B1. Financial Stability Standards for Central Counterparties

The *Financial Stability Standards for Central Counterparties* (CCP Standards) are made up of 21 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 CCP Standards, the Reserve Bank takes into account associated guidance.[1] The following provides details of how ASX Clear Pty Limited (ASX Clear) and ASX Clear (Futures) Pty Limited (ASX Clear (Futures)) observe each of the CCP Standards (including sub-standards). It also sets out the Bank's assessment of how well ASX Clear and ASX Clear (Futures) has complied with each of the CCP Standards during the Assessment period, and provides recommendations for each of the central counterparties (CCPs) to address relevant areas of concern and to encourage steps to further strengthen the CCPs' observance of standards.[2]

B1.1 ASX Clear

ASX Clear is a wholly owned subsidiary of ASX Clearing Corporation Limited (ASXCC), itself a wholly owned subsidiary of ASX Limited (see 'ASX Group Structure' in Appendix B). ASX Clear acts as the CCP for cash equities, pooled investment products, warrants, certain fixed-income products and equity-related derivatives listed on the ASX market. In May 2013, ASX Clear commenced clearing of depository interests in Commonwealth Government securities (CGS). Under the Trade Acceptance Service, it can also act as CCP for trades executed on approved market operator platforms, which it currently does for Chi-X Australia Pty Ltd (Chi-X).

Standard 1: Legal basis

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

Rating: Observed

ASX Clear is a separate legal entity within the ASX Group that solely provides clearing services (CCP Standard 1.1). ASX Clear's legal basis is founded on clear and understandable rules that operate within the framework of relevant laws and regulations (CCP Standards 1.2, 1.3). The certainty of this legal basis in relevant jurisdictions is reinforced by supporting legislation, including ASX Clear's protection as a netting market under the *Payment Systems and Netting Act 1998* (PSNA), and protection for settlements conducted via ASX Settlement and Austraclear under the same legislation, and is subject to periodic review by ASX Legal (CCP Standards 1.2, 1.5). ASX Clear has publicly outlined the key features of its legal basis on its website, and from time to time, for information, may provide legal opinions to participants or other stakeholders in respect of the legal basis of significant new services (CCP Standard 1.4). ASX has not identified any material risks arising from potential conflicts of law relating to the operations of ASX Clear (CCP Standard 1.6).

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1 The guidance is available at <http://www.rba.gov.au/payments-system/clearing-settlement/standards/central-counterparties/2012/index.html>.

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

Based on this information, the Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 1 during the 2012/13 Assessment period. The legal basis of ASX Clear is described in further detail under the following sub-standards.

1.1 A central counterparty 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 central counterparty.

ASX Clear is a wholly owned subsidiary of ASX Clearing Corporation Limited, which is itself a wholly owned subsidiary of ASX Limited. As a separate legal entity, ASX Clear's central clearing activities are separate from the activities conducted by ASX's other 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 Clear's services are limited to CCP clearing of cash securities and derivatives transactions executed on the ASX and Chi-X markets, in accordance with the ASX Clear Operating Rules and Procedures. Accordingly, ASX Clear does not provide any services that have a distinct profile from, or pose additional risks to, its activity of operating a CCP.

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

Legal basis

ASX Clear novates and nets transactions submitted for clearing by its participants. These activities require a high degree of legal certainty. Key components of the legal framework under which the CCP operates are:

- ASX Clear holds a CS facility licence, under Part 7.3 of the *Corporations Act 2001*. This licence is administered by the Australian Securities and Investments Commission (ASIC) in consultation with the Bank, with the Minister acting as ultimate decision-maker on licensing matters.
- ASX Clear has defined Operating Rules and Procedures. Under section 822B of the Corporations Act, these Rules and Procedures have effect as a contract under seal between: ASX Clear and each of its participants; each participant and each other participant; and each participant and each issuer.
- Novation and the netting arrangements established under ASX Clear's Operating Rules are protected as a 'netting market' under Part 5 of the PSNA (see also CCP Standard 1.5).

The legal basis of ASX Clear's activities is reviewed by ASX Legal whenever there are material amendments to the Operating Rules or Procedures.

Rights and interests

The rights and interests of ASX Clear, its participants and, where relevant, its participants' customers in cleared positions and collateral are defined in ASX Clear's Operating Rules and Procedures.

The capacity to deal with collateral held by ASX Clear in circumstances of a participant default is an important risk protection. Recent amendments to Part 5 of the PSNA provide additional protections for the enforcement of security interests held by CCPs in the event of a participant default.

1.3 A central counterparty 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 by Rules and those which may be considered under the Procedures. Rule changes are subject to a disallowance process.

The ASX Clear Operating Rules and Procedures are supplemented with explanatory material, published on ASX's public website and ASX's restricted participant website, to facilitate understanding by participants and prospective participants of the risks they face through participation in the system. Publicly available material includes high-level descriptions of ASX Clear's risk management framework, the CME SPAN and Cash Market Margining (CMM) margining methodologies, business continuity arrangements and the default management framework. Participants have access to additional manuals, reports and explanatory notes covering such topics as the application process for new participants, compliance, technical operational details, counterparty risk assessment and fees.

