other resources to meet their obligations. These agreements provide that ASX Group staff are under a duty to act in the best interests of the facility that is receiving the services.

ASX's governance arrangements are designed to ensure that shared directorships within the ASX Group cannot compromise each CS facility's compliance with its licence obligations, including observance of the FSS. ASX considers that there is limited potential for shared directorships to create conflicts between ASX's group-wide commercial interests and the risk management function of the CS facilities. More broadly, it considers that conflicts between directors' roles on the CS Boards and the ASX Limited Board are unlikely given the distinct roles the separate entities perform, and in view of group-wide arrangements to manage matters such as operations and compliance. If a conflict were to arise, a director sitting on multiple CS Boards would be expected to make decisions in the best interests of each facility.

The structure of the ASX Settlement Board further limits the potential for conflict related to the settlement of cash equities. Two directors are able to form a quorum of the ASX Settlement Board, allowing matters that raise potential conflicts of interest in relation to AMOs and ALMOs to be considered and decided as required without the involvement of directors that are also on the ASX Limited Board. The independent directors of ASX Settlement that are not also directors of ASX Limited met on six occasions during the assessment period to consider conflict-sensitive information.

Standard 3: Framework for the comprehensive management of risks

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

ASX Settlement	Austraclear
Observed	Observed

3.1 A 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 securities settlement facility. This risk management framework should be subject to periodic review.

Identification of risk

ASX's high-level framework for risk management is described in its Enterprise Risk Management Policy. Specific risks are identified and assessed on how likely it is the risk event will occur within the next 12 months and the potential impact. Reputational and participant impacts are considered along with the financial, operational and regulatory impacts of risks.

Comprehensive risk policies, procedures and controls

ASX's Enterprise Risk Management Policy has been developed with reference to the international standard ISO 31000 *Risk Management – Principles and Guidelines*.¹² At a high level, the ASX Enterprise Risk Management Policy outlines: the overall risk environment in the ASX Group; the objectives of risk management policies; the process by which risks are identified and assessed; the controls in place to detect and mitigate risks; and how risks are monitored and communicated. ASX's stated tolerance for financial, operational, legal and regulatory risks is 'very low'.

ASX uses key risk indicators to measure levels of risk in the organisation and categorise risk levels according to a scale: satisfactory; below or at target risk tolerance, action required to further control the level of risk; above target residual risk but within risk tolerance; or unsatisfactory, exceeding ASX's risk tolerance.

The Enterprise Risk Management Policy also sets out how specific risk responsibilities across the ASX Group, including to the ASX Limited Board of Directors, the Audit and Risk Committee, the Risk Committee, the General Manager, Enterprise Risk and managers of individual functions are assigned. Managers of relevant functions are responsible for identifying and monitoring risks relevant to their function's activities, as well as for designing and implementing risk management controls to manage identified risks. As part of the risk profiling and assessment process, management assesses the appropriateness and operational effectiveness of these controls twice a year; these assessments are reviewed by the Risk Committee.

ASX's Settlement Risk Policy Framework sets out a comprehensive set of settlement-related risk policies to support the risk management approach of ASX's SSFs. These policies govern more detailed internal standards, which in turn govern specific procedures for the management of settlement-related risks. The structure of policies, standards and procedures reflects the requirements of the FSS.

¹² ISO is an international standard-setting body and ISO 31000 is considered to be relevant guidance for enterprise risk management. The ISO 31000 standard has been reproduced by Standards Australia and Standards New Zealand as AS/NZS 31000.

A number of boards and internal committees oversee settlement risk management policy, including:

- *The CS Boards.* Each CS facility has a board (see SSF Standard 2.3 and 'ASX Group Structure' in Appendix B.1), which shares members with the other ASX CS facilities. The Settlement Boards have oversight of the Settlement Risk Policy Framework, and are responsible for any significant amendments. Policies and designated key standards under the framework are also governed by the Settlement Boards.
- *Risk Committee.* The Risk Committee is constituted to ensure the adequacy and appropriateness of the risk management frameworks, policies, processes and activities of the ASX Group. This includes overseeing the implementation and adequacy of the Enterprise Risk Management Policy and reviewing and approving key risk management policies, standards and procedures. It is chaired by the CRO and comprises the CEO, Deputy CEO, Chief Financial Officer (CFO), COO and Group General Counsel and Company Secretary. The Risk Committee meets at a minimum on a quarterly basis.
- *Regulatory Committee.* The Regulatory Committee is chaired by the ASX Group General Counsel and Company Secretary and is made up of the CEO, Deputy CEO, Chief Compliance Officer, COO and CRO. The committee manages the processes associated with the development and execution of policy in relation to the operation and conduct of the ASX CS facilities, and ASX's licences, markets and other operations. It also oversees regulatory and legal management processes across ASX, amongst other responsibilities. The Regulatory Committee meets on a quarterly basis.
- *Participant Incident Response Group (PIRG).* PIRG is responsible for coordinating ASX's response to a settlement participant incident, and provides input into policy determinations and settings as necessary in response to such incidents. The PIRG is chaired by the Executive General Manager, Operations, and is made up of senior staff from the operational, risk management, compliance and legal functions. Meetings of PIRG are convened as required to address an actual or potential participant incident.

Information and control systems

Since ASX Settlement and Austraclear do not assume credit or liquidity risk as principal (see SSF Standards 4 and 6), they do not require information and control systems to monitor these risks.

ASX Settlement nevertheless employs information systems that provide participants with information regarding their money and securities settlement obligations. This information assists participants in managing their funding and delivery obligations and risks (see SSF Standard 6.2). By contrast, Austraclear's use of DvP Model 1 settlement avoids the creation of credit exposures during the settlement process and limits the direct liquidity impact of a participant default on non-defaulting participants (see SSF Standard 10.2). Accordingly, there are no relevant participant settlement and funding flows for Austraclear to measure and monitor (see SSF Standard 6.2).

Internal controls

ASX's documented risk management policies and standards specify requirements for periodic formal review, although more frequent reviews may occur depending on changes to technology, business drivers or legal requirements. Reviews are conducted by specific working groups and committees as required. The Risk Committee approves enterprise-wide policies and standards. Under the Enterprise Risk Management Policy, ASX updates its risk profile every six months at a functional level, identifying relevant risks and setting out planned actions to respond to those risks.

Risk management arrangements are also subject to periodic review by Internal Audit. Such audits aim to provide assurance that the risk management framework continues to be effective. Risk management arrangements may also be subject to review by external experts from time to time.

The Enterprise Risk Management Policy is reviewed by the Audit and Risk Committee on a two-year cycle, with the most recent review taking place in February 2016. In late 2017, ASX commenced a three-year plan to refresh its enterprise risk management approach (see section 2.3.2).

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.

ASX Settlement and Austraclear do not place financial obligations on their participants under their respective risk management frameworks. The ASX SSFs are not participants or guarantors to any transaction submitted for settlement through them and are not directly exposed to credit or liquidity risk. ASX Settlement's DvP Model 3 settlement process and Austraclear's DvP Model 1 settlement process do not expose participants to settlement risk (see SSF Standard 10.2). At ASX Settlement, fees levied on participants that fail to meet their securities delivery obligations are proportional to the value of the failed obligations. At Austraclear, transactions that are not settled successfully on the day that they are submitted are removed from the settlement queue at close of business without penalty. Operational and other participation requirements placed on participants are discussed under SSF Standards 14.6 and 15.2.

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 securities settlement facility.

ASX Settlement and Austraclear may apply sanctions to, or place additional requirements on, participants that fail to comply with their Operating Rules or Regulations. Participants may ultimately be required to seek alternative settlement arrangements.

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

ASX Settlement and Austraclear review the material risks that they bear from and pose to other entities in the context of their ongoing review of enterprise risks (such as the six-monthly update of risk profiles; see SSF Standard 3.1), and their processes for identifying risks associated with new activities. In the case of new products and services, ASX undertakes risk assessments when undertaking an expansion of its activities or in the event of material changes to its business. Risk assessments are built into ASX's project management framework (see SSF Standards 12.1 and 14.4).

The interdependency between ASX Settlement and ASX Clear for the settlement of novated transactions is managed within the context of ASX Group's broader risk management framework (see SSF Standard 17).

The interdependencies between Austraclear and each of ASX Clear and ASX Clear (Futures) for the settlement of margin and other payment obligations are managed within the context of ASX Group's broader risk management framework (see SSF Standard 17).

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

ASX Settlement and Austraclear have established a recovery plan that identifies scenarios that could threaten the ASX SSFs' ongoing provision of critical services, describes events that would trigger the activation of the recovery plan, and sets out how ASX would respond to such scenarios. It also describes the suite of tools available to the SSFs in recovery and details the governance arrangements both for the use of these tools and for review of the recovery planning framework. ASX has integrated the testing and review of the recovery plan into its broader framework for testing and review of risk and default management policies and processes.

Standard 4: Credit risk

A securities settlement facility should effectively measure, monitor and manage its credit exposures to participants and those arising from its settlement processes. A securities settlement facility should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence.

ASX Settlement	Austraclear
Not applicable	Not applicable

ASX Settlement and Austraclear do not extend credit to participants or provide a settlement guarantee. Accordingly, ASX Settlement and Austraclear do not assume credit risk as principal. Furthermore, the settlement process at ASX Settlement does not give rise to credit exposures for participants, since settlement occurs on a DvP Model 3 basis (see SSF Standard 10) and replacement cost risk (in respect of on-market trades in ASX-listed securities) is managed via novation to ASX Clear as central counterparty.

The Bank has therefore concluded that SSF Standard 4 and SSF Sub-standards 4.1 to 4.5 do not apply to ASX Settlement or Austraclear.

Standard 5: Collateral

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

ASX Settlement	Austraclear
Not applicable	Not applicable

ASX Settlement does not assume credit risk as principal (see SSF Standard 4). Furthermore, the settlement process does not give rise to credit exposures for participants, since settlement occurs on a DvP Model 3 basis (see SSF Standard 10) and replacement cost risk (in respect of on-market trades

in ASX-quoted securities) is managed via novation to ASX Clear as central counterparty. Accordingly, ASX Settlement does not collect collateral from participants.

Since Austraclear settles on a DvP Model 1 basis and does not assume credit risk as principal (see SSF Standard 4), it does not collect collateral from participants.

The Bank has therefore concluded that SSF Standard 5 and SSF Sub-standards 5.1 to 5.7 do not apply to ASX Settlement or Austraclear.

Standard 6: Liquidity risk

A securities settlement facility should effectively measure, monitor and manage its liquidity risk. A 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 securities settlement facility in extreme but plausible market conditions.

ASX Settlement	Austraclear
Observed	Observed

6.1 A securities settlement facility should have a robust framework to manage its liquidity risks from its participants, commercial bank money settlement agents, nostro agents, custodians, liquidity providers and other entities.

Neither ASX Settlement nor Austraclear face liquidity risks as principal from their participants, commercial bank money settlement agents, nostro agents, custodians or liquidity providers. In the event of the default it would be the participants in the relevant SSF (including the relevant central counterparty (CCP)) that would have to manage the liquidity risk.

6.2 A 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.

Since ASX Settlement and Austraclear do not face liquidity risks as principal they do not need operational and analytical tools to identify, measure and monitor their settlement and funding flows. However, they do provide such tools to participants in order to allow participants to do so on an ongoing and timely basis.

ASX Settlement provides participants with information regarding their money and securities settlement obligations between trade date and settlement date. This information includes individual trade notifications, netted obligations, projected funds obligations and rescheduled settlements following delivery failures. Participants use this information to monitor and manage their funding and delivery obligations and risks.

In the event of a participant default, ASX Settlement may use its back-out algorithm to reconstitute the batch and select novated transactions to be settled via an OTA. ASX Settlement's back-out arrangements are described in Section 10 of the ASX Settlement Operating Rules, as well as in related procedures available to participants. ASX Settlement has published a guidance note on default

management to explain the operation of the back-out algorithm. Furthermore, during consultation with participants on the introduction of OTAs, ASX released a consultation paper and subsequent explanatory note outlining the operation and potential liquidity impact of OTAs on novated transactions (see SSF Standard 6.1). ASX Clear has subsequently developed additional disclosures to assist participants in understanding the potential liquidity impact of reconstitution of the ASX Settlement batch arising from the use of OTAs (see Appendix C.1, CCP Standard 7.1).

Austraclear also provides information to participants to assist them in their liquidity management. This includes the provision of real-time information on transactions and securities account balances. Austraclear also has tools to help participants manage their transactions. For example, participants have control over the priority of transactions that are on the settlement queue, which in turn determines the order in which those transactions would settle.

6.3 A securities settlement facility 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.

Since ASX Settlement and Austraclear do not assume liquidity risk as principal the requirement to maintain liquid resources to cover payment obligations in stressed scenarios does not apply.

6.4 For the purpose of meeting its minimum liquid resource requirement, 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 a securities settlement facility has access to routine credit at the central bank of issue, the 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.

Since ASX Settlement and Austraclear do not assume liquidity risk as principal, the minimum liquid resource requirement does not apply.

6.5 A securities settlement facility may supplement its qualifying liquid resources with other forms of liquid resources. If the securities settlement facility does so, 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 a 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. A securities settlement facility should not assume the availability of emergency central bank credit as part of its liquidity plan.

Since ASX Settlement and Austraclear do not assume liquidity risk as principal, the need to supplement their qualifying liquid resources does not apply.

6.6 A 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 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. A securities settlement facility should regularly test its procedures for accessing its liquid resources at a liquidity provider.

Since ASX Settlement and Austraclear do not assume liquidity risk as principal, the requirement to maintain liquid resources to cover payment obligations in stressed scenarios does not apply.

6.7 A 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.

Since ASX Settlement and Austraclear do not assume liquidity risk as principal, the requirement to use central bank accounts, payment services or securities services does not apply. Nevertheless, both SSFs make use of central bank money (SSF Standard 8).

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

Since ASX Settlement and Austraclear do not assume liquidity risk as principal, the requirement to test the sufficiency of their liquid resources does not apply.

6.9 A securities settlement facility should establish explicit rules and procedures that enable the 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 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.

The ASX SSFs have rules and procedures that govern the management of a participant default (SSF Standard 11). However, since ASX Settlement and Austraclear do not assume liquidity risk as principal the requirement to establish rules and procedures to address unforeseen and potentially uncovered liquidity shortfalls and replenish any liquid resources do not apply.

Standard 7: Settlement finality

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

ASX Settlement	Austraclear
Observed	Observed

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

The point at which settlement is final in ASX Settlement is set out in its Operating Rules and Procedures. Settlement in ASX Settlement occurs on a DvP Model 3 basis, whereby cash payments and securities transfers are settled simultaneously in a single daily multilateral net batch. The securities-leg of equities trades takes place in ASX Settlement and the linked interbank cash obligations settles via RITS on a multilateral net basis. Settlement of securities transfers is final once ASX Settlement has recorded the transfers of securities in the settlement accounts of participants. The point of settlement of the interbank payment obligations is set out in the RITS Regulations. Under these regulations, the settlement of a payment in RITS is final and irrevocable when the Exchange Settlement Accounts (ESAs) of the paying and receiving RITS members are simultaneously debited and credited.

Participants are also able to initiate free-of-payment transfers of securities, as well as lodge equity collateral, in ASX Settlement. The point at which these transfers and lodgements are final is also set out in the ASX Settlement Operating Rules and Procedures.

The point at which settlement in Austraclear is final is defined in its Regulations. In the case of transactions involving the transfer of a security, settlement is final when Austraclear has made the appropriate amendments to the security records of the participants involved in the transaction. In the case of transactions involving an AUD cash payment, the interbank cash element of the transaction is settled and may not be unwound when a message is received from RITS that the cash transfer has been effected. The point of settlement of the interbank payments obligations in RITS is set out in its Regulations. Upon receipt of the RITS confirmation, Austraclear will update the cash record of the participant. The cash record is a record of the day's flow of debits and credits against each participant's nominated account that allows participants to limit the amount of their funds made available for settlement of transactions.¹³

For foreign currency cash payments in Austraclear (currently for the settlement of Renminbi payments), the transaction is settled and may not be unwound once Austraclear has received settlement instructions from the paying participant that satisfy cash record limit checks with its participating bank. Participants receive a claim on the foreign currency settlement bank upon updating of their cash record in that currency (see SSF Standard 8.5).

¹³ The cash record starts at zero at the beginning of the day and records debit and credit cash movements through the day. A total debit limit may be set on the cash record by the participant. When a settlement instruction has been matched, the cash leg of each transaction is tested against the debit limit. If the debit limit is not exceeded, the transaction will be sent to RITS for settlement; otherwise, the transaction will remain in a pending state until sufficient funds are available (i.e. through another transaction that delivers cash or through the participant increasing the limit).

Settlement finality in Austraclear and RITS, as well as the legal certainty of netting in ASX Settlement is supported by certain statutory protections in the PSNA (see SSF Standard 1.5).

7.2 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. A securities settlement facility should consider adopting real-time gross settlement (RTGS) or multiple batch processing during the settlement day.

ASX Settlement uses a DvP Model 3 mechanism with settlement in a multilateral net batch.¹⁴ Participants are required to have securities in their settlement account by 11.30 am on the day of settlement sufficient to meet their obligations in the batch. Due to the netting efficiencies inherent in settling on a DvP Model 3 basis via a single batch, ASX Settlement currently has no plans to increase the frequency of batch settlement beyond once per day.

Once participants' net delivery obligations have been determined, ASX Settlement confirms that sufficient securities are available in each participant's settlement account in CHES. If there is a securities shortfall, ASX removes transactions from the multilateral net batch via the CHES back-out algorithm and reschedules the transactions for settlement on the next day as long as the participant is not in default (see SSF Standard 11). The transfer of securities designated for settlement by participants within the system is then restricted until the settlement process has been completed. Net cash payment obligations are forwarded for settlement in RITS across payment providers' ESAs. Immediately after cash settlement has been confirmed, ASX Settlement effects the net transfer of securities within CHES. Settlement is usually completed by around 12.30 pm. In the case of a failed settlement caused by a funds shortfall, ASX Clear will inject funds into the settlement batch or enter into an OTA with sellers of affected securities to facilitate timely settlement of novated obligations (see Appendix C.1, CCP Standard 7.3).

Settlement of securities transactions in Austraclear occurs on a DvP (or equivalent simultaneous exchange of assets) Model 1 basis. This involves the simultaneous exchange of assets (cash and securities) between the buyer and seller on an item-by-item basis in real time (see SSF Standard 10). Austraclear additionally provides for one-way cash transfers between participants and securities transfers that are free of payment; these transfers are also settled on an item-by-item basis. Although settlements occur in real time, transactions may be held pending during the settlement day (the value date) due to insufficient funds or securities. However, all settlements must occur by the end of the settlement day. Any instructions not settled at the end of the day are automatically moved to a 'failed' status and removed from Austraclear. To the extent that participants to a 'failed' transaction intend to complete settlement, these transactions must be resubmitted to Austraclear. 'Failed' transactions are not automatically restored on the following day. Austraclear's Regulations establish the basis for settlement of transactions entered into the system.

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

ASX Settlement's participants have until settlement cut-off (typically 11.30 am) on the day of settlement to remove payment or transfer instructions from the settlement batch.

¹⁴ ASX Settlement has also developed the functionality to settle securities transactions on a DvP Model 1 basis (by individual line of stock) via its CHES RTGS service. The functionality is not currently used by any settlement participants.

At Austraclear, the cut-off times for cancelling payment or transfer instructions are in line with the daily Austraclear cycle. Some cut-off times vary according to whether participants are engaged in evening settlement operations in RITS. Key cut-off times are:

- 1.00 pm for automated re-generation of corporate action instructions (e.g. maturity and coupon payments to bond holders) if amendments are required. However, manual corrections can be processed after this time.
- 4.28 pm for the cancellation of DvP and cash transactions by participants that do not engage in evening operations.
- 6.32 pm AEST (8.32 pm AEDT) for the cancellation of transactions by participants engaging in evening operations.
- 7.00 pm AEST (9.00 pm AEDT) for foreign currency transactions by participants.

No transaction can be cancelled once it is at 'payment pending' status in Austraclear, which occurs following matching of instructions from both participants involved in the transaction or, in the case of foreign currency payments, once the transaction has passed cash record limit checks. In all cases, the above deadlines can be extended at the discretion of Austraclear, with extension of the last two deadlines requiring the Bank's approval due to the implications for RITS.

Standard 8: Money settlements

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

ASX Settlement	Austraclear
Observed	Observed

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

ASX Settlement's money settlements are all settled in central bank money. Net payment obligations in ASX Settlement associated with securities transfers are settled between commercial settlement banks, known as payment providers, in a single multilateral batch across ESAs at the Bank, via RITS.

Similarly, Austraclear's AUD money settlements are all settled in central bank money. Payment obligations in Austraclear are settled on an RTGS basis across ESAs at the Bank, via RITS.

This includes money settlements initiated by ASX Collateral; while it is expected that most collateral substitutions will involve the exchange of one security for another on a DvD basis, cash may be used as a last resort to effect collateral substitution.

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

Money settlements in ASX Settlement and AUD money settlements in Austraclear are effected using central bank money.

Austraclear offers a foreign currency settlement service, which currently supports the settlement of payments in RMB. Settlement of these payment transactions is effected in commercial bank money across the books of the Bank of China (Sydney branch). Austraclear requires that a foreign currency settlement bank be prudentially supervised (i.e. licensed as an authorised deposit-taking institution (ADI)).

8.3 If a securities settlement facility settles in commercial bank money or its participants effect settlements using commercial settlement banks, it should monitor, manage and limit credit and liquidity risks arising from the commercial bank money settlement agents and commercial settlement banks. In particular, a securities settlement facility should establish and monitor adherence to strict criteria for commercial banks appropriate to their role in the settlement process, taking account of matters such as their regulation and supervision, creditworthiness, capitalisation, access to liquidity and operational reliability. A securities settlement facility should also monitor and manage the concentration of its and its participants' credit and liquidity exposures to commercial bank money settlement agents and settlement banks.

ASX Settlement

Participants in ASX Settlement use commercial bank payment providers to effect money settlements on their behalf. Payment providers must be approved by ASX Settlement and their provision of this service is governed by the terms of a standard deed. The terms of payment provider arrangements are covered by the CHESSE Payment Interface Standard Payments Provider Deed, entered into by ASX Settlement, ASX Clear, AusPayNet and the relevant commercial bank. This deed sets out payment authorisation deadlines and other operational requirements for payment providers that act as commercial settlement banks for participants.

A payment provider must submit an application to ASX Settlement and meet the following criteria:

- be approved by the Australian Prudential Regulation Authority (APRA) as an ADI for the purpose of carrying out banking business within Australia
- be a member of RITS with an ESA
- have the operational capacity to make payments to participants and on behalf of participants
- have executed the standard client payment deed
- have the technical ability to connect to CHESSE, and the technical and financial capacity to participate in DvP settlement.

ASX Settlement does not have a formal process to monitor that payment providers meet these criteria on an ongoing basis, other than to observe that they remain connected to CHESSE and continue to meet payment obligations by the required cut-off times. In the event that a payment provider experienced operational difficulties or failed to meet cut-off times, ASX Settlement would investigate the matter through senior-level discussions with the affected payment provider.

Currently there are 11 payment providers. ASX periodically monitors the proportion of participants that use each payment provider, but this is not subject to frequent change. ASX has identified that two large Australian banks act as payment providers for a large share of participants; however, the average value of daily settlements involved is small relative to the financial and operational capacity of these banks.

The process of updating the deed involves negotiation with AusPayNet and payment providers, which could create delays in implementing changes to authorisation deadlines or other operational

requirements required to support changes to the settlement process. ASX, working with AusPayNet, has established a framework for formally engaging payment providers on changes to settlement processes in response to regulatory or market-driven change. This is in the form of an AusPayNet standing sub-committee comprising representatives of the payment providers, with ASX acting as an ‘observer’. The role of the committee is to consider and provide feedback on proposed amendments to the Standard Payments Provider Deed, facilitate consultation with payment providers, and help to ensure that payment providers are notified of any upcoming developments.

Austraclear

Settlement of AUD payments is in central bank funds. Since not all Austraclear participants are eligible to hold an ESA, Austraclear rules provide for those participants to nominate a participating bank (an ESA holder that agrees to act on behalf of a participant as settlement agent). A participating bank in Austraclear must be approved by APRA as an ADI for the purpose of carrying out banking business within Australia, and be a member of RITS with an ESA. Participating banks must also satisfy Austraclear’s general participation requirements, which cover matters such as operational capacity, financial standing, and business continuity arrangements (see SSF Standard 15).

Austraclear is not a party to arrangements between settlement participants and participating banks (which may also be Austraclear participants) and is not directly exposed to credit or liquidity risk. Under Austraclear Regulations, participating banks must meet the AUD money settlement obligations of any participant that they represent in central bank money. Participating banks do not receive title to any securities due from settlement. Title is delivered to the participant upon settlement in central bank money. Credit exposures, if any, between participants and participating banks are managed bilaterally on the same basis as any transactional banking arrangement.

Austraclear is similarly not directly exposed to credit or liquidity risks from Bank of China in respect of its settlement service for RMB payments. To act as a foreign currency settlement bank, a bank must be an ADI subject to regulation by APRA. In considering a bank’s application to be a foreign currency settlement bank, Austraclear considers factors such as the bank’s prudential regulation, operational reliability and capacity, business continuity management and business integrity and operations. Business continuity requirements are set out in the Austraclear Regulations. The Bank of China has been appointed the official RMB clearing bank for Australia by the People’s Bank of China (PBoC), which affords it more direct access to RMB liquidity from the PBoC.

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

ASX Settlement and Austraclear do not conduct money settlements on their own books.

8.5 A securities settlement facility’s legal agreements with any commercial bank money settlement agents should state clearly when transfers on the books of the relevant commercial bank 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 securities settlement facility and its participants to manage credit and liquidity risks.

ASX Settlement does not conduct settlements via commercial bank money settlement agents. Participants’ arrangements with payment providers are conducted under legal agreements between the parties involved. ASX Settlement does, however, maintain separate agreements with payment providers regarding operational requirements (see SSF Standard 8.3).

Austraclear does not use commercial bank money settlement agents for its AUD money settlement activities. Participants' arrangements with participating banks to access central bank money settlement are conducted under legal agreements between the parties involved; Austraclear is not a party to these agreements.

Austraclear's legal agreement with Bank of China acknowledges that the record of RMB transfers in Austraclear provides participants with a claim on Bank of China, notwithstanding that participants' accounts at Bank of China are updated only at the end of day. The transfer of these claims are final once participants' RMB cash records in Austraclear have been updated.

Standard 9: Central securities depositories

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

ASX Settlement	Austraclear
Observed	Observed

9.1 A 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.

ASX Settlement operates a central securities depository that maintains a record of securities holdings and movements for ASX-quoted securities, and securities listed by AMOs and ALMOs, through the CHESSE sub-register. Securities registries maintain a separate record of holdings on behalf of issuers, using information on securities movements provided by CHESSE.

Austraclear acts as central securities depository for the securities that it settles.

The ASX SSFs employ a range of controls designed to ensure the integrity of securities they hold. They maintain dual redundancy and a synchronous data update model which ensures that securities holding data are consistent across primary and backup data centres (see SSF Standard 14).

The ASX SSFs conduct periodic reconciliation of securities issues they maintain.

- At ASX Settlement, a monthly statement is sent to securities holders to report changes in their holdings of securities on the CHESSE sub-register, and issuer registries are sent daily information on the movement of securities to enable them to accurately maintain company registers.
- Austraclear produces a daily report that reconciles opening and closing balances of holdings to transactions. This report is used to identify if a holding has not been accurately updated.

Annual audits of the controls used in ASX Settlement's and Austraclear's systems are conducted by an external auditor, with the resulting reports published on the ASX website. These audits assess controls over transaction processing, as well as change management, security protocols, technology operations and disaster recovery planning. The auditor's opinion is provided under the Australian Government Auditing and Standards Board standard ASAE 3402 – Assurance Report on Controls at a

Service Organisation. Due to the coverage of these external audits, ASX Internal Audit performs additional risk-based audits of key ASX Settlement and Austraclear functions on an as needs basis.

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;**

ASX Settlement

Securities settled by ASX Settlement are dematerialised (electronic) and held in CHESS. Title is held in the name of clients of ASX Settlement participants. Encumbrances are recorded by placing a holding lock on securities that have been pledged for collateral against margin obligations to ASX Clear, or are subject to participation in a buy-back or takeover, or are subject to actions such as court orders or bankruptcy proceedings. Sub-positions of securities pledged as collateral to ASX Clear are reconciled against records in ASX Clear's Derivatives Clearing System at least annually.

The CHESS sub-register forms part of an issuer's primary securities register. Maintenance and reconciliation of the complete register is the responsibility of the issuer or its appointed agent. Most ASX Settlement participants settle across a centralised settlement account and subsequently allocate securities to end-clients in the CHESS sub-register. As part of its end-of-day processes, CHESS reports net movements on each sub-register to the holder of the issuer's complete register (i.e. generally a share registry). Settlement participants utilise the centralised account under 'trust' provisions and are obliged to give irrevocable legal title to an end-client as long as that client has met all relevant conditions in respect of the settlement.

For securities that cannot be directly held in a dematerialised form in CHESS (e.g. Australian Government securities), ASX Settlement utilises the CHESS Depository Interest (CDI) structure. Under this structure, the security is held in a separate securities depository, in which legal title is recorded, but a beneficial interest known as a CDI is created and maintained in CHESS. Holders of CDIs have beneficial, but not legal, ownership of the underlying security. Legal title is held by a related entity of ASX Settlement, CHESS Depository Nominees Pty Limited, or another nominee as appointed by the issuer.

Austraclear

Austraclear's Regulations identify title for three different classes of securities: Dematerialised Securities; Non-paper Securities and Euro entitlements; and Paper Securities.