There is a clear process for changing ASX Clear's Operating Rules and Procedures. Proposed rule changes may be submitted informally to ASIC, which in consultation with the Bank will advise ASX of any regulatory concerns. Formal submission of the proposed changes to ASIC triggers a 28-day 'disallowance' period (referred to above), during which the Minister may choose to disallow the rule changes. The Minister considers a number of factors, including whether the proposed changes are consistent with the public interest. To assist the Minister in this process, ASIC provides detailed advice to the Minister, incorporating the views of the Bank as appropriate.

1.4 A central counterparty 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 (Clear) and the facility's protection as an approved netting market under the PSNA – see also CCP Standard 1.5 – are described on the ASX public website in its Disclosure Framework document (see CCP Standard 20.5).[3]

ASX Limited on behalf of each licensed entity within the ASX Group, including all CS facilities, submits an Annual Group Licence Report to ASIC and the Bank. This report sets out the legal basis for the CS facilities' activities under its licence obligations, and is used by ASIC in the preparation of ASIC's Market Assessment Report for the ASX Group.

For significant new services, ASX Clear may seek independent legal opinions in respect of relevant aspects, or any implications 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 the legal efficacy of new Operating Rules.

1.5 A central counterparty 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 central counterparty under such rules and procedures will not be voided, reversed or subject to stays, including in the event that the central counterparty enters into external administration or that one or more of its participants defaults or is suspended.

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3 Available at <http://www.asxgroup.com.au/media/pfmi_disclosure_framework.pdf>.

Since ASX is a vertical exchange, there is a certain degree of overlap in how aspects of the service are linked in conducting trading, clearing and settlement, although trades may also enter at the clearing level via the Trade Acceptance Service. ASX Clear's Operating Rules establish the point at which trades are novated and the risk controls that apply to manage clearing exposures. Such risk controls are calibrated to participants' net obligations to the CCP. Unlinked payment obligations arising from clearing are settled in Austraclear, and the point at which settlement is final and irrevocable is established in Austraclear's Regulations. Securities transfers and related payment obligations arising from clearing are settled in ASX Settlement, and the point at which settlement is final and irrevocable is established in ASX Settlement's Operating Rules

Novation and netting

Part 5 of the PSNA provides protections for approved 'market netting arrangements' (i.e. the function of a CCP) against claims that might otherwise be upheld in insolvency proceedings. It covers several areas relevant to CCPs. In particular, it provides protection for:

- novation, the process whereby matched trades between participants are replaced by separate contracts between the buyer and the CCP and the seller and the CCP
- the process of reducing each participant's contracts to a net exposure (reflecting the exposure to the participant's portfolio of contracts)
- the CCP's rules covering default, such that future exposures may be terminated and a net payout obligation calculated
- payments made on a net basis, by protecting against the voiding of net payments in the event of insolvency of a participant.

Settlement finality

Payment-only obligations are settled in Austraclear and securities-related obligations are settled in ASX Settlement. Settlement finality is protected by approvals of Austraclear and ASX Settlement under Part 2 and Part 3 of the PSNA respectively. Part 2 protects against exercise of the so-called 'zero-hour rule' in insolvency law, whereby transactions occurring after the point at which an insolvency is legally determined to have started could potentially otherwise be reversed. Part 3 protects the finality of settlements in ASX Settlement's multilateral net batch. Any interbank transactions arising from these settlements are settled in real time in the Reserve Bank Information and Transfer System (RITS), across Exchange Settlement Accounts (ESAs) held with the Bank. Finality of funds transfers in RITS is again supported by the approval of RITS under Part 2 of the PSNA.

Assumption of risk

Through novation, the obligations of ASX Clear are to each participant as principal – irrespective of whether that participant is acting on behalf of a client. Equally, participants' obligations are to ASX Clear for all transactions that have been novated (i.e. both proprietary and client transactions).

Importantly for the legal protections provided under the PSNA, as noted above, the point of novation is established by ASX Clear's Operating Rules. In respect of exchange-traded transactions, ASX Clear's Operating Rules specify that a transaction on the ASX or Chi-X markets is novated immediately upon the matching of a bid and offer, while for over-the-counter (OTC) equity options, novation occurs upon acceptance and registration of that transaction within the clearing system.

Enforceability of ASX rules while under external administration

ASX Legal has analysed the legal enforceability of ASX Clear's Operating Rules upon the CCP's entry into external administration, and has identified no material legal risk to enforceability.