- Dematerialised Securities are electronic securities that are registered in the Austraclear system rather than externally. They include electronic certificates of deposit, electronic promissory notes and electronic bank-accepted bills of exchange. A Dematerialised Security is held by a participant as a 'chose in action'. This legal structure imposes rights and obligations that replicate the rights and obligations of a negotiable instrument.
- Non-paper Securities and Euro entitlements are electronic securities that are not registered within the Austraclear system. Non-paper Securities include Australian Government securities, registrable state and semi-government securities, and corporate debt. Euro entitlements are claims to investment-grade AUD-denominated European securities that are deemed acceptable by Austraclear and are deposited in an account that Austraclear maintains at Clearstream (see SSF Standard 17.1). The entitlements remain within Austraclear and transfer of title occurs across these accounts, rather than offshore. In the case of Non-paper Securities and Euro entitlements,

Austraclear holds legal title for the participant as nominee, while the participant retains beneficial title.

- Paper Securities are negotiable instruments and include some certificates of deposit, promissory notes and bills of exchange. Austraclear holds these securities for the participant as bailee, with the participant retaining legal and beneficial title (see SSF Standard 9.1(b)).

The Austraclear Regulations and Procedures provide the legal and operational basis for the transfer of title or interests between participants, including the timing of transfers and the role of pledges (encumbrances). Securities pledged in Austraclear require both the pledgor and pledgee to match a pledge request within the system. This places a lock on those securities until the pledgee accepts a request from the pledgor to release the lock.

Under the standard Austraclear account structure, participants can pledge securities to collateralise an exposure created outside the system without the transfer of title, or to exchange securities under repurchase agreements with the transfer of title. These securities may then be used by the collateral receiver without encumbrance (as long as the collateral giver has agreed that they may be re-used, which is standard practice).

The Austraclear Regulations also provide for account structures to support a CCMS. The accounts include collateral accounts to hold securities that have been given as collateral by way of outright transfer (Transferred Collateral Accounts) or security interest (Secured Collateral Accounts). These accounts are used only by users of the CCMS (who must be Full Participants) and are controlled by the Collateral Manager as their agent. A collateral receiver may re-use securities held by it in a Transferred Collateral Account (unless re-use has been restricted by agreement between the collateral giver and collateral receiver), but only within the CCMS and through the Collateral Manager as its agent. The collateral receiver may also instruct the Collateral Manager to transfer the securities to another account for sale or repo outside of the Collateral Management System, but only on condition that equivalent replacement securities are transferred into the collateral account. Austraclear also offers two types of accounts to hold securities to be lent or borrowed under securities lending agreements managed within a CCMS.

Settlement instructions for the CCMS are generated by the optimisation service operated by Clearstream based on exposure details provided by customers. The settlement instructions are given to Austraclear by the Collateral Manager, who is responsible for account and collateral management on behalf of its customers.

(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

The transfer of title to securities in CHES and the Austraclear system is given effect by electronic book entry.

- In CHES, settlement occurs via a DvP Model 3 process in a daily scheduled batch settlement cycle (see SSF Standard 10). The ASX Settlement Operating Rules and Procedures also provide for the free-of-payment transfer of securities, where required.
- In the Austraclear system, transfers of Dematerialised Securities are transfers of contractual rights within the system. Non-paper Securities are transferred through the passing of beneficial title from the seller to the buyer. Paper Securities are transferred through updates to participants' security records. Austraclear also uses allonges to record indorsements in respect of paper securities, maintaining the negotiability of these instruments. Austraclear retains legal title

in the relevant registry. Settlement occurs via a DvP Model 1 process in real time on a gross basis (see SSF Standard 10). The Austraclear Regulations and Procedures also provide for the free-of-payment transfer of securities, where required.

- (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.**

In the event of ASX Settlement's or Austraclear's insolvency, the rules and arrangements for title within the ASX SSFs are designed to provide a high degree of assurance that participants' securities would be immune from claims by their respective creditors.

- ASX Settlement is not the legal owner of any participant or client assets; these assets are recorded in CHESS in the name of the participant, sponsored client or, in the case of CDIs, a nominee entity on behalf of the beneficial owner.
- Austraclear is not counterparty to any transactions settled in its system. Austraclear is not the legal owner of any Dematerialised Securities registered in the system; in the case of the other classes of securities, Austraclear holds the securities for a participant as either nominee (for Non-paper Securities and Euro entitlements) or bailee (for Paper Securities), while the participant retains beneficial title (and legal title in the case of Paper Securities).

9.2 A securities settlement facility operating a central securities depository should prohibit overdrafts and debit balances in securities accounts.

For ASX Settlement, CHESS does not allow the movement of securities from a holding that exceeds the available securities in the holding, preventing any potential debit balance in securities accounts.

In Austraclear, any instruction to move securities from a participant's securities in excess of available securities remains in a 'not ready' status until sufficient securities are received into that account. If the instruction remains outstanding at the end of the day, it will move to a 'failed' status and automatically be removed from Austraclear. This removes the possibility of a debit balance in securities accounts.

9.3 A 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 securities settlement facility operating a central securities depository should provide incentives to immobilise or dematerialise securities.

Securities held in CHESS are dematerialised; securities underlying a CDI are immobilised and held by a nominee on behalf of the beneficial owner (see SSF Standard 9.1).

The securities maintained in Austraclear are either paper or dematerialised (see SSF Standard 9.1). Paper Securities are immobilised and held by Austraclear as bailee for the owner.

9.4 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.

ASX Settlement and Austraclear have identified potential custody risks arising from negligence, misuse of assets, fraud, poor administration, or inadequate record-keeping. Operational controls to mitigate these risks include segregation of duties, access restrictions and authorisation checks.

- ASX Settlement’s Operating Rules allow ASX Settlement to give advice to a participant or issuer to correct an error that it has caused. If ASX Settlement causes an error in its securities holdings, it is responsible for correcting that error.
- Austraclear’s Regulations require that Austraclear provide safekeeping for Paper Securities, and do all that is in its power to replace the security if it becomes lost, stolen, destroyed or damaged. If Austraclear were liable to a participant due to the loss or destruction of a Paper Security, its liability could extend to the face value of the security. The Austraclear Regulations also include specific warranties and indemnities by participants to limit potential liabilities arising from custody risk.

The ASX SSFs are covered by the ASX Group general and professional indemnity insurance policy for civil liabilities arising from their central securities depository activities. Where losses are the result of employee wrongdoing or a computer manipulation, the ASX SSFs are covered by the ASX Group comprehensive Crime Policy.

9.5 A securities settlement facility operating a central securities depository should employ a robust system that ensures segregation between its own assets and the securities of its participants, and segregation among the securities of participants. Where supported by the legal framework, 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.

ASX Settlement

ASX Settlement is not the legal owner of any participant or client assets; these assets are recorded in CHESS in the name of the participant, sponsored client or, in the case of CDIs, a nominee entity on behalf of the beneficial owner. CHESS provides an account structure that is designed to ensure the legal and operational segregation of participants’ securities in CHESS and the segregation of clients’ securities from those of participants. Under this account structure, securities are held against a unique Holder Identification Number for each client or participant.

However, during the settlement cycle there is a period in which securities have to be transferred into a separate ‘entrepot’ settlement account with no operational segregation between participant and client securities (reflecting the account structure at ASX Clear – see Appendix C.1, CCP Standard 13; see also SSF Standard 10.2). Prior to transfer to the settlement account, client securities may be temporarily placed in an ‘accumulation’ account in the name of the participant. Even if this were to occur, the client remains the beneficial owner of securities in the accumulation account until the point of transfer to the settlement account. Participants are also required to fund any transfer of securities beneficially owned by clients into their settlement account, by depositing the net sale proceeds into the client trust account concurrent with the CHESS batch settlement process. In combination, these arrangements aim to ensure that clients remain beneficially in possession of their securities or corresponding funds for all but a brief window during the settlement period (see SSF Standard 10.2 and Appendix C.1, CCP Standard 13).

Austraclear

Austraclear segregates its own assets and securities from those of its participants. Participant holdings are legally and operationally segregated within participant accounts. Participants have the further option to segregate client holdings by adopting sub-accounts. Austraclear does not mandate the segregation of client holdings; however, this may be required by regulatory regimes governing participants.

9.6 A 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.

Neither ASX Settlement nor Austraclear performs any ancillary activities that may pose a risk to the operation of their central securities depository function. In particular, they do not provide a centralised securities lending facility or act as a principal in securities lending transactions. Austraclear does offer paying agent services to issuers of debt securities. This service is governed under a service agreement and documented terms and conditions, which are available on the ASX public website. The service is subject to the same operational risk framework that is applied across all ASX facilities (see SSF Standard 14). Austraclear’s liability from this activity is limited under the service agreement. Austraclear does not provide a centralised securities lending facility or act as a principal in securities lending transactions.

Standard 10: Exchange-of-value settlement systems

If a securities settlement facility settles transactions that comprise 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.

ASX Settlement	Austraclear
Observed	Observed

10.1 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 securities settlement facility settles on a gross or net basis and when finality occurs.

ASX Settlement and Austraclear eliminate principal risk by ensuring that the settlement of securities delivery obligations occurs if and only if associated payment obligations are settled at the same time. ASX Settlement does so by performing both its cash and securities settlements in a multilateral net batch on a DvP Model 3 basis, while Austraclear settles securities transactions on a DvP Model 1 basis (see SSF Standard 10.2). Collateral substitutions instructed by ASX Collateral within Austraclear are settled on a DvD basis under the same arrangements as those for transfer of cash and securities. Where cash is used as a last resort, settlement is also on a DvP Model 1 basis.

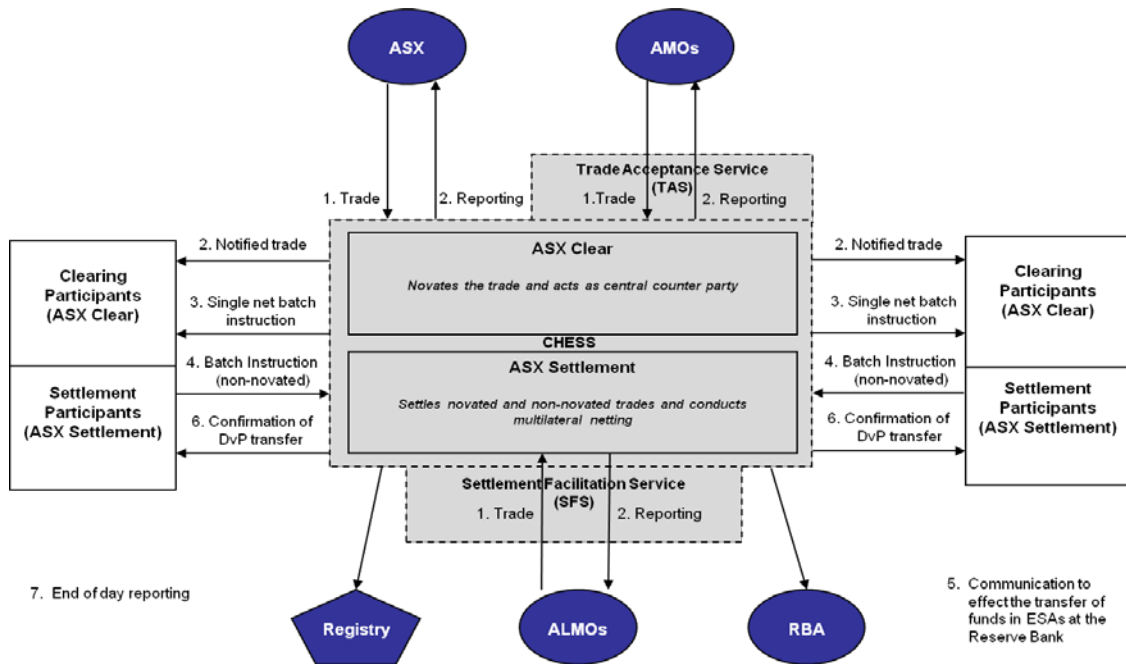
10.2 A securities settlement facility that is an exchange-of-value settlement system should eliminate principal risk by linking the final settlement of one obligation to the final settlement of the other through an appropriate delivery versus payment (DvP), delivery versus delivery (DvD) or payment versus payment (PvP) settlement mechanism.

ASX Settlement

ASX Settlement links the final settlement of securities and payment obligations through a DvP Model 3 mechanism, where final securities and payments transfers occur contemporaneously on a multilateral net basis through a single batch of instructions. The settlement of securities via this mechanism involves several steps (including related steps taken for the clearing of novated transactions in ASX Clear and the ‘priming’ of settlement accounts) (Figure C.2.1).

Figure C.2.1

ASX Clearing and Settlement Arrangements



- **Step 1:** Once a trade has been executed on either the ASX or an AMO's market, a trade-related instruction is sent to CHES.
- **Step 2:** Once CHES validates these trades, they are novated in real time to ASX Clear and CHES sends messages to the relevant clearing participants and the market on which the trade was executed, notifying them that the trade has been accepted and cleared. Trades that have the same clearing participant as buyer and seller, called clearing crossings, are not novated, netted or scheduled for settlement in the CHES batch. To facilitate the remaining back-office processes for these trades, CHES sends a single message to the clearing participant confirming the trade's details. The settlement of clearing crossings is negotiated bilaterally between brokers and their clients, and occurs when securities are transferred between broker and client settlement accounts.
- **Step 3:** On the night of the trade date (T), CHES generates a single net batch instruction reflecting the net position of each participant's novated trades in each line of stock. Before netting, clearing participants can mutually agree to block a transaction from netting, or delete or modify existing novated transactions. If matching instructions are sent from both clearing participants that are counterparties to a particular trade, CHES sends messages to the clearing participants confirming that instructions for that trade have been processed.
- **Step 4:** Between T+1 and T+2, participants can also instruct CHES to include additional non-novated (off-market) transactions in the batch at T+2. Non-novated transactions mainly arise from three types of activities: pre-positioning transfers of securities across accounts; securities lending to cover a short sale or a shortfall in a participant's securities account; and off-market trades. Pre-positioning, or 'priming', involves transferring securities to a participant's 'entrepot' settlement account, i.e. a centralised settlement account. Non-novated transactions also include trades in non-ASX-listed securities undertaken on trading platforms operated by ALMOs. During the assessment period, around 81 per cent of the value of net securities settled in the final batch was in respect of non-novated transactions.

- **Step 5:** On the evening before settlement, ASX Settlement notifies each participant of its projected net cash payment obligations. Participants have until 11.30 am on T+2 to negotiate any additional non-novated transfers necessary to 'prime' their accounts for settlement. After the cut-off for new instructions, transfer of securities positions by participants is stopped in CHES until cash movements have been confirmed (Step 6), and participants' payment providers are requested to fund the net cash obligations of settlement participants.
- **Step 6:** Payment obligations are settled between payment providers in RITS in a single daily multilateral net batch. Immediately upon confirmation from RITS that the funds transfers have been settled, ASX Settlement completes the net securities transfers in CHES, thus ensuring DvP settlement. This typically occurs at around 12.30 pm. CHES then notifies the participants that settlement has been completed successfully.
- **Step 7:** At the end of the day, CHES reports net movements on each sub-register to the holder of the issuer's complete register.

There is considerable activity in the hours prior to the 11.30 am cut-off for settlement instructions as participants arrange to lend and transfer securities in order to 'prime' their settlement accounts. Settlement participants may wait until the morning of T+2 to complete the 'priming' of their accounts, partly due to the need to wait for final matched settlement instructions from offshore clients. As a consequence, fails in delivery of securities are a daily occurrence, although fail rates are relatively low by international comparison. The failure of a participant to meet payment obligations is a much rarer occurrence and may be indicative of problems that are not merely operational.

Failed settlements are removed from the multilateral net batch via the CHES back-out algorithm, and for a securities shortfall rescheduled for settlement on the next day as long as the participant is not in default (see SSF Standard 11). The algorithm seeks to remove or reschedule as few transactions from the batch as possible, maximising settlement values and volumes, while minimising the knock-on effects to other participants. Transactions unrelated to novated settlement obligations would typically be backed out first. In the assessment period, an average of 0.04 per cent of settlement transactions were recorded as 'initial fails' (where a participant has insufficient securities on the day of settlement), with an average of 0.23 per cent of settlements rescheduled following the knock-on effects of the initial fails.

In the case of a failed settlement caused by a funds shortfall for a cleared trade, ASX Clear will inject funds into the settlement batch or enter into an OTA with sellers of affected securities to facilitate timely settlement (see CCP Standard 7.3). ASX Settlement's back-out algorithm is also used to identify transactions to be rescheduled or settled by means of OTAs.

The use of the DvP Model 3 settlement mechanism described above is acceptable for ASX Settlement given the relatively low average value of securities transactions involved. In the assessment period, the average value of individual gross settlement instructions in ASX Settlement (for both novated and non-novated transactions) was around \$7 600. This compares with an average of \$36.1 million for an individual DvP settlement instruction for debt securities in Austraclear.

The average daily value of Australian Government securities settled in the CHES batch has remained less than \$1 million, since ASX Settlement began settling them in 2014. This compared with a daily average of \$48 billion in debt securities transactions settled in Austraclear in the assessment period, suggesting that there has been no significant movement of wholesale Australian Government securities transactions into the CHES batch. Settlement values from ASX Settlement's mFund service (for payments related to unlisted managed funds) have been small relative to the size of the gross

value of settlements in the CHESSE batch. While neither the settlement of Australian Government securities or mFund transactions within the CHESSE batch currently pose significant risks to the batch process, the Bank will continue to monitor the use of both services.

Austraclear

Settlement of securities transactions in Austraclear (including the opening and closing legs of tri-party repo trades submitted by ASX Collateral) is on a DvP Model 1 basis. This entails that: there is a simultaneous transfer of cash and securities obligations between the buyer and seller on a transaction-by-transaction basis in real time; final settlement occurs if and only if both of the linked transfers are completed successfully; and if one transfer fails, the linked transfer will be cancelled.

To facilitate DvP settlement, Austraclear has a link with RITS, Australia’s RTGS payments system (see SSF Standard 8). The settlement mechanism involves three main steps:

- **Step 1:** Once a transaction has been submitted to Austraclear, Austraclear will seek to lock down the securities in the delivering participant’s account, preventing these securities from being transferred.
- **Step 2:** Once the securities have been locked down, Austraclear will send a message to RITS requesting that the payment be effected across the ESAs of the relevant participants or participating banks (see SSF Standard 8.3).
- **Step 3:** Once RITS has sent a confirmation to Austraclear that the payment has been effected, Austraclear will immediately effect the transfer of securities.

In the case of collateral substitutions initiated by ASX Collateral, the settlement mechanism in Austraclear requires that finality is achieved only when both linked securities deliveries have been successfully completed – that is, settlement occurs on a DvD basis. The design of Austraclear’s systems further provides for the grouping of linked transactions to accommodate chains of substitutions where collateral has been re-used.

Although this design protects against principal risk, multiple substitutions in a long re-use chain may have implications for timely completion of transactions at the end of the day. To mitigate this risk and ensure that the potential for gridlock is no greater than under non-centralised collateral arrangements, participants engaging in the re-use of collateral may allow the use of cash as collateral of last resort. Substitutions involving the use of cash as collateral of last resort settle on a DvP Model 1 basis, consistent with the settlement of other transactions involving the exchange of securities for cash in Austraclear.

Standard 11: Participant default rules and procedures

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

ASX Settlement	Austraclear
Observed	Observed

11.1 A securities settlement facility should have default rules and procedures that enable the 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.

ASX Settlement and Austraclear are not exposed to financial risk from the settlement process since these SSFs do not provide participants with any guarantee against credit or liquidity risk. As a result, neither SSF assumes settlement obligations, including in the event of a clearing participant default or settlement participant's payment failure. The use of a DvP settlement mechanism in ASX Settlement and Austraclear, or DvD in the case of collateral management transactions in Austraclear, also precludes settlement risk arising between participants (see SSF Standard 10.2).

Default rules and procedures

If a SSF participant experienced an event of non-compliance, including a payment failure, ASX would have the discretion to suspend, terminate or restrict the participant's access to the relevant settlement system. This power applies to settlement participants in both SSFs, as well as payment providers and participating banks. A suspended participant would no longer be able to settle transactions through the relevant facility, and ASX may cancel any of its outstanding non-novated instructions scheduled for settlement. Following termination, all access to the SSF would be removed. Neither suspension nor termination would affect the participant's outstanding obligations to the ASX SSFs or CCPs.

Proportionality

Following a payment failure, ASX Settlement's Operating Rules allow for all or some of the participant's non-novated transactions to be either 'backed out' or, in the case of transactions novated through ASX Clear, settled by means of funds provided by ASX Clear or through an OTA (see Appendix C.1, CCP Standard 7.3). ASX Settlement's back-out algorithm is used to identify transactions to be removed or settled by means of OTAs.

Since transactions in ASX Settlement settle on a multilateral net basis in a batch, the backing out of a defaulter's transactions could also have an impact on the ability of other transactions which the defaulter was not a counterparty to settle.¹⁵ The back-out algorithm is designed to avoid increasing non-defaulted participants' net payment obligations, and seeks to remove or roll over as few instructions from the batch as possible, maximising settlement values and volumes, while minimising the spillover to other participants. Instructions unrelated to novated settlement obligations would typically be backed out first.

In Austraclear, the impact of any cancellation of a defaulter's existing non-novated transactions would only fall on the defaulter's counterparties since transactions settle on a gross individual basis.

¹⁵ Since transactions in Austraclear settle on a gross individual basis, there is no need for such arrangements.

11.2 A 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; and**
- (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.**

Notification requirements and policies and procedures

Participants, payment providers (in the case of ASX Settlement) and participating banks (in the case of Austraclear) are required to notify the relevant ASX SSF of a non-compliance or insolvency event (as appropriate), or if there is a reasonable possibility of these events occurring. Similar requirements apply to Foreign Currency Settlement Banks with respect to Austraclear. In the context of ASX Settlement, participants and payment providers are also required to notify ASX Settlement if they become aware that any other participant or payment provider becomes subject to external administration or they have reasonable grounds to suspect that this may occur.

The formal ASX Settlement Rules and Procedures and Austraclear Regulations form part of ASX's SSF DMRF, a collection of internal and public documents that set out the guiding policies and procedures for managing a settlement participant default. The DMRF helps ensure that the SSFs are well prepared to implement its default rules and procedures.

The DMRF includes an SSF Settlement Failure Policy and associated Standards, which are applicable to both ASX Settlement and Austraclear. ASX Settlement also maintains documented procedures for dealing with the default of a participant. In addition, Austraclear also maintains an internal checklist setting out actions to be taken by relevant business units within ASX in managing a participant default. The default of a settlement-only participant at ASX Settlement or an Austraclear participant would be managed by the PIRG, while the default of an ASX Settlement participant that is also a participant in ASX Clear would be managed by the ASX Default Management Committee (DMC) in accordance with ASX Clear's default management framework (see Appendix C.1, CCP Standard 12). The PIRG is chaired by the Executive General Manager, Operations, and is made up of senior staff from relevant operational, risk management, compliance and legal functions.

Cancellation and suspension

The rules of ASX Settlement and Austraclear give the ASX SSFs the power to suspend, terminate or impose restrictions on participation under certain circumstances.

- *ASX Settlement.* Under Section 12 of the ASX Settlement Operating Rules, these circumstances include events of ‘non-compliance’ such as: entry or suspected entry into external administration; a failure to comply with participation requirements or other legal or regulatory obligations; or a failure or anticipated failure of a payment provider to authorise a participant’s net payment obligation.
- *Austraclear.* The relevant provisions of the Austraclear Regulations are sections 3.9 to 3.14. Under the regulations, Austraclear may suspend or terminate a participant or participating bank that has become subject to an ‘insolvency event’ – which includes the entry or likely entry into insolvency or external administration – or otherwise fails to comply with the regulations. Similar powers apply to Foreign Currency Settlement Banks in Austraclear.

These powers extend to payment providers in ASX Settlement and participating banks in Austraclear.

Switching of settlement banks

The ASX Settlement Operating Rules and Procedures explicitly allow a participant to nominate a new payment provider if its current provider is subject to, or is reasonably likely to become subject to, external administration. The Austraclear Regulations and Procedures do not restrict a participant changing its participating bank, including in the case where that participating bank is insolvent.

11.3 A securities settlement facility 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 its participants and should be capable of being executed in a timely manner.

Both ASX SSFs disclose their default rules and procedures on the ASX’s public website. Both SSFs have further published guidance notes on the suspension and termination of a participant on ASX’s website. Austraclear’s Guidance Note was first published in March 2017. At the same time, ASX Settlement released an updated version of its Guidance Note. An overview of the default management process for participants in ASX Settlement and Austraclear was added to the ASX website during the assessment period.

Failed settlements are removed from the multilateral net batch via the CHES back-out algorithm, and for a securities shortfall rescheduled for settlement on the next day as long as the participant is not in default. The algorithm seeks to remove or reschedule as few transactions from the batch as possible, maximising settlement values and volumes, while minimising the knock-on effects to other participants. Transactions unrelated to novated settlement obligations would typically be backed out first. In the case of a failed settlement caused by a funds shortfall for a cleared trade, ASX Clear will inject funds into the settlement batch or enter into an OTA with sellers of affected securities to facilitate timely settlement (see CCP Standard 7.3). ASX Settlement’s back-out algorithm is also used to identify transactions to be rescheduled or settled by means of OTAs.

ASX Settlement’s back-out arrangements are described in Rule 10.11 of the ASX Settlement Operating Rules and related Procedures, as well as in its Guidance Note. These documents are available to participants.

11.4 A securities settlement facility should involve its participants and other stakeholders in the testing and review of the securities settlement facility’s default procedures. Such testing and review should be conducted at least annually and following material changes to the rules and procedures to ensure that they are practical and effective.

ASX conducts regular in-house default management fire drills to test default procedures as they would apply to participants across one or more of the ASX CS facilities. During the assessment period, ASX conducted a fire drill focusing on the default of a settlement participant. Previous fire drills had focused on a clearing participant default, and only related to ASX Settlement and Austraclear to the extent that the clearing participant also participated in the ASX SSFs. In light of this experience, ASX is enhancing its fire drills to consider interactions between clearing and settlement participants within the one scenario. For example, the ASX Clear fire drill considered the knock on effects of the default of a participant across ASX Clear, ASX Settlement and Austraclear, and in doing so tested the default procedures of the two ASX SSFs

The default management arrangements at both SSFs have been used in recent times. ASX Settlement needed to use its default management procedures, most recently in response to the default of BBY Limited in May 2015. Austraclear has also periodically needed to employ its default management procedures over the past few years, including to respond to the appointment of external administrators to a number of participants, most recently in March 2017.

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.

Both the ASX SSFs primarily settle products denominated in Australian dollars and traded on Australian markets, and their participants currently all have a domestic presence. Austraclear offers a foreign currency settlement service, currently covering payments and securities denominated in RMB, although the value of payments settled using this service is currently very low. Consequently, the ASX SSFs’ default management procedures are designed to suit the Australian market.

Standard 12: General business risk

A securities settlement facility should identify, monitor and manage its general business risk and hold, or demonstrate that it has legally certain access to, 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.

ASX Settlement	Austraclear
Observed	Observed

12.1 A 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.

ASX’s approach to business risk is consistent with its overall Enterprise Risk Management Policy and Framework (see SSF Standard 3). Under the framework, formal policies are in place for individual risk categories such as accounting, authorisations, business continuity, technology, fraud control and procurement.

ASX monitors a variety of financial business risks, including market risk, credit risk, liquidity risk and capital risk.

- Group funds may be exposed to market risk due to changes in market variables such as interest rates and foreign exchange rates. Mitigants for market risk include hedging of foreign exchange and limits with respect to weighted average maturity of investments, with appropriate capital allocation.
- Credit risk for the group's general business activities arises in the collection of receivables, which principally comprise fees from market participants, issuers, users of market data and other customers. Mitigants include active collection procedures on trade receivables and review of the 'ageing' of receivable amounts, as well as ceasing to provide services where receivables remain unpaid. The ASX SSFs novate the income from receivables to a related entity that bears the responsibility for collecting receivables.
- Liquidity risk arises from the group's time-critical payables. This is mitigated by ASX's liquidity management arrangements, including forward planning and forecasting of liquidity requirements and holding sufficient liquid net assets to meet payable obligations.
- ASX may be exposed to capital risk if equity in its group entities falls below prudent or regulatory minimum levels. ASX manages its capital at a group level, with an objective of maintaining a prudent level of surplus net tangible equity above its capital allocation. Ongoing monitoring of cash flows and capital adequacy is conducted via quarterly meetings of the Risk Committee.

ASX undertakes periodic strategic risk assessments in the context of its overall business plans. Through this process, ASX identifies new strategic business initiatives. These are subject to financial analysis, including a sensitivity analysis of cash flows. Impacts on capital are also determined and analysed.

ASX conducts risk assessments when undertaking any expansion of its activities or in the event of material changes to its business. Risk assessments are built into ASX's project management framework (see SSF Standard 14.4). Under this framework an initial high-level risk indication is defined at the project concept stage. This is followed by a formal project risk assessment covering both project delivery risks and impacts to business activities. ASX typically conducts a series of workshops involving a range of stakeholders to discuss risks associated with any planned new service. Prior to the approval of a project for launch/production, ASX prepares an operational readiness summary and conducts a final workshop to discuss possible risks associated with initial launch. This includes consideration of potential failure scenarios and workarounds, procedures for escalation of issues, customer readiness and help desk and key staff availability.

Following launch, the risks of a new activity are captured in risk profiles that are prepared by relevant management every six months. The Risk Committee also monitors actual and forecast capital and liquidity requirements on a quarterly basis, including requirements related to new projects.

12.2 A securities settlement facility should hold, or demonstrate that it has legally certain access to, 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 a securities settlement facility should hold, or have access to, 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.

ASX has set aside \$183 million (as at 30 June 2018) for operational and business risks across both Austraclear and ASX Settlement. Since ASX has identified constraints to making business risk capital bankruptcy remote within the SSFs, this capital is held at the ASX Group level. Each CS facility has a

separate allocation for business risk capital that is explicitly recognised within group-wide capital holdings. These holdings include an additional buffer against potential losses sustained elsewhere in the group. The ASX Group Support Agreement places an obligation on ASX to maintain sufficient capital to support the ASX SSFs' continued operations in the event of general business losses, supporting the legal certainty of the ASX SSFs' access to business risk capital as required.