1.6 A central counterparty conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflicts of law across jurisdictions. A central counterparty 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 participants of ASX Clear include Australian-domiciled subsidiaries of entities that are based in foreign countries, the Operating Rules are governed by Australian law and require that all participants submit to the exclusive 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 central counterparty should have governance arrangements that are clear and transparent, promote the safety of the central counterparty, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

Rating: Observed

ASX Clear pursues objectives that place a high priority on risk management, through compliance with relevant Financial Stability Standards (FSS) and the broader Corporations Act requirement to do all other things necessary to reduce systemic risk, ASX Clear also acknowledges public policy objectives directed at financial market and payments system integrity, as well as the interests of customers and other stakeholders (CCP Standard 2.1). ASX Clear's governance arrangements are documented and publicly disclosed. These arrangements give ultimate responsibility for the oversight of operations and risk management of ASX Clear to the ASX Limited Board and the ASX Clear Board (see 'ASX Group Structure' in Appendix B). Board and committee charters document Board roles and lines of responsibility and accountability (CCP Standards 2.2, 2.3). The performance of each relevant Board is reviewed at least annually for both individual directors and the Board as a whole. The relevant Boards each include a majority of independent non-executive directors and the ASX Clear Board includes members appointed for their expertise in clearing and settlement matters (CCP Standard 2.4). Board remuneration is designed to attract and retain appropriately skilled and qualified directors.

The reporting lines of management are set out in the CS Boards' Charter, along with roles and responsibilities of key management personnel. Remuneration of senior management in risk management roles is structured to provide appropriate incentives for sound and effective risk management (CCP Standard 2.5). ASX maintains a clear and documented risk management framework, subject to regular internal and external review (CCP Standard 2.6). Key processes and internal controls are subject to review by ASX's Internal Audit unit, which is itself subject to periodic external review (CCP Standard 2.7). ASX utilises formal and informal consultation processes to ensure that the design and decisions of ASX Clear reflect the interests of participants and other stakeholders. This includes the establishment of a new advisory forum, which will provide user feedback in relation to the ongoing development of cash market clearing and settlement infrastructure and services (CCP Standard 2.8). ASX has conflict handling procedures in place to address potential conflicts of interest that may arise by virtue of its group structure, requiring staff and directors to act in the best interests of each facility as appropriate (CCP Standard 2.9). The Bank will continue to work with ASX Clear to better understand these arrangements.

The Bank will monitor the effectiveness of the new arrangements for user input to governance of cash market clearing and settlement, introduced in accordance with commitments under the ASX *Code of Practice for Clearing and Settlement of Cash Equities* (the Code of Practice, CCP Standard 2.8). The Bank will also discuss with ASX Clear whether it would be appropriate to establish a participant committee similar to the Risk Committee established in ASX Clear (Futures) (see Appendix B1.2, CCP Standard 2.8).

Based on this information, the Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 2 during the 2012/13 Assessment period. Details of ASX Clear's governance arrangements are described under the following sub-standards.

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

The high-level objectives of ASX Clear are set out in the CS Boards' Charter, which is available on ASX's public website. The objectives place priority on the Boards' responsibilities in the area of risk management and in particular, ASX Clear's responsibility for complying with relevant FSS.

ASX Clear's objectives recognise the public interest. These objectives are laid out generally in the ASX Limited Board Charter, which provides that the Board has a responsibility to oversee the conduct of the affairs 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 Board's public interest responsibilities, as well as its obligations under Part 7.3 of the Corporations Act. These include that ASX Clear, 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 its services, and that its services are provided in a fair and effective way.

To support the interests of its customers, ASX has developed a Customer Charter, which is referenced in the CS Boards' Charter. The Customer Charter commits that ASX: work with its customers to deliver products and services that meet their needs and provide them with choice; make its products and services available on a non-discriminatory basis and on reasonable commercial terms; and manage its businesses and operations on a commercial basis to benefit its customers and provide appropriate returns to ASX shareholders. The Customer Charter recognises ASX's role as a provider of critical financial 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.

ASX Clear's governance arrangements allow for appropriate consideration of stakeholder views. When considering major operational or risk management changes, or new services, ASX uses stakeholder forums, and formal and informal consultation processes to communicate proposed changes to relevant stakeholders (see CCP Standard 2.8). Consultations and responses to consultations are made available on ASX's 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.

Under the Code of Practice, a new advisory forum has been established (the Forum). The Forum will provide user feedback in relation to the ongoing development of cash market clearing and settlement infrastructure and services.[4] One objective of the Forum is to consider any matters of common interest arising under the Code of Practice or in the principles set out in the *Competition in Clearing Australian Cash Equities* report prepared by the Council of Financial Regulators (see CCP Standard 2.8).[5]

2.2 A central counterparty 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 Clear are documented on its public website. This documentation includes the Charters of the ASX Limited Board, the CS facility Boards (including that of ASX Clear), and other subsidiary boards and committees. The charter documents provide information about the role and composition of the CS Boards and board committees, as well as the key senior managers of the clearing facilities; namely the Managing Director and CEO, the Chief Risk Officer, and the Executive responsible for settlement risk. Profiles of CS facility directors are also publicly available online. Key governance policies and charters are reviewed regularly by the relevant boards and committees.

The ASX Limited Annual Report provides information about ASX Group's risk management arrangements, including the role of boards, key committees, key subsidiary boards (e.g. ASX Compliance), and the roles of senior group executives who report directly to the Managing Director and CEO. Explanatory documentation on the website also describes: the FSS and *Principles for Financial Market Infrastructures* (Principles) developed by the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO); group and business structure, including an organisational chart showing senior group executives; risk management policies (in summary form); and details of business units, including those within Risk.[6]

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

2.3 The roles and responsibilities of a central counterparty'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.

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4 Available at <http://www.asx.com.au/cs/index.htm>.