The calibration of the \$183 million in operational and business risk capital set aside for ASX Settlement and Austraclear involves the following:

- *Risk calculations at the level of the individual SSF.* ASX first calculates risk amounts for the individual SSFs. This is based on a methodology that applies a capital charge for operational and business risk to the value of securities held in the facility. The correlation between asset values and associated risks is modelled on a percentage basis, with the percentage of required business risk capital resources declining as the level of assets increases – recognising that a significant part of the business risk capital resources required represent a fixed cost. ASX's application of this methodology results in a charge of 0.65 basis points on \$2 trillion of securities held in ASX Settlement and a charge of 0.64 basis points on just under \$2 trillion securities held in Austraclear, giving a required value of risk resources of around \$129.9 million and \$128.8 million for ASX Settlement and Austraclear, respectively. ASX reviews the methodology periodically and compares it to similar methodologies applied by other SSFs, fund managers and custodians. Any proposed amendments are approved by the Settlement Boards.
- *Assumptions regarding correlated risks.* ASX assumes that the two facilities will not both require their full risk funds at the same time. This reflects that the custodial and operational risks that this capital is calibrated to cover are unlikely to result in simultaneous peak losses in both SSFs. ASX has applied a 'square root of the sum of squares' formula to arrive at the figure of \$183 million to cover the operational and business risk exposure of the two settlement facilities. The business risk capital held across the two SSFs is calibrated to be sufficient to ensure that, even if one SSF were to utilise the full value of its required risk resources, sufficient funds would be available to fund the other SSF's recovery plan and meet the single largest uninsured business loss event for that facility. In addition, ASX's general capital buffer is calibrated to be sufficient to ensure that it would remain able to provide to the second SSF the full value of its required risk resources in the event that this was required.

ASX Settlement and Austraclear also undertake periodic loss scenario analysis in order to validate whether the business risk capital is sufficient to meet the potential single largest uninsured business loss event for the SSFs. ASX has in place a number of insurance policies to reduce its exposure to a broad range of risks, including professional indemnity, fraud, and operational risks such as computer manipulation and equipment failure. However, this insurance provides limited direct cover for the SSFs due to the nature of ASX's intragroup arrangements and the type of losses that the SSFs could be directly exposed to. The other factors driving ASX's business risk capital calculation limit the extent to which the level of ASX's insurance cover could reduce the level of capital that it holds.

12.3 A securities settlement facility should maintain a viable recovery or orderly wind-down plan and should hold, or have legally certain access to, sufficient liquid net assets funded by equity to implement this plan. At a minimum, a securities settlement facility should hold, or have legally certain access to, 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 SSF Standard 4 on credit risk and SSF Standard 6 on liquidity risk. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.

ASX Settlement's and Austraclear's recovery planning arrangements have been developed with reference to the CPMI-IOSCO guidance on recovery planning (see SSF Standard 3.5). In calculating the quantum of business risk capital described under SSF Standard 12.2, ASX has sought to ensure access to sufficient liquid net assets to fund operations during the execution of the ASX SSFs' recovery plan or to cover a minimum of six months of current operating expenses.

The ASX SSFs' enhanced recovery approach establishes arrangements to address losses that arise from a range of general business risks. These general business losses to the SSFs would be absorbed by ASX, including through application of general business risk capital held for the SSFs by ASX Limited (see SSF Standard 12.2). This recovery approach takes into account that ASX has in place a number of insurance policies to reduce its exposure to a broad range of risks, including professional indemnity, fraud, and operational risks such as computer manipulation and equipment failure.

Austraclear would apply a similar approach to address losses on its treasury investment portfolio since the amount invested is not material.

ASX Limited has also committed to maintaining adequate levels of business risk capital for the CCPs and SSFs, recapitalising these funds as required (SSF Standard 12.5).

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

The risk capital for ASX's CS facilities is invested in accordance with the ASX Limited and ASX Operations Pty Limited Investment Mandate. The Investment Mandate specifies investment objectives, responsibilities, approved products and counterparties, and audit and maintenance of the mandate. Approved products are generally highly rated and liquid products such as: cash deposits; bank bills, negotiable certificates of deposit and floating rate notes issued by APRA-approved ADIs; foreign exchange in specified currencies; Australian Government securities; and selected semi-government securities. Limits are applied against counterparty, liquidity and market risks. Liquidity limits are specified for maximum instrument maturity and weighted average maturity.

12.5 A 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.

As noted, ASX Limited manages its operational and business risk capital at the group level. The ASX Limited Board monitors the ongoing capital adequacy of the ASX Group as part of its regular capital planning activities. The Board determines the most appropriate means of raising additional capital when needed, giving due consideration to prevailing market conditions and available alternative financing mechanisms. This was most recently reviewed and approved by the Board in August 2017.

The ASX SSFs' enhanced recovery approach depends on timely and reliable recapitalisation processes to address general business losses. Accordingly, the SSFs have established an intragroup service agreement which commits ASX Limited to maintaining adequate levels of business risk capital for the SSFs, recapitalising these funds as required. ASX Limited maintains a plan that sets out how it would fulfil its obligations to recapitalise ASX Settlement and Austraclear. The elements of this plan include the use of existing group cash reserves and raising additional capital through an equity issuance by ASX Limited.

Standard 13: Custody and investment risks

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

ASX Settlement	Austraclear
Not applicable	Observed

The Bank has concluded that SSF Standard 13 does not apply to ASX Settlement. ASX Settlement does not have any financial investments, and its participants do not lodge collateral or other assets with the SSF. \$183 million of general business risk capital for both ASX Settlement and Austraclear is invested at the group level. Arrangements for the investment of those funds are discussed under SSF Standard 12.

Austraclear has funds from issued capital and retained earnings that are invested in cash or other high-quality liquid assets. The text below only relates to how Austraclear's arrangements for the investment of these funds align with SSF Standard 13.

13.1 A 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.

Austraclear has funds from issued capital and retained earnings that are invested in cash or other high-quality liquid assets; it does not use custodians to invest these funds.

ASX Collateral does not create custody risk for Austraclear. While the Collateral Manager has control over new collateral accounts for the purposes of submitting settlement instructions on behalf of service users, title of securities remains at all times with the service users.

Austraclear has custody of participants' securities deposited in the Austraclear system. For details of these custodial arrangements and arrangements to safeguard the integrity of securities held in Austraclear see SSF Standard 9. Austraclear does not hold other assets of participants.

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

Under the terms of the Austraclear Investment Mandate, funds held by Austraclear must be invested in highly rated and liquid assets with large Australian banks as issuers or counterparties (see SSF Standard 13.4). Austraclear does not use custodians to hold its assets or participants' assets. These arrangements aim to ensure that Austraclear has prompt access to its assets when required.

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

Austraclear does not use custodians to hold its assets or the assets provided by participants.

13.4 A 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.

Austraclear is exposed to investment risk on funds from issued capital and retained earnings. These funds, currently around \$10 million, are small relative to the total funds held by ASX Limited at the group level to cover general business risk. The Investment Mandate for Austraclear funds requires that liquidity be maintained so that it can meet its liabilities in a timely fashion. Investment products are limited to a small set of highly liquid and highly rated AUD-denominated products – cash, notice cash accounts, fixed term deposits, bank bills or negotiable certificates of deposit – with large Australian banks as issuers or counterparties. Hard limits are set on maximum instrument maturity (95 days for notice cash accounts, 185 days for fixed term deposits, bank bills and negotiable certificates of deposit) and the maximum weighted average maturity of the investment portfolio (60 days).

Standard 14: Operational risk

A 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 securities settlement facility’s obligations, including in the event of a wide-scale or major disruption.

ASX Settlement	Austraclear
Partly observed	Partly observed

Identifying 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.

ASX’s operational risk policies and controls have been developed in accordance with ASX’s group-wide Enterprise Risk Management Policy (see SSF Standard 3.1). Under this framework, the ASX Limited Board is responsible for reviewing and overseeing the group’s risk management systems (see SSF Standard 2.6). The Board delegates review of the Enterprise Risk Management Policy to its Audit and Risk Committee. The Risk Committee, a management committee comprising executives across ASX, is responsible for approving enterprise risk policies and reviewing controls, processes and procedures to identify and manage risks, as well as the formal approval of significant operational risk policies prepared by individual functions (see SSF Standard 14.2 and SSF Standard 2.6). Under the Enterprise Risk Management Policy, functions across ASX are also responsible for: identifying business-specific risks; applying controls; maintaining risk management systems; reporting on the effectiveness of risk controls; and implementing enhancements and taking remedial action.

Dedicated security teams have responsibility for assessing both physical and cyber security risks, and are overseen by the Technology, Operations and Security Committee (TOSC; see SSF Standard 14.3).

Review of technology governance and operational risk and controls

During the assessment period, an independent external review of ASX’s technology governance, operational risk and control frameworks was undertaken at the Bank and ASIC’s request, covering ASX’s licensed markets and CS facilities. The review identified that ASX’s operational risk framework lacks clarity and creates uncertainty regarding roles and responsibilities for managing risk across the

organisation, in part due to a lack of effective processes, documented procedures and appropriate systems or tools. It also found evidence of inconsistencies in operational risk monitoring across the organisation and that key risk indicators were not sufficiently forward-looking, which limited ASX's ability to generate strategic insights for more effective risk management. ASX has commissioned a project to address the findings of the review, 'Building Stronger Foundations', described in Section 3.

14.2 A securities settlement facility's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the 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.

The ASX Limited Board, the CS Boards, the Audit and Risk Committee, the Risk Committee and individual departments all have responsibilities within the CS facilities' operational risk management framework. These roles and responsibilities are defined in the CS Boards' Charter, the Audit and Risk Committee Charter, the Risk Committee Charter and the Enterprise Risk Management Framework.

During the assessment period, ASX replaced the Enterprise Risk Management Committee with the Risk Committee. ASX also established the TOSC, which has absorbed the functions of the Business Continuity Steering Committee and the former Security Steering Committee (see SSF Standard 2).

Policies and procedures are the subject of internal and external review. ASX's internal audit function routinely reviews compliance with operational policy, reporting to the Audit and Risk Committee on a quarterly basis. Scheduled reviews carried out by Internal Audit include business process and operational audits and information technology reviews. Internal Audit also reviews major projects and carries out special investigations as required (e.g. following a major operational incident). Audit findings may prompt a review of policy, which would be conducted in consultation with key stakeholders.

CHESS and the Austraclear system – ASX Settlement and Austraclear's respective core systems – are subject to annual independent audits, the results of which are released to the market. The audits cover certain information processing facilities and internal controls of the CHESS and the Austraclear systems, as well as the integrity and accuracy of information gathered by the system.

ASX benchmarks its operational risk framework against relevant international standards. For example:

- *ISO 31000 – Risk Management Principles and Guidelines* is used to benchmark ASX's overarching framework for operational risk management.
- The business continuity framework is benchmarked against the *Business Continuity Institute's Good Practice Guidelines 2013*, and the international standard *ISO 22301:2012 Business Continuity Management Systems*. ASX is currently reviewing its business continuity framework as part of a broader review that also covers crisis management.
- ASX has taken into consideration the NIST cyber security framework in developing its information security framework. During the assessment period, ASX commissioned an external review of its cyber resilience arrangements against industry standards and performed a self-assessment against the *CPMI-IOSCO Guidance on cyber resilience for financial market infrastructures* (see section 2.3.4).
- The compliance framework is benchmarked to the AS 3806-2006: *Compliance Programs*.
- The ASX Fraud Control Policy is benchmarked against AS 8001-2008: *Fraud and Corruption Control*.

In addition, Austraclear's operational risk controls and reliability objectives are designed to meet operational standards set by the Bank as part of its 'Step-in and Service Agreement'. As a feeder system to RITS, and as a systemically important system, Austraclear's system architecture is required under these standards to be equivalently operationally robust to that of RITS.

The Enterprise Risk Management Policy defines a variety of control procedures to support the core operational systems. These include audit logs, segregation of duties controls such as dual input checks and approval, management sign-off and processing checklists as the primary preventative controls, supported by reconciliations and management reviews of activity.

Change management and project management

ASX Settlement and Austraclear operate a separate test environment for their core system, and have a formal change management process which is documented in the ASX Technology Change Management Policy and Guideline. The Policy and Guideline covers the requirements for the notification, risk assessment, testing and implementation of technology changes for all ASX CS facilities, as well as the key roles and responsibilities in relation to technology change management. There are also defined procedures for communicating details of technology upgrade releases with participants and vendors, which include regular notices to participants of upcoming changes. Aspects of the change management process are externally reviewed each year. The external review of ASX's technology governance, operational risk and control framework identified shortcomings in the tools used by ASX in managing change. As part of its Building Stronger Foundations program, ASX plans to implement an IT service management tool that includes improved change management functionality (see section 3).

Major projects are overseen by the Portfolio Governance Group (PGG), which is comprised of representatives of the Group Executive. The PGG is responsible for assessing project priorities across the ASX Group and overseeing the quality of project execution. Project management of major projects is undertaken by the Project Delivery Team. Projects incorporate testing processes, which verify that systems or services meet benchmarks set prior to implementation. Testing addresses both technical and operational aspects of projects. The project management process includes engagement with customers and third-party vendors of supporting systems where appropriate, particularly in customer testing. Project plans also include formal checkpoints which are intended to ensure that all appropriate risk management controls are in place prior to live use of a new or updated system or service.

A key project ASX has underway is the replacement of the CHES clearing and settlement system. This replacement is an important element of ensuring that ASX's core infrastructure for the cash equities market meets international best practice, and that its performance, resilience, security and functionality continue to meet the needs of its users. ASX has selected Digital Asset Holdings, to assist in developing a replacement system for CHES based on a permissioned, private distributed ledger technology (DLT) system. ASX expects the replacement system to commence operation in late 2020 or early 2021.

14.3 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 and information security policies that address all potential vulnerabilities and threats.

Operational reliability and availability

Availability targets are documented and defined formally for critical services. CHES is required to meet a minimum availability target of 99.8 per cent; the Austraclear system is required under its 'Step-in and Service Agreement' with the Bank to meet a minimum availability target of 99.9 per cent. During the assessment period CHES and the Austraclear system were available 99.99 per cent and 99.98 per cent of the time, respectively.

Operational capacity

System capacity is monitored on an ongoing basis, with regular reviews of current and projected capacity requirements. The results are reviewed against established guidance for capacity headroom over peak recorded values for all critical systems; that is, to maintain minimum capacity 50 per cent over peak recorded daily volumes, with the ability to rapidly increase to 100 per cent over peak within six months should the need arise. Capacity data are reported to the CRO, CFO, CIO and COO on a monthly basis and to the TOSC and Audit and Risk Committee on a quarterly basis. Average capacity utilisation of CHES and the Austraclear system during the assessment period was 24 per cent and 28 per cent, while peak utilisation was 31 per cent and 45 per cent, respectively. ASX Settlement and Austraclear consider that they have sufficient technical and human resources to operate CHES and the Austraclear system, respectively, during peak periods, including in the event of operational incidents or system failure.

Physical and information security

Physical access is controlled at both an enterprise and function level. The key systems supporting ASX's clearing and settlement processes are operated within secure buildings.

ASX's approach to information security is set out in its cyber security plan and strategy, and complemented by more granular policies and standards. The cyber security plan and strategy is reviewed annually by Technology Security and endorsed by the TOSC, with formal approval by the Audit and Risk Committee.