5 Available at <http://www.treasury.gov.au/~/media/Treasury/Publications%20and%20Media/Publications/2013/Council%20of%20Financial%20Regulators%20advice%20on%20competition/Downloads/Competition%20in%20clearing%20and%20settlement%20of%20the%20Australian%20cash%20equity%20market.ashx>.

6 Risk is ASX's risk management area – see 'ASX Group Structure' in Appendix B.

Ultimate responsibility for the oversight of the risks faced by ASX Clear lies with the ASX Limited Board and the ASX Clear Board. The ASX Limited Board Charter delegates certain responsibilities to the ASX Clear Board, including the review and oversight of the management of ASX Clear's clearing- and settlement-related risks, and its compliance with the FSS. The CS Boards' Charter elaborates on other roles and responsibilities of the ASX Clear Board. The CS Boards' Charter places requirements on the structure of the CS Boards, including that the majority of directors and the Chair be independent.

Board performance is dealt with periodically in private session by the relevant boards. The process may be facilitated by external independent consultants. A number of tools are used, which may include private session review, skills matrices and surveys, and individual 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 and sensible possibility of a 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).

The ASX Limited Board currently has nine members, comprising the ASX CEO and eight independent, non-executive directors. As set out in the CS Boards' Charter, the CS Boards, in consultation with the Nomination Committee and the ASX Limited Board, determine the composition of the CS Boards, with directors selected based on relevant skills and expertise. Currently, the ASX Clear Board comprises one executive director (the ASX CEO) and seven non-executive directors. Four of the non-executive directors 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 ensures that directors have the capacity to conduct informed independent review of relevant issues. The other CS Boards – ASX Clear (Futures), ASX Settlement and Austraclear – have the same directors as the ASX Clear Board. The ASX Clear Board meets regularly (six times in the Assessment period) and receives detailed reports on ASX Clear's business and operations, risk management and financial performance.

ASX has adopted a policy that the majority of directors on each of its CS Boards must be independent. The Board Policy and Guideline to Relationships Affecting Independent Status is available on ASX's website. 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. The policy requires, for example, that independent directors be free of business or other relationships that could interfere with the independent exercise of the director's judgement. Specifically considered is whether the director is a substantial shareholder of ASX, as well as whether in the last three years the director was previously employed by ASX or was an adviser to ASX. The biographies of the directors, which show their relationship with other ASX Group companies, are set out on ASX's website.

Selection, succession planning and training for board members are dealt with in private session by the Nomination Committee and Boards at appropriate intervals.. New directors receive a comprehensive induction from Board and Nomination Committee members, as well as senior managers and other key staff. Directors' fees at both ASX Limited and ASX Clear are considered by the ASX Limited Remuneration Committee, recognising the level of skill and expertise that a director must have to effectively meet its responsibilities. Remuneration of directors is determined in private session by the ASX Limited Board and the CS Boards at appropriate intervals. The ASX Limited Board reviews its fees regularly to ensure that ASX non-executive directors are remunerated fairly for their services, recognising the level of skill and experience required. It also reviews its fees to ensure that it has in place a fee scale that enables ASX to attract and retain appropriately skilled and qualified non-executive directors. Non-executive directors' fees are broadly aligned to the top quartile of the marketplace. In conducting a review, the Board takes advice from an external remuneration consultant. The process involves benchmarking against a group of peer companies. The last fee review was effective 1 July 2008.

2.5 The roles and responsibilities of management should be clearly specified. A central counterparty'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 central counterparty. 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. This is set out in the CS Boards' Charter, along with the roles and responsibilities of the Managing Director and CEO, the Chief Risk Officer (CRO), and the Executive General Manager, Operations (EGM, Operations). 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 clearing risk management of the CS facilities and for ensuring that CS facility licence obligations are met. The CRO has a direct reporting line to the CS Boards and is entitled to attend and be heard at CS Board meetings.

ASX has a comprehensive 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 matters including oversight of the remuneration and incentive framework, succession plans, recruitment, retention and termination strategies, and the remuneration of the Managing Director and CEO and ASX Group non-executive directors. The Committee members are appointed by the ASX Limited Board, and must consist of only non-executive directors, with at least three members, a majority of independent directors, and an independent chair who is not 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 the EGM, Operations. The CS Boards provide input on the setting of Key Performance Indicators and performance outcomes for senior management responsible for clearing and settlement risks.

ASX carries out succession planning and management processes in order to ensure leadership continuity in key positions, and develop intellectual depth and business knowledge. This includes the biannual review of a 'talent assessment tool' by Group Executives and People and Development 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 central counterparty'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 CCP Standard 3.1. The CS Boards are responsible for approving and reviewing high-level risk management policy relevant to clearing and settlement operations. The Boards approve all new clearing and settlement risk policies and standards, as well as material changes to existing clearing and settlement risk policies and standards. Board feedback is incorporated before risk policies and standards are approved. Responsibilities under the high-level risk management policy are distributed as follows:

- Key policies and standards are reviewed by the CS Boards on an annual basis, such as margin policy, stress-testing standards and investment mandates. Detailed reporting to the CS Boards occurs on a quarterly basis on the operation of the CCPs in accordance with risk management policies and standards, and on broader management and operational matters. Internal Audit conducts a rotational risk-based audit program, which includes ensuring that relevant operational units comply with Board approved policies and standards, where necessary using external specialists to assist with reviews. The CS Boards may also request external reviews. During 2013 and early 2014, all clearing and settlement risk management policies and standards are being refreshed and will be presented to the CS Boards for feedback and approval.
- The Audit and Risk Committee has responsibility for the oversight of the enterprise risk framework.
- The Enterprise Risk Management Committee, comprising executives from across the business units, is responsible for enterprise risk management policy and reviewing controls, processes and procedures to identify and manage risks. This committee is also responsible for formally approving significant operational risk policies prepared by individual business units.
- Individual business units 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 business unit 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. Policies are formally reviewed every 18 months to three years. More frequent reviews are undertaken where there are potential changes to technology, legal or regulatory requirements, or business drivers.

The CRO has a direct reporting line to the CS Boards. Within ASX's management structure, those units primarily responsible for CCP financial risk management report to the CRO, who in turn reports directly to the CEO. The CRO is not responsible for any other functions, and none of the units within the CRO's portfolio have a primary revenue or profit objective. There are five functional units with at least some responsibility for CCP financial risk management: the Clearing Risk Policy unit; the Clearing Risk Management unit; the Enterprise Risk unit; the Internal Audit unit; and the Portfolio Risk Manager. In addition, ASX maintains a number of executive committees that have some responsibility for financial risk management.

Directors are entitled to obtain independent advice. The 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.

Model validation

The CS Boards regularly review and discuss with management matters of risk policy, including changes to margin methodology or stress-test scenarios.

ASX has developed a framework for model validation. This framework identifies models to be validated, defines what constitutes 'model validation', describes the model validation approach to be applied to the identified models, and specifies model validation governance arrangements. Key models at ASX Clear include CME SPAN margining, CMM, the pricing system for derivatives and the capital stress-testing model. Governance arrangements specify criteria for ranking model risk, validation roles and responsibilities, validation frequency and the assessment approach. Model validation is performed on a regular basis according to the risk ranking. The approach to model validation is based on objective statistical tests, including sensitivity analysis, with each model validation strategy to be reviewed and approved by an internal management committee known as the Risk Quantification Group (RQG). Backtesting is used to provide systematic comparison of model forecasts with observed outcomes. Model validation is coordinated by Internal Audit, including the use of external experts where this is deemed necessary by the RQG or Internal Audit.

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

ASX maintains an internal audit plan that provides for a three-to-five year review cycle key operational and risk management processes, and internal control mechanisms governed by ASX's enterprise risk framework, business continuity framework, enterprise compliance framework and internal audit methodology. The internal audit plan is approved by the ASX Limited Audit and Risk Committee and the audit work that is relevant to the CS Boards and ASX Compliance Board is endorsed by those Boards. The key governance frameworks are reviewed by external independent experts, as required. 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 on an annual basis and made available on ASX's public website.

The Internal Audit unit is a separate unit within ASX that reports to the CRO for administrative purposes, and the Audit and Risk Committee and Managing Director and CEO for audit purposes. Its principal objective is to 'provide independent, objective assurance and consulting services 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. The Internal Audit unit has a well-defined reporting structure, which includes reports to the CRO, the Audit and Risk Committee, and Managing Director and CEO. The General Manager of Internal Audit has direct access to the ASX Limited Audit and Risk Committee, CS Boards and ASX Compliance Board. Members of the Internal Audit unit are required to hold appropriate undergraduate and postgraduate qualifications relevant to their roles.

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. The last audit was carried out in 2011, with the next assessment scheduled for 2014.

ASX has a clearly defined methodology for internal audit, based on the International Professional Practices Framework set out by the Institute of Internal Auditors.[7] The audit process includes phases for planning, fieldwork, reporting, final sign-off, and issues logging and follow-up. The planning phase includes the preparation of terms of reference that define the purpose, timing, approach and scope of the audit.

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 ASX Compliance Board and the CS Boards may also request ad hoc reviews.

2.8 Governance arrangements should ensure that the central counterparty'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.

The views of participants and other stakeholders are sought through formal and informal means. Participants' views may be gathered through the induction program for new participants, as well as ongoing participant liaison and compliance checks. ASX Clear 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.

Under the Code of Practice, ASX has established a new advisory body, the Forum, that will allow users of ASX's cash market clearing and settlement services, and other industry stakeholders, to provide input to the Boards of ASX Clear and ASX Settlement on those services. The Forum is intended to provide a new mechanism for ASX to engage with users in relation to the ongoing development of cash market clearing and settlement infrastructure

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

and services, to help ensure that these meet the needs of users and are aligned with global standards. The Forum has three objectives:

- to provide user input to the Boards of ASX Clear and ASX Settlement from a wide range of users in relation to ongoing investment in the design, operation and development of the core clearing and settlement infrastructure for the Australian cash equity market, including the Clearing House Electronic Sub-register System (CHESS)
- to consider any matters of common interest arising under the Code of Practice or in the principles set out in the report prepared by the Council of Financial Regulators
- to provide a formal mechanism for the Boards of ASX Clear and ASX Settlement to report to users on their strategic plans and investment decisions in relation to the design, operating and development of the core clearing and settlement infrastructure for the Australian cash equity market, including CHESS.