ASX's cyber security is tested at a number of levels. This includes penetration testing against the ASX perimeter and vulnerability testing within the perimeter. Both SSFs perform security testing on a periodic basis. ASX operates a suite of controls designed to prevent and detect cyber attacks on its systems, such as denial of service or malware threats. These controls include continuous monitoring of its network for cyber intrusions and malicious code, steps to monitor suspicious internet traffic, regular scans of both the network perimeter and system assets to confirm they remain secure, and the maintenance of spare capacity to manage legitimate or malicious surges in internet traffic, as well as steps to regulate access to ASX systems.

Application testing is carried out in test environments. Testing reports are documented, with identified problems escalated to management and tracked through to remediation. Similarly, any technology-based operational incidents are reported to senior management and issues are tracked through to resolution via regular updates to management.

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

ASX Settlement and Austraclear have arrangements in place which aim to ensure that they have well-trained and competent personnel operating CHES and the Austraclear system, respectively. Staff are provided with relevant policies and guidelines from commencement of employment, with periodic communications thereafter. Staff are evaluated with reference to each defined operational process and broader skills matrices, with training provided for identified areas of weakness. Both ASX SSFs have formal succession planning and management processes in place for key staff. However, the external review of ASX's technology governance and operational risk and controls identified that ASX was overly reliant on individual experts in key areas. ASX has placed additional resource into these areas and will be taking steps to improve knowledge management in order to reduce reliance on experts as part of its Building Stronger Foundations program (see section 3). ASX has continued to automate certain routine technology-related processes and reporting during the assessment period, freeing up additional staff resources that would otherwise be devoted to these tasks.

ASX has a customer support centre within ASX's Australian Liquidity Centre.¹⁶ The customer support centre brings together operations, technology and market surveillance staff in a single location, which is ASX's primary operations base and primary data centre.¹⁷ To facilitate rapid recovery in the event of an operational disruption, around 30 per cent of ASX's operational staff are now based at its secondary operations site. In case of a disruption to staffing arrangements at the primary site for staff, the secondary operations centre has capacity to house 65 per cent of all operational staff. ASX also has a Customer Experience team lead by a General Manager. This team is responsible for the development and delivery of the ASX customer experience.

Resources shared with a related body

Within the ASX group structure, most operational resources are provided by ASX Operations, a subsidiary of ASX Limited (see 'ASX Group Structure' in Appendix B.1), under a contractual support agreement. ASX Operations is also required under the support agreement to provide the Bank with reasonable rights of access in respect of information relating to its operation of critical functions provided to the ASX SSFs (see SSF Standard 14.10 in respect of broader rights of access provided to the Bank by the ASX SSFs' critical service providers).

In the event that ASX Operations became subject to external administration, to the extent permissible by law, provisions within the support agreement provide for the ASX SSFs and the other clearing and settlement corporate entities to retain the use of operational resources. Under proposals currently under consideration by the government in the context of establishing of a special resolution regime for CS facilities (see SSF Standard 14.11), the Bank would have the power to issue directions to related entities such as ASX Operations that provide critical services to a CS facility under *ex ante* legal agreements. This proposed directions power would further safeguard the CS facilities' access to critical services provided by ASX Operations.

Resourcing of major projects

The PGG is tasked with ensuring that ASX has sufficient well-qualified personnel to cope with periods in which it is simultaneously undertaking a number of projects, including those resulting in significant

16 The Australian Liquidity Centre provides market participants with the option to 'co-locate' their servers with ASX's data centre.

17 ASX currently maintains three main sites for its operations and data processing: a primary operations site that also operates as the primary data centre (where the majority of staff are located); a secondary operations site; and a backup data centre.

changes to business (see SSF Standard 14.2). The Project Delivery Team rates projects to ensure that they receive appropriate access to resources.

14.5 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, 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.

Dependencies on participants and other financial market infrastructures (FMIs)

ASX identifies, monitors and mitigates potential dependencies on participants in a number of ways:

- by holding regular discussions with participants on risk management processes (see SSF Standard 3.1)
- through participation requirements related to operational capacity and business continuity arrangements (see SSF Standards 14.6 and 15.2)
- as part of its assessments of project-related risks (see SSF Standard 14.1)
- through general monitoring of risks under its risk management framework (see SSF Standard 3.1).

ASX Settlement has an operational interdependence with ASX Clear, with which it shares the CHES system (SSF Standard 17). Operational risk associated with this interdependence is managed within the context of the ASX Group's operational risk management framework. ASX Settlement does not have significant operational interdependencies with other FMIs.

Austraclear has operational interdependencies with ASX Clear, ASX Clear (Futures), and Clearstream (see SSF Standard 17). Operational interdependencies with ASX Clear and ASX Clear (Futures) are managed in the context of ASX's group-wide operational risk management framework.

Dependencies on service providers

ASX has a formal policy that sets out the process for entering into, maintaining and exiting key outsourcing arrangements. If a key service is to be provided by an external service provider, ASX would conduct a tender or other process in which proposals from potential vendors are assessed against relevant criteria. Arrangements have been implemented under which ASX would consult with the Bank before entering into new agreements with third parties for critical services. ASX also provides the Bank with a list of critical outsourcing arrangements on an annual basis. Issues relating to outsourcing or service provision are escalated as appropriate to executive management via the ASX Technology Vendor Management Group and the relevant operational support area.

ASX assesses the operational performance of its service providers on an ongoing basis against its own operational policies, aiming to ensure that service providers meet the resilience, security and operational performance requirements of the FSS. ASX maintains current information on its service providers' operations and processes through ongoing liaison, and in turn provides relevant updates to service providers regarding ASX operations. Service providers are also assessed through software

‘regression testing’ when there is a major system upgrade.¹⁸ Contractual arrangements with critical service providers require the approval of ASX Operations before the service provider can itself outsource material elements of its service.

During the assessment period, an internal audit review identified that ASX’s vendor management and procurement processes had not been followed in some cases. In response, ASX is taking steps to educate staff of requirements under these policies and has increased staff resources in its vendor management team. ASX is also reviewing the vendor management framework and will be amending its processes to more clearly define expectations for risk-based monitoring of its vendors.

All core ASX Settlement operational functions are performed within ASX. However, external suppliers are used for utilities, hardware maintenance, operating system and product maintenance, and certain security-related specialist independent services.

Austraclear’s dependencies on service providers include:

- *Society for Worldwide Interbank Financial Telecommunication (SWIFT)*. Participants are able to use the SWIFT messaging service to submit settlement instructions to Austraclear. This makes Austraclear reliant on interactions with SWIFT for the processing of transactions from participants using this service. In the event of a SWIFT failure, Austraclear would revert to manual processing of SWIFT payments.
- *RITS and Foreign Currency Settlement Banks*. As the cash leg of all AUD DvP and payment only transactions occur over RITS, the failure of RITS would potentially prevent settlement in the Austraclear system. However, ASX has prepared business plans that contemplate the Austraclear system continuing to operate independently. Steps taken to address interdependencies with Foreign Currency Settlement Banks acting as commercial bank money settlement agents for foreign currency payments are described under SSF Standard 8.3; operational arrangements for foreign currency settlements are designed not to affect the settlement of AUD transactions.
- *ASX Collateral/Clearstream*. Austraclear also has interdependencies with ASX Collateral. Particularly since access to securities held in collateral accounts in Austraclear would be impaired in the event of an operational disruption to ASX Collateral services, ASX Collateral is required to deliver an equivalent standard of resilience to that of Austraclear. This extends to the outsourced services provided by Clearstream. In terms of architecture, system capacity, recovery time, and availability targets, ASX Collateral and Clearstream are designed to operate to a similar standard to that of Austraclear. In addition, the Service Level Agreement between ASX Operations Pty Limited and Clearstream requires that Clearstream provide ‘round the clock’ operational and technical support via its network of operational centres, with the support during Australian operational hours provided primarily by Clearstream’s Singapore centre.
- *Utilities and service providers*. All other Austraclear operational functions are performed within ASX. However, external suppliers are used for utilities, hardware maintenance, operating system and product maintenance and support, and certain security-related specialist independent services.

ASX has put in place a number of mitigants to address the risks associated with dependencies on utilities and service providers.

18 When a component of software is updated, regression testing aims to perform checks on the full software to verify that the operation of other software components has not been inadvertently affected by the update.

- Primary and backup data centres are connected to different electricity grids and telecommunication exchanges.
- Each data centre has backup power generators with capacity to run the site at full load for at least 44 hours, and 72 hours in the case of the primary data centre.
- All external communications links to data centres are via dual geographically separated links.
- ASX conducts regular testing of backup arrangements. Major systems are tested annually. Participants take part in these business continuity tests and are notified of the tests in advance through ASX notices.
- ASX also performs a periodic assessment of suppliers, including consideration of contingency arrangements should externally provided services not be available (such as the use of alternative suppliers) as well as incident escalation procedures and contacts.

Disclosure

The nature and scope of the ASX SSFs' dependencies on critical service providers are disclosed to participants through: operating rules or regulations; guidance notes; notices and bulletins; technical documentation available on the ASX participant website; more general information available on the ASX public website; and in one-on-one meetings with participants, both during the induction process for new participants and on an ongoing basis.

Operational Support

ASX Settlement and Austraclear provide telephone and email support to participants via a helpdesk in their customer support centre. The service operates from 8.00 am to 6.00 pm for ASX Settlement, and from 7.00 am to 7.30 pm (9.30 pm during daylight saving time) for Austraclear.

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

Participant business continuity requirements are set out in the ASX Settlement Operating Rules and Procedures and Austraclear Regulations and Procedures, supplemented by additional guidance issued by ASX. These require large participants to maintain adequate business continuity arrangements (see SSF Standard 14.8) to allow the recovery of usual operations within two hours, and no more than four hours, following a contingency event. The targeted recovery time for smaller participants is four hours (and no more than six). Where an Austraclear participant also acts as a Foreign Currency Settlement Bank or Collateral Manager, it is subject to additional operational resilience requirements reflecting its critical role in the operation of the foreign currency settlement service or collateral management system. If a participant fails to maintain business continuity arrangements consistent with these recovery targets, it may become subject to sanctions or restrictions on its activities. Spot checks of participants' business continuity management are conducted if risk factors are identified, such as where a participant has experienced operational problems. These spot checks examine the participant's governance and processes for resilience and business continuity.

The Operating Rules (or Regulations) and Procedures also require more broadly that participants have facilities, procedures and personnel that are adequate to meet technical and performance requirements. ASX's preferred approach to dealing with operational issues is to work collaboratively with the participant to educate them on their obligations. If the matter is serious, ASX may require

that the participant address the weakness as a matter of priority. ASX may also impose conditions on participation or require that the participant appoint an independent expert to assist with the remediation task.

To further strengthen the Bank's influence over ASX Collateral (and, by extension, any functions or services outsourced to Clearstream), or any future Collateral Manager, the Bank has worked with ASIC to develop additional operational resilience requirements for Special Purpose Participants of Austraclear that provide collateral management services. These requirements, which are based on the operational standards imposed on Austraclear by the Bank as part of its 'Step-in and Service Agreement', include conditions on operational hours, system availability and capacity, outage reporting, business continuity arrangements, and IT governance and security.

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 systems can resume operations within two hours following disruptive events. 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 securities settlement facility to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The securities settlement facility should regularly test these arrangements.

Business continuity management

ASX's approach to business continuity is defined in the ASX Business Continuity Management Policy. This policy describes the incident management and business continuity arrangements for all ASX CS facilities, including the appropriate operational response to a CS facility disruption, and the key roles and responsibilities in relation to business continuity. The Business Continuity Policy is supported by a range of other internal documents, including the Business Resumption Plan, the Pandemic Response Plan, and the testing policy for ASX's Business Continuity and Disaster Recovery Plans.

The Group Business Continuity Manager is responsible for developing business continuity management policies and procedures, and coordinating business continuity activities and training across the ASX CS facilities. The outcomes of these activities are overseen by the TOSC, which is chaired by the COO and includes the CEO, Executive General Manager Operations, CIO, CRO and GM Technology Security and Governance. The Risk Committee is responsible for approving ASX's overall business continuity strategy and any related policies.

The ASX Business Continuity Management Policy requires that failover to the backup data centre should occur within two hours. Plans for recovery of key systems apply to both physical and cyber threats to business continuity; these cover scenarios such as the loss of systems or site access (with or without damage to internal site infrastructure), mass unavailability of staff or a pandemic event.

ASX Settlement and Austraclear employ a variety of technologies to ensure a high degree of redundancy in their systems – both across sites and within a single site. ASX maintains both a primary and a backup data centre, with broadly equivalent operational requirements. Key plant and equipment at the primary data centre are designed to the Uptime Institute Tier 3 standard of

concurrent maintainability.¹⁹ The main computer network is connected via point-to-point optical fibre, which ASX operates with its own technology, thereby reducing the potential for outages due to operational problems with the telecommunications provider. All core systems employ multiple servers with spare capacity. Front-end servers handling communications with participants are configured to provide automatic failover across sites. Failover of the more critical data servers is targeted to take place within two hours, but would generally be expected to occur within an hour, under the control of management.

Disruption to participants in such circumstances would be mitigated by the high degree of redundancy in front-end system components. In most circumstances, these would be expected to maintain communications with participants' systems and queue transactions until the data servers were reactivated. The integrity of transactions would be supported by: queuing messages until they could be processed; storing all transactions in the database with unique identifiers, thereby preventing the loss or duplication of transactions; and synchronising database records between the primary and backup data centres. Furthermore, in the event that a significant part of a system or an operational site failed, ASX Settlement and Austraclear have contingency arrangements to activate an additional tier of 'cold' redundancy arrangements (either by converting test systems into production systems or rebuilding systems from readily available hardware) within 24 hours to meet the contingency of any further service interruption.

ASX Settlement and Austraclear regularly test their business continuity and technology disaster recovery arrangements against the range of identified business interruption scenarios. The testing requirements are set out in ASX's Business Continuity and Disaster Recovery Plans Testing Policy. Dual site operational teams across the primary and secondary operations sites effectively test backup operational processes on a continuous basis. These arrangements are supplemented by periodic desktop simulations, and exercises that test remote access and attendance at the secondary site. ASX also participates in industry-wide tests of business continuity arrangements. For teams not located across both sites, connectivity and procedural testing of the secondary site are performed monthly by representatives from those teams. Live technology tests, where settlement services are provided in real time from the backup data centre, are conducted on a two-year cycle. The use of live tests ensures that participant connectivity to the backup data centre is also tested. Test results are formally documented and reported to ASX senior management and are also made available to internal and external auditors. In addition to receiving the results of business continuity tests, Internal Audit also reviews technology operational incidents, contributes to business continuity policy updates, and helps ensure that business continuity elements have been considered in project risk assessments. ASX's business continuity framework is audited externally every three to five years; the most recent audit, completed in November 2015, found that ASX's business continuity standards were broadly consistent with widely recognised global standards and did not identify any major areas of concern. Under the terms of Austraclear's 'Step-in and Service Agreement' with the Bank, Austraclear is also required to take part in annual connectivity tests between the Austraclear and RITS systems.