The Forum comprises 22 senior representatives from clearing and settlement participants, an alternative market operator, and other stakeholders including system vendors, custodial service providers, share registries, investors, listed companies and the superannuation industry. It is chaired by a non-executive member of the CS Boards and also includes a non-executive director representing ASX Limited. The Forum will meet at least three times each year, with the first meeting scheduled to take place in October 2013. Under the Code of Practice, ASX has also established a Business Committee to support the Forum. This committee comprises representatives of clearing participants, settlement participants and alternative market operators, and will provide business and operational input on the Forum's forward work program.

In addition to its existing framework for participant engagement, the Bank will discuss with ASX Clear whether it would be appropriate to establish a participant committee to provide feedback on changes to risk management policies, similar to the Risk Committee established in ASX Clear (Futures) (see Appendix B1.2, CCP Standard 2.8).

2.9 A central counterparty 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 central counterparty 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 central counterparty should consider specific procedures for preventing and managing conflicts of interest, including with respect to intragroup outsourcing arrangements.

ASX has conflict handling arrangements to help 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 the potential for shared directorships to create conflicts between ASX's group-wide commercial interests and the risk management function of the CS facilities to be low. 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 Bank intends to work with ASX to understand better the arrangements in place for conflict handling.

Standard 3: Framework for the comprehensive management of risks

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

Rating: Observed

ASX maintains an Enterprise Risk Management Policy that sets out its framework for managing the full range of strategic, legal, financial and operational risks faced by ASX Clear. This high-level framework is supported by more granular policies (currently being refreshed) and a governance structure to oversee ASX Clear's risk management activities (CCP Standard 3.1). ASX Clear's risk management framework imposes proportional, risk-based obligations such as initial margin, and places incentives on participants, including additional collateral requirements where required, to control the risks that they bring to the CCP (CCP Standards 3.2, 3.3). As part of its risk management framework, ASX Clear reviews risks associated with interdependencies with other entities on an ongoing basis, and in relation to new initiatives, applying appropriate tools to manage these risks (CCP Standard 3.4).

The Bank notes the following steps that ASX Clear should take to strengthen its observance of CCP Standard 3:

- In order to meet the requirements of CCP Standard 3.5, which comes into effect on 31 March 2014, prepare an appropriate recovery plan based on addressing identified scenarios that may threaten ASX Clear's ability to provide its critical services as a going concern. This plan should be consistent with forthcoming CPSS-IOSCO guidance on recovery planning.

Based on this information, and noting that CCP Standard 3.5 is not yet in force, the Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 3 during the 2012/13 Assessment period. ASX Clear's risk management framework is described in further detail under the following sub-standards.

3.1 A central counterparty 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 central counterparty. This risk management framework should be subject to periodic review.

Identification of risk

ASX's high-level framework for risk management is outlined in its Enterprise Risk Management Policy. This policy divides risks identified by ASX into two broad groupings: strategic risks and operational risks. Operational risks are further categorised into financial risks, legal and regulatory risks, and technological and operational risks. Specific risks identified by ASX are described within these broad categories. For each identified risk, ASX judges 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* (see CCP Standard 2.6).[8] 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; within risk tolerance but requiring action to further control the level of risk; exceeding ASX's risk tolerance.

The Enterprise Risk Management Policy also assigns specific risk responsibilities across the ASX Group, including to the ASX Limited Board of Directors, the Audit and Risk Committee, the Enterprise Risk Management Committee, the General Manager, Enterprise Risk, and managers of individual business units. Managers of each business unit are responsible for identifying and monitoring risks relevant to their unit's activities, as well as for designing and implementing risk management policies and controls to manage identified risks. Business unit managers assess the appropriateness and operational effectiveness of these controls twice a year; these assessments are reviewed by Internal Audit and the Enterprise Risk Management Committee.

In 2012/13, ASX adopted an updated and formalised clearing risk policy framework to better align both it and related governance structures with the new FSS. The Clearing Risk Policy Framework sets out a comprehensive set of clearing and treasury risk policies to support the risk management approach of ASX's Central Counterparties (CCPs), including ASX Clear. These policies govern more granular standards, which in turn govern detailed procedures for the management of clearing and treasury risk. The structure of policies, standards and procedures reflects the requirements of the FSS. ASX will be continuing work to finalise and update standards covering all relevant aspects of the FSS, which it aims to complete by the first quarter of 2014. The Bank will continue to monitor the progress made in this work.