Incident management

ASX Settlement and Austraclear have clearly defined procedures for crisis and event management. These procedures, as well as key roles and responsibilities for managing an incident, are documented

19 The Uptime Institute is an IT consulting organisation that has developed a widely adopted classification system for the level of redundancy arrangements in data centres. 'Tier 3' is the second highest standard of redundancy, indicating that a data centre has redundant components, multiple independent power and cooling systems, and a high degree of availability.

in ASX's Crisis Management Plan. The procedures cover incident notification (including notification and incident reporting to the Bank and ASIC), emergency response (including building evacuation), incident response (including overall incident assessment and monitoring), and incident management testing. The procedures were updated during the assessment period to clarify when specific incidents should be reported to the Bank's supervisory as well as operational functions. ASX maintains a crisis management team that includes senior representatives of the core business activities, as well as facilities management, business continuity, and media and communications. The procedures identify responsibilities, including for internal communication and external communication to emergency services, the market, industry and media. As part of these procedures, ASX maintains a 'multi-market communication protocol' for communicating information to participants and stakeholders should any disruption to market, clearing or settlement services eventuate, including where this affects market operators accessing ASX Settlement via the TAS.

The ASX Business Services Incident Management Procedure would be invoked in the event of a high severity technology or operational incident. The Incident Management Procedure provides guidelines for system recovery prioritisation and resource allocation, and the actions that would need to be taken in the event of an incident. The procedure also outlines the key roles and responsibilities for managing an incident, as well as indicative communication and notification requirements.

The external review of ASX's technology governance and operational risk and controls identified a number of areas in which ASX's incident management arrangements require strengthening. The review observed limitations in ASX's analysis of incident data, as well as the lack of a defined system for managing identified incidents and issues. The review also observed significant dependence on subject matter knowledge experts within ASX, in part resulting from the lack of a centralised knowledge repository that could provide an end-to-end view of system operations. ASX has plans to address these findings as part of its Building Stronger Foundations program (see section 3).

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.

The ASX Settlement Operating Rules and Procedures and Austraclear Regulations and Procedures require participants to maintain adequate business continuity arrangements that are appropriate to the nature and size of their business as a participant. The Operating Rules and Regulations specify that participants must have arrangements that allow for the recovery of usual operations (see SSF Standard 14.6). It is the SSFs' expectation (set out in guidance) that this would be within two to four hours following a contingency event for large participants. These arrangements are reviewed as part of the participant admissions process. Participants are also subject to risk-based spot checks of their ongoing compliance with the ASX Settlement Operating Rules or Austraclear Regulations and Procedures. Spot checks may be based on topical themes, in some cases arising from observations of general business developments, and in other cases motivated by a participant that has been experiencing operational problems. If a participant fails to implement any recommendations arising from a check, ASX may impose sanctions.

Participants are involved in the contingency testing of ASX Settlement's and Austraclear's systems, as this testing is conducted in a live environment. ASX conducts comprehensive business continuity testing of key systems at least every two years, with participants being notified of the start and completion of testing. Participants are also involved in testing of major system changes or in advance of the introduction of a new system. The ASX SSFs conduct regular connectivity tests and maintain an external testing environment for system changes.

In addition to operational reliability requirements that apply to ASX Collateral as a Special Purpose Participant of Austraclear, ASX Operations Pty Limited conducts contingency testing of ASX Collateral as a critical ASX system. As part of this testing, ASX applies some of the contingency scenarios defined in its Service Level Agreement with Clearstream.

Outsourcing and other dependencies

14.9 A securities settlement facility that relies upon, outsources some of its operations to, or has other dependencies with 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.

ASX has developed a set of standard clauses for inclusion in contracts with third-party service providers of critical services to ASX Settlement and Austraclear (see SSF Standard 14.5). Similar clauses are also included in the support agreement between ASX Settlement and ASX Operations Pty Limited and between Austraclear and ASX Operations Pty Limited, which provides all internal operational services for the facilities. The clauses seek to ensure that the service providers meet the resilience, security and operational performance requirements of the FSS. The clauses also allow the Bank to gather information from the service provider about the operation of critical functions (see SSF Standard 14.10). In the event that the Bank concluded that the terms of the service provider agreement did not meet FSS requirements, the clauses also require the service provider to negotiate acceptable new terms with ASX in good faith. Furthermore, if ASX Settlement or Austraclear were to become insolvent, the clauses provide for the Bank to negotiate with the service provider to continue service provision (see SSF Standard 14.11). ASX applies these clauses to all new agreements with service providers, and has incorporated them into all of its key existing service agreements.

The resilience, security and operational performance of SWIFT, which Austraclear relies upon for messaging, is primarily overseen by the SWIFT Oversight Group, comprising the G10 central banks and chaired by the National Bank of Belgium. The National Bank of Belgium has also established the SWIFT Oversight Forum (SOF), in order to include 12 additional central banks, including the Bank, in the oversight process. Through its membership of the SOF, the Bank is able to access information relevant to SWIFT oversight. To support its oversight activities, the Oversight Group has set proprietary minimum standards – the High-level Expectations (HLEs) – against which SWIFT is assessed. In its capacity as a member of the SOF, the Bank receives SWIFT’s annual self-assessment against the HLEs.

ASX Collateral

Given the interdependencies between Austraclear and ASX Collateral, it is important that ASX Collateral is held to equivalent standards of operational robustness. ASX Collateral employs the same risk management framework for operational risk and operational procedures as those adopted for the Austraclear EXIGO system. This includes a service availability target of 99.9 per cent, and a minimum capacity headroom target of 50 per cent of total capacity. ASX Collateral’s business continuity arrangements are also consistent with those for the Austraclear EXIGO system and are reviewed alongside Austraclear’s own business continuity arrangements. The CCMS is replicated at the backup data centre, with failover to occur within one to two hours, depending on the nature of the contingency event. A high degree of redundancy is built into the CCMS – both across the primary and backup data centres and within each centre. In the case of a significant outage of the CCMS, critical collateral transfers may be conducted as ‘Austraclear assisted transactions’, consistent with existing Austraclear functionality.

ASX Collateral has access to other ASX Group personnel as required to carry out its operations under the ASX Group Support Agreement with ASX Operations Pty Limited. This agreement aims to allow for access to resources in the event of external administration of ASX Operations Pty Limited – to the extent permissible by law.

Resilience requirements imposed on ASX Collateral apply equally to ASX Collateral's outsourced arrangements with Clearstream. Clearstream's reliability targets for its Collateral Management Exchange (CmaX) system are broadly equivalent to those of Austraclear. Specifically, they require 99.8 per cent availability and capacity utilisation of no more than 20 per cent. Clearstream's resilience standards are broadly equivalent to those of Austraclear, including the use of geographically separated data centres with managed firewalls, anti-virus and anti-malware protection for email, and data encryption.

Clearstream is subject to oversight under several regimes. In particular, the Central Bank of Luxembourg (Banque Centrale du Luxembourg, BCL) performs periodic assessments of Clearstream against applicable standards. These assessments evaluate Clearstream's operational risk management framework for its collateral management service. Additional assessments, from the point of view of user requirements, are carried out by the Eurosystem on a near-annual basis. Clearstream is also subject to periodic examination by international assessors.

14.10 All of a securities settlement facility's outsourcing or critical service provision arrangements should provide rights of access to the Reserve Bank to obtain sufficient information regarding the service provider's operation of any critical functions provided. A securities settlement facility should consult with the Reserve Bank prior to entering into an outsourcing or service provision arrangement for critical functions.

ASX's standard clauses for service providers require the provider to grant reasonable access to the Bank in respect of information relating to its operation of a critical function provided to the ASX SSFs. ASX applies these clauses to all new agreements with service providers, and has incorporated them into all of its key existing service agreements. The Bank also receives information on SWIFT through its membership of the SOF (see SSF Standard 14.9).

Rights of access for the Bank to ASX Collateral are provided by overlapping requirements established under Australian Financial Services Licence conditions imposed by ASIC on ASX Collateral, intragroup contractual arrangements, and additional requirements on Special Purpose Austraclear Participants that are Collateral Managers. Rights of access to the Bank in respect of CCMS services provided by Clearstream are provided by the Master Framework Agreement between ASX Operations Pty Limited and Clearstream.

14.11 A securities settlement facility should organise its operations, including any outsourcing or critical service provision 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.

Standard clauses in ASX Settlement's and Austraclear's agreements with service providers, including (via ASX Collateral) Clearstream for the CmaX system, require that providers give the Bank notice of any intention to terminate the agreement as a consequence of an SSF's failure to pay fees, or in the event of the insolvency of one of the SSFs or any other ASX entity (see SSF Standards 14.9 and 14.10). This is intended to give the Bank an opportunity to take action to remedy the breach or otherwise ensure continued service provision.

The ASX SSFs' arrangements to ensure continuity of operations in the event of a crisis will be shaped by the proposed introduction into Australian law of a special resolution regime for FMIs. For example, under the proposed regime the Bank would have powers to direct related entities (such as ASX Operations) to perform obligations under *ex ante* agreements to provide critical services (see SSF Standard 14.4). The Council of Financial Regulators (CFR) agencies are currently developing a legislative proposal to implement the regime, as well as the operational arrangements to support the regime once implemented.

Standard 15: Access and participation requirements

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

ASX Settlement	Austraclear
Observed	Observed

15.1 A 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.

ASX Settlement and Austraclear have objective and transparent participation requirements, which are publicly available and form part of ASX Settlement's Operating Rules and Procedures and Austraclear's Regulations and Procedures, respectively.

ASX Settlement has also issued formal guidance to assist applicants' and participants' understanding of the participation requirements. This includes guidance on: the admission process and criteria; notification obligations; offshoring and outsourcing arrangements; and business continuity requirements.

ASX Settlement and Austraclear have an internal policy and supporting standards that summarise the minimum requirements placed on participants under the relevant SSF's rules and procedures (see SSF Standard 15.2), and document the responsibilities of the CS Boards, SRPC and relevant executives for ensuring these requirements are met and periodically reviewed. Each of the SSFs' rules and procedures provide for an appeals process should an application for participation be rejected or a participant's access be terminated.

Under the Code of Practice, ASX has committed to providing transparent and non-discriminatory terms of access to ASX Settlement's cash equity settlement services, including to participants, AMOs and ALMOs.

The CCMS's access to Austraclear is via a non-exclusive 'Special Purpose Participant (Collateral Manager)' category of participation. There are no provisions in the Austraclear Regulations that prevent fair and open access to other entities that may seek to offer their services as a Collateral Manager. LCH Ltd, a UK-based CCP licensed as a CS facility in Australia, is a Special Purpose (Exchange) Participant in Austraclear.

At the end of June 2018, ASX Settlement had 90 participants. A further 15 participants were active as temporary specialist settlement participants set up to effect corporate actions. Austraclear had 889 participants at the end of the assessment period.

15.2 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 and commensurate with the securities settlement facility's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, a securities settlement facility should endeavour to set requirements that have the least restrictive impact on access that circumstances permit.

The participation requirements of both ASX SSFs are designed to promote the safety and integrity of the SSF.

ASX Settlement

A settlement participant must post a settlement bond of \$500 000, unless: it is subject to prudential supervision as an ADI; is required to comply with financial requirements under the operating rules of an approved clearing facility or an AMO; is a CS facility that complies with the FSS; or only acts as a Participant Bidder in a takeover. In addition, a sponsoring participant (i.e. a participant that also acts in ASX Settlement on behalf of non-participants) that is not covered by the National Guarantee Fund compensation arrangements (under the Corporations Act) must post a sponsorship bond of \$500 000.

Settlement and sponsorship bonds must be issued by an Australian bank or appropriately regulated insurance company. Funds held under a settlement bond may be drawn upon by ASX Settlement when deemed appropriate under the ASX Settlement rules. In a similar vein, funds held under a sponsorship bond would be drawn upon to meet any losses suffered by ASX Settlement, an issuer, or a holder sponsored by an ASX Settlement participant arising from a breach of the Operating Rules or other offence committed by the participant.

Under the ASX Settlement Operating Rules and Procedures, a potential participant must satisfy ASX Settlement that it has the resources and processes in place to comply with its obligations as a participant. For these purposes, 'resources' include financial, technological and human resources, and 'processes' include management supervision, training, compliance, risk management, business continuity and disaster recovery processes.

Austraclear

Under the Regulations and Procedures, Austraclear must be satisfied that a potential participant has (or will have) the relevant managerial, operational and financial capacity and appropriate complementary business continuity arrangements in place to enable it to meet its ongoing obligations as a participant.

The Austraclear Regulations also set out specific participation requirements for Collateral Managers. These include detailed operational reliability and business continuity requirements, which reflect the potential critical functionality of such infrastructure. In addition to the standard participant requirements outlined above, an applicant for special purpose participation as a Collateral Manager is required to have an Australian Financial Services Licence covering the activities that it will conduct as a Collateral Manager. Additional requirements that apply to participants that are Foreign Currency Settlement Banks in Austraclear are described under SSF Standard 8.3.

15.3 A 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.

ASX Settlement’s and Austraclear’s arrangements for monitoring and enforcing compliance with their respective operating rules and regulations are published on the ASX public website. Under these arrangements, the ASX SSFs have wide-ranging powers to sanction their participants in order to preserve the integrity of the SSFs.

- ASX Settlement may restrict, suspend or terminate a participant’s access to the facility in the event of non-compliance, which includes failure to comply with participation requirements (see SSF Standard 11.1).
- Austraclear may suspend or terminate a participant’s authority to settle transactions in the event of a default (see SSF Standard 11.1), or in the event of a breach of the Regulations and Procedures that may have an adverse effect on the SSF.

The action taken by the ASX SSFs in the event of a breach will depend on a number of factors, including the participant’s history of compliance and whether the breach implies negligence, incompetence or dishonesty. Where a breach has been identified and the participant has taken appropriate steps to rectify it, the ASX SSFs will typically continue to monitor the participant closely for a period of time. Significant breaches are also referred to ASIC and, depending on the nature of the breach, may be investigated by ASX Compliance to determine whether formal disciplinary action is required.

In addition, ASX Settlement levies fees on participants that fail to meet securities delivery obligations on the scheduled settlement date (see SSF Standard 10.2). The fee is 0.1 per cent of the value of the settlement obligation that is in shortfall, but with a daily minimum and maximum fee of \$100 and \$5 000, respectively. Participants are also required to close out any positions remaining unsettled two business days after the scheduled settlement date (i.e. on the fourth business day after the trade date). ASX Settlement also routinely benchmarks participants’ settlement performance. Under this regime, a participant receives a ranking of its settlement performance (based on the value of its trades that have failed to settle) against its market group peers. In addition, under its Operating Rules, ASX Settlement is able to impose monetary penalties of up to \$1 million on participants that it deems to be in violation of the Operating Rules.

Standard 16: Tiered participation arrangements

A securities settlement facility should identify, monitor and manage the material risks to the securities settlement facility arising from tiered participation arrangements.

ASX Settlement	Austraclear
Observed	Observed

16.1 A 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 securities settlement facility arising from such tiered participation arrangements.