A number of committees oversee clearing risk management policy, including:

- *The CS Boards*. Each CS facility has a board (see 'ASX Group Structure' in Appendix B), which shares members with the other ASX CS facilities, has oversight of the Clearing Risk Policy Framework, and is responsible for any significant amendments. Policies and designated key standards under the framework are governed by the CS Boards.
- *The Clearing Risk Policy Committee (CRPC)*. The CRPC was formed in June 2013, to review and approve clearing risk policies and standards prior to submission to the CS Boards. The CRPC is chaired by the CRO and includes the ASX Group Legal Counsel, CFO and EGM, Operations. It will generally meet quarterly in line with meetings of the CS Boards.
- *The Capital and Liquidity Committee (CALCO)*. CALCO is constituted to ensure the structural integrity and efficient use of the liquidity, on- and off-balance sheet assets, liabilities and capital resources of the ASX Group. CALCO advises on changes to the

[8] 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.

clearing risk policies related to capital, liquidity and balance sheet management. CALCO is chaired by the CRO and comprises senior managers and executives from Finance, Risk and Internal Audit. CALCO generally meets on a quarterly basis.

- *The CCP Risk, Operations and Compliance Committee (CROCC)*. CROCC is chaired by the Executive General Manager of Operations and is made up of senior managers and executives from the clearing and settlement risk management, operations and compliance areas of ASX. The committee acts as an information-sharing and discussion body for the purpose of enhancing ASX's ability to identify, assess and reduce systemic, operational or compliance risk, and manage clearing risk. The CROCC currently meets on a monthly basis.

- *Risk Quantification Group (RQG)*. ASX established the RQG in early 2013 to strengthen the technical oversight of risk management policy. The RQG is chaired by the CRO and is made up of key staff from ASX's Clearing Risk Policy and Clearing Risk Management units most familiar with ASX's margin and other risk management models. The focus of the group is the review and application of quantitative risk policies, including oversight of model governance and regular reviews of margining. The group meets at least quarterly, but can (and currently typically does) meet more frequently as required.

- *Default Management Steering Group (DMSG).* ASX formed the DMSG in 2010/11 to provide oversight of the CCPs' Default Management Framework (DMF). The DMSG is chaired by the CRO and comprises key representatives from ASX Legal, Compliance, Operations and Risk. The DMSG currently meets at least on a monthly basis, or more frequently as required.

Information and control systems

ASX Clear employs information systems which provide timely and accurate information to ASX Clear in respect of its risk policies, procedures and controls, including information on risk exposures to individual participants and the aggregation of risk exposures across the central counterparty. Key information systems include:

- *Margining*. In 2012/13 ASX Clear upgraded its derivatives margining system to the widely used CME SPAN system and commenced the routine margining of cash equity transactions using a Historical Simulation of Value at Risk (HSVAR) model.

- *Capital and liquidity stress testing*. Stress testing is carried out daily to gauge the adequacy of ASX Clear's financial resources and to monitor the risks associated with individual participants' positions. Capital stress testing estimates the loss that would result from the realisation of extreme but plausible price changes. Liquidity stress testing estimates the liquidity exposures that would result from extreme but plausible price changes.

ASX Clear monitors daily risk management reports produced by its information management systems to identify changes in positions that may require mitigating action. In July 2012, a database problem lead to the failure of key risk management reports in ASX Clear. ASX has strengthened its procedures in response, including by instituting validation checks in its overnight processing procedures.

ASX Clear's information systems also provide information to participants about positions and margin requirements, which assists in their management of credit and liquidity positions. ASX publishes detailed margining information on its website, including descriptions of the margining methodology, schedules of margin rates, and daily SPAN margin parameter files. This information is sufficient for participants to perform their own margin calculations on hypothetical or actual portfolios. To facilitate this, a number of third-party vendors use this information to provide margin estimation software to participants. Following the December 2012 introduction of the CME SPAN margin methodology, ASX worked with the vendor of a third-party system used by several participants to estimate margin requirements resulting from hypothetical trades to ensure that these estimates were aligned as closely as possible to margin requirements calculated by ASX's margin system (see CCP Standard 16.5).

Internal controls

ASX's risk management policies are generally reviewed formally every 18 months to 3 years, 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. Final approval of reviews for more significant policies is the responsibility of the Enterprise Risk Management Committee. Under the Enterprise Risk Management Policy, ASX's business units are required to update a risk profile every six months, which identifies relevant risks and sets out planned actions to respond to those risks.

Risk management arrangements are also subject to periodic review by Internal Audit. Such audits 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 last such review of the Enterprise Risk Management Policy was undertaken by PWC in 2011.

To date, the Enterprise Risk Management Policy has been reviewed by the Audit and Risk Committee approximately every three years, with the committee informed of material changes in the interim. A review occurred in August and future reviews will then move to a two year cycle.

3.2 A central counterparty 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.

Financial obligations are imposed upon participants through ASX Clear's *ex ante* and *ex post* risk controls. These are position-based controls.

ASX Clear collects initial margin from participants based on actual positions. ASX Clear may also collect additional initial margin (AIM) where positions produce relatively high stress-test losses (beyond a predetermined threshold, see CCP Standards 4.2 and 4.4) or are high compared with the participant's underlying capital. Since margins are proportional to the size and volatility of a participant's positions, that they are proportional to the scale and nature of individual participants' activities.

Under ASX Clear's operating rules participants may be required to meet an 'Emergency Assessment' should a loss caused by a participant default exhaust ASX Clear's available financial resources. Such assessment is capped at $300 million in aggregate. Promissory risk resources in ASX Clear's default waterfall are called in proportion to the average position of each participant in the preceding 3 months, subject to a cap (currently $30 million, see CCP Standard 4.4).

ASX Clear's Operating Rules also set out non-financial participation requirements, such as operational requirements. These requirements are not prescriptive, and take into account the size and nature of a participant's business.

3.3 A central counterparty should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the central counterparty.

The use of margin and additional margin at ASX Clear creates an incentive for participants to manage the exposures that they bring to the CCP. Participants are also required to post additional collateral or increase their capital levels if they create exposures that are large relative to the size of their capital. ASX Clear may also apply sanctions to, or place additional requirements on, participants that fail to comply with its Operating Rules. Participants may ultimately be required to seek alternative clearing arrangements. ASX is proactive in monitoring participant exposures and utilises conservatively set triggers for additional monitoring or action, such as requiring participants to actively manage down exposures (see CCP Standard 4.2).

3.4 A central counterparty 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 Clear reviews the material risks that it bears from and poses to other entities in the context of its ongoing review of enterprise risks (such as the six-monthly update of business unit risk profiles, see CCP Standard 3.1), and its processes for identifying risks associated with new activities. For the latter, 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 CCP Standards 14.1, 16.4).

For instance, ASX Clear has identified risks to its operational activities arising from participants' increased usage of third-party vendors for back-office systems, and participants outsourcing their back-office processing offshore. ASX Clear has also identified interdependencies with service providers. ASX Clear's response to these interdependencies is outlined in CCP Standard 16.5.

Interdependencies with ASX Settlement for the settlement of securities transactions and Austraclear for the settlement of margin obligations are managed within the context of ASX Group's broader risk management framework.

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

CCP Standard 3.5 comes into effect on 31 March 2014.

ASX Clear has begun work to develop its recovery plans and intends to further articulate these plans following the release of final CPSS-IOSCO guidance on recovery planning, expected in late 2013.

Standard 4: Credit risk

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

Rating: Broadly observed

ASX Clear maintains a comprehensive framework for managing its credit exposures to participants (CCP Standard 4.1). Under this framework, ASX Clear regularly monitors information on participants' credit standing through financial reporting requirements, public information, and further investigation where required. Monitoring of participants' credit standing is risk based, and ASX maintains a list of participants deemed to warrant more intensive monitoring (CCP Standard 4.2). In responding to any issues identified through monitoring, ASX Clear is able to impose activity restrictions or additional controls, including calls for additional collateral (CCP Standard 4.3).

ASX Clear also monitors and measures the magnitude of exposures to participants through both daily and intraday initial and variation margin calculations (CCP Standard 4.2), and through daily stress tests to measure the effects of extreme but plausible scenarios on exposures (CCP Standard 4.5). ASX Clear holds sufficient financial resources to cover its largest potential credit exposure to any single participant and its affiliates in the extreme but plausible scenarios covered in its stress tests (CCP Standards 4.4, 4.6). This includes the capacity to call additional margin from participants that exceed pre-determined stress-test exposure limits (STELs). Responsibility for increasing financial resources in response to persistent and widespread STEL breaches that exceed available financial resources lies with the CS Boards and the ASX Limited Board (CCP Standard 4.7).

The Bank notes the following steps that ASX Clear should take to fully observe CCP Standard 4:

- Implement plans to strengthen the analysis of its capital stress-test model, through comprehensive annual validation, periodic reverse stress testing, and more detailed monthly reviews of stress-testing scenarios, models and underlying parameters and assumptions. This should include sensitivity analysis and analysis of concentration risk.
- In order to meet the requirements of CCP Standard 4.8, which comes into effect on 31 March 2014, implement mechanisms consistent with forthcoming CPSS-IOSCO guidance on recovery planning that fully address any uncovered credit losses and replenish financial resources following a participant default.

Based on this information, and noting that CCP Standard 4.8 is not yet in force, the Bank's assessment is that ASX Clear has broadly observed the requirements of CCP Standard 4 during the 2012/13 Assessment period. ASX Clear's approach to managing its credit risk is described in further detail under the following sub-standards.

4.1 A central counterparty should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its clearing processes. Credit exposures may arise from current exposures, potential future exposures, or both.

ASX Clear maintains a comprehensive framework for managing credit exposures to its participants, including a stress-testing regime (see CCP Standards 4.5 to 4.7), the use of variation margin to mark positions to market (see CCP Standard 6) and the maintenance of financial resources. These financial resources comprise initial margin (see CCP Standard 6), other collateral calls based on participants' positions, and fully paid up pooled financial resources of $250 million, which are invested in high-quality liquid assets. ASX Clear also has access to $300 million of promissory resources from participants if required (see CCP Standard 4.8).

4.2 A central counterparty should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk management tools to control these risks. To assist in this process, a central counterparty should ensure it has the capacity to calculate exposures to participants on a timely basis as required, and to receive and review timely and accurate