Since ASX Settlement does not assume credit or liquidity risk as principal, the primary risks that could arise from indirect participation are operational. In particular, indirect participation arrangements that concentrate settlement activity within a few direct participants could concentrate operational risk to the facility. ASX Settlement is able to access basic information on indirect participation via the

separate participant identifiers (known as PIDs) assigned to trading or clearing participants (in ASX Trade or ASX Clear, respectively) that do not settle directly. ASX Settlement currently considers the risks from concentration of indirect participants to be low.

Given the nature of the wholesale OTC market in debt securities that Austraclear settles, most participants have direct access to Austraclear. Furthermore, since Austraclear does not assume credit or liquidity risk as principal, the primary risks that could arise from indirect participation are operational. In particular, indirect participation arrangements that concentrate settlement activity within a few direct participants could concentrate operational risk to the facility. Any significant activity associated with indirect participation would be likely to be recorded in sub-accounts of direct Austraclear participants, which Austraclear is able to monitor. Austraclear currently considers the risks from concentration of indirect participants to be low.

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

ASX Settlement and Austraclear monitor dependencies arising from tiered participation indirectly using a variety of means. These include regular discussions with participants on developments in their business and risk management activities, participants' own risk assessments, and discussions with new participants as part of the induction process. Based on this information, the ASX SSFs have not identified any material dependencies between direct and indirect participants that might affect their operations.

16.3 A securities settlement facility should identify indirect participants responsible for a significant proportion of transactions processed by the 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 securities settlement facility in order to manage the risks arising from these transactions.

In general, participation in ASX Settlement is broader and more direct than that in ASX Clear. At end June 2018, there were 90 direct ASX Settlement participants (excluding temporary special-purpose participants), compared with 34 (active) direct participants in ASX Clear. Due to this, and given the vertical integration of the ASX Group, monitoring of tiered participation risks in ASX Clear would also be expected to highlight any such risks that may require further investigation in ASX Settlement (see Appendix C.1, CCP Standard 18).

In general, most wholesale OTC debt market participants have direct access to Austraclear. At end June 2018 there were 889 direct Austraclear participants.

The ASX SSFs encourage participants to develop appropriate risk control measures in managing their relationships with clients, including any substantial indirect participants. ASX does not set thresholds, either formal or informal, at which it would encourage direct participation by an indirect participant. ASX's general approach to managing risks associated with participants' business activities is based on a framework that can flexibly detect and react to new risks as they arise, rather than setting firm *ex ante* activity limits.

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

Neither ASX Settlement nor Austraclear are directly exposed to financial risks from indirect participation. Significant operational risks associated with indirect participation at ASX Settlement would be identified and mitigated through the application of ASX's concentration risk monitoring policy, which focuses on participation in ASX Clear (see SSF Standard 16.3). Austraclear's exposure to

operational risks from indirect participants is limited by the bilateral nature of settlement between its participants and its relatively broad participation base.

Standard 17: FMI links

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

ASX Settlement	Austraclear
Observed	Observed

17.1 Before entering into a link arrangement, and on an ongoing basis once the link is established, 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 the securities settlement facility is able to comply with these SSF Standards.

Identifying link-related risks

For the purposes of this standard, a link is any connection that is made to another FMI (other than a payment system) according to a set of contractual and operational arrangements, irrespective of the complexity of the link and whether it is made directly with the FMI or through an intermediary.²⁰

ASX Settlement maintains such a link to ASX Clear. This link supports settlement of securities transactions, including DvP settlement of novated securities trades and the lodgement of non-cash collateral. Instructions relating to these transactions are entered into CHESS, which supports the functioning of both ASX Clear and ASX Settlement.

Other than the link to RITS to settle payments, Austraclear maintains links with three other FMIs:

- *ASX Clear.* This link supports AUD funds transfers related to margin payments. Cash transfers are entered into Austraclear by ASX Clear and then matched in Austraclear against the respective clearing participants' cash settlement instructions. Regular margin collections and intraday margin calls, which make up the majority of cash transfers in ASX Clear, are submitted automatically to Austraclear by ASX Clear's margin and collateral systems.
- *ASX Clear (Futures).* This link supports AUD funds transfers in relation to margin payments, lodgement of AUD-denominated non-cash collateral, and settlement of 90-day bank bill futures. Like for ASX Clear, cash transfers are entered into Austraclear by ASX Clear (Futures), and then matched in Austraclear against the respective clearing participants' cash settlement instructions. Regular margin collections and intraday margin calls, which make up the majority of cash transfers, are submitted automatically to Austraclear by ASX Clear (Futures)' margin and collateral systems. AUD-denominated non-cash collateral is lodged via a collateral lodgement form. This needs to be received by ASX Clear (Futures) the day prior to the collateral being needed to cover margin, with the security being transferred to ASX Clear (Futures) via a free-of-payment trade in Austraclear. Settlement of 90-day bank bill futures takes place in Austraclear according to procedures set out in ASX 24's Operating Rules and Procedures. Sellers and buyers who are not full participants of Austraclear must appoint a full participant to act as their settlement agent.

²⁰ Links to payment systems are addressed in SSF Standard 8.

- *Clearstream.* This link relates to Euro entitlements managed in Austraclear (see SSF Standard 9.1). Austraclear is a participant in Clearstream. A participant that has a Eurobond holding in Clearstream may choose to lodge that security in Austraclear by transferring it to Austraclear's Clearstream account. Participants with Eurobond holdings in Euroclear may also transfer securities to Austraclear's Clearstream account via a separate link maintained between Euroclear and Clearstream. Once available in the Austraclear system, arrangements for sales and purchases of the security are as for other debt securities. Withdrawals of Euro entitlements from the Austraclear system are processed in a similar way to deposits, with Austraclear transferring the securities from its account in Clearstream to the participant's account with either Clearstream or Euroclear on request.

There are also arrangements where other FMIs access Austraclear as a participant.

Managing operational risk

ASX Settlement's and Austraclear's links with ASX Clear and ASX Clear (Futures) (where relevant) are subject to the same operational risk management framework that applies to all of the ASX CS facilities (see SSF Standard 14). This addresses operational risks associated with software, infrastructure or network failures and manual processing errors. An incident report is required for any significant technical or operational incident, including an assessment of mitigating actions to reduce the risk of reoccurrence. In addition, six-monthly risk profile assessments are prepared and presented to the Audit and Risk Committee, and an independent system-controls audit is conducted annually.

Clearstream's operational risk management arrangements are overseen by BCL, which performs periodic assessments of Clearstream against applicable standards (see SSF Standard 14.9).

Managing financial risk

ASX Settlement and Austraclear do not assume any direct financial risks from their links to other FMIs.

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.

ASX Settlement's link to ASX Clear has its legal basis in the operating rules and procedures of both facilities. The finality of settlements in ASX Settlement is supported by the approval of its netting arrangements under Part 3 of the PSNA (see SSF Standard 1.5).

Austraclear's links to ASX Clear and ASX Clear (Futures) have their legal basis in the regulations, operating rules and procedures of each facility. The finality of transactions settled in Austraclear, including transactions submitted via these links, is supported by the approval of Austraclear under Part 2 of the PSNA (see SSF Standard 1.5).

Austraclear's link to Clearstream has a legal basis in a contract between the two FMIs, and the system rules of Clearstream's international central securities depository. As noted under SSF Standard 17.1, Clearstream is regulated by BCL in accordance with international standards.

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.

ASX Settlement and Austraclear have discussed their current link arrangements with the Bank. ASX Settlement and Austraclear did not enter into any new link arrangements during the assessment period.

17.4 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 such links. Any credit extended to the linked central securities depository should be covered fully with high-quality collateral and be subject to limits.

ASX Settlement does not operate any links to other central securities depositories.

Austraclear does not extend credit to Clearstream.

17.5 Provisional transfers of securities between 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.

ASX Settlement does not operate any links to other central securities depositories.

Euro entitlements are not made available to participants in Austraclear until title has been confirmed by deposit in Austraclear’s account at Clearstream. Provisional transfers of securities cannot arise under the link between the two central securities depositories.

17.6 A securities settlement facility operating an investor central securities depository that uses an intermediary to operate a link with an issuer 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.

ASX Settlement does not operate any links to other central securities depositories.

Austraclear does not use custodians or other intermediaries in its link with Clearstream.

Standard 18: Disclosure of rules, key policies and procedures, and market data

A 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 they incur by participating in the securities settlement facility. All relevant rules and key policies and procedures should be publicly disclosed.

ASX Settlement	Austraclear
Observed	Observed

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).

ASX Settlement’s Operating Rules and Procedures and Austraclear’s Regulations and Procedures form the basis of all material aspects of the SSFs’ service to participants. The Operating Rules (or Regulations) and Procedures, together with associated Guidance Notes, are disclosed on ASX’s public

website.²¹ The rules and procedures are also posted on the Customer Portal, ASX's participant website. The Customer Portal also supports the dissemination of non-public information to participants. As the Customer Portal is currently not available to Austraclear-only participants, ASX circulates non-public information to these participants via email. ASX has plans to migrate Austraclear-only participants to the Customer Portal in the longer term.

To assist participants in their understanding of the risks of participating in the ASX SSFs, and for the information of other interested stakeholders, ASX publishes a range of additional material on its public website; this includes information required to be disclosed under the FSS. Information specific to ASX Settlement and Austraclear includes information about participant requirements, trade and settlement monitoring systems, known software release issues and change requests, default management and business continuity arrangements. In addition, ASX publishes information on SWIFT message protocols, which is specific to Austraclear. More general information includes: the ASX Group's regulatory framework; requirements of the FSS; requirements of the Corporations Act for provision of services in a 'fair and effective' way; the ASX Group's other obligations under the Corporations Act; and the ASX Group's observance of the Principles. ASX also operates a dedicated website that discloses information relevant to the clearing and settlement of cash equities, to support its disclosure commitments under the Code of Practice.

Specific disclosure requirements are dealt with under SSF Standards 1.4, 2.2, 11.3, 13.4, 15.2 and 15.3.

18.2 A securities settlement facility should disclose clear descriptions of the system's design and operations, as well as the securities settlement facility's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the securities settlement facility (see SSF Standards 2.8 and 8.5).

General descriptions of the ASX SSFs' system design and operations are available on ASX's public website, including as part of ASX's response to the CPMI-IOSCO Disclosure Framework (see SSF Standard 18.4). ASX's Disclosure Framework document describes the ASX group structure, provides a general description of the CS facilities and their roles, system design and operations, outlines the legal and regulatory framework for clearing and settlement, and provides a description of steps taken by ASX to ensure compliance with the Principles and the corresponding FSS. The ASX public website provides additional information on system design and operations, including a description of the cash market settlement process.

The rights and obligations of ASX Settlement and its participants are defined in the ASX Settlement Operating Rules and Procedures, which are published on the ASX public website and the Customer Portal. Similarly, the rights and obligations of Austraclear and its participants are defined in the Austraclear Regulations and Procedures, and are also published on the ASX public website and the Customer Portal. There is a transparent process for changing ASX Settlement's Operating Rules and Procedures and Austraclear's Regulations and Procedures, with changes notified to participants via the ASX website (see SSF Standard 1.3). These documents are supplemented with guidance notes to support participants' understanding of the risks they face by participating in the system.

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

²¹ Available at <<http://www.asx.com.au/regulation/rules/asx-settlement-operating-rules.htm>> for ASX Settlement and at <<http://www.asx.com.au/regulation/rules/austraclear-regulations.htm>> for Austraclear.

All applicants for participation in the ASX SSFs are provided with a comprehensive application pack, which includes information regarding key requirements of the facilities. Applicants have access to the Operating Rules (or Regulations), Procedures and Guidance Notes via the ASX website, as well as other publicly available information about the facilities, services and participation requirements. When ASX Settlement or Austraclear have completed an initial assessment of an application, the applicant is also invited to attend formal ‘on boarding’ meetings with the staff from the ASX Compliance and Operations functions to discuss key areas of importance for participants.

ASX Settlement publishes aggregate securities lending data on its website daily, enabling participants to better understand the risks associated with these activities. For this purpose, ASX Settlement requires that participants ‘tag’ settlement instructions submitted to CHES that are related to securities lending, and participants must disclose outstanding positions, both borrowed and lent.

If either ASX Settlement or Austraclear became aware or suspected that a participant lacked a satisfactory understanding of its rules or procedures, or the risks of participation, it would generally work collaboratively with the participant to educate them on their obligations. The SSFs may become aware of issues through their routine risk monitoring activities or through their regular discussions with participants (see SSF Standard 14.5).

18.4 A securities settlement facility should complete regularly and disclose publicly responses to the CPSS-IOSCO Disclosure Framework for Financial Market Infrastructures.²² A securities settlement facility also should, at a minimum, disclose basic risk and activity data, as directed by the Reserve Bank from time to time.

ASX has published its response to the CPMI-IOSCO Disclosure Framework, including information describing how its CS facilities observe the applicable Principles.²³ This document was updated during the assessment period. ASX plans to continue updating this document periodically and to further enhance its disclosure as necessary from time to time.

ASX publicly reports basic risk and activity data for the CS facilities via a monthly activity report, as well as through additional data published on both its main website and a dedicated website on clearing and settlement of cash equities.

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.

ASX Settlement	Austraclear
Observed	Observed

19.1 A securities settlement facility should inform the Reserve Bank as soon as reasonably practicable if:

22 The CPSS was renamed the CPMI in October 2014.

23 Available at <<http://www.asx.com.au/documents/asx-compliance/pfmi-disclosure-framework.pdf>>.

- (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;**
- (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, including providing the conclusions of such audits or reviews;**
- (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).**

ASX and the Bank have formalised existing cooperation arrangements through cooperation letters with each of ASX Settlement and Austraclear. The letters set out the arrangements between the SSFs and the Bank relating to the SSFs' performance of their assistance and notification obligations.

In addition to immediately notifying the Bank of significant developments (a requirement that is specified in many of ASX's key internal risk management policies), ASX and the Bank hold scheduled periodic meetings that include:

- annual meetings with the Board and, separately, the Chair of the Board to discuss strategic issues and compliance with the FSS
- semi-annual high-level review meetings to discuss strategy and relevant market developments, involving the Chief Executive Officer and other relevant executives
- quarterly meetings to discuss developments relevant to compliance with the FSS
- quarterly technology and operations meetings, involving the Chief Operating Officer and other members of the management team responsible for implementation of operational strategy, management of operational risk and business continuity planning.

These meetings provide a forum for the discussion of material developments, such as issues regarding participant compliance, changes to risk management controls, and the results of internal and external reviews. Matters discussed in the formal scheduled meetings are followed up, as appropriate, in more focused targeted sessions. The Bank and ASX hold ad hoc meetings to discuss relevant matters as required. Representatives of ASIC may attend both regular and ad hoc meetings where matters of common interest are being discussed.

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.**

Audited annual reports are published on the ASX public website. Under the Code of Practice, ASX also publishes annual management accounts for its cash equity clearing and settlement services. ASX also provides the Bank with quarterly statements of balance sheet, and collateral held for each CS facility.

ASX provides the Bank with detailed activity, risk and operational data on a quarterly basis. This includes data on settlement values and volumes, as well as system availability and capacity utilisation. The quarterly technology and operations meetings between the Bank and ASX provide a forum for discussion of developments observed in the data.

From time to time, the Bank requests additional information from ASX Settlement and Austraclear on topics of interest, particularly regarding any operational incidents or the status of projects with significant risk implications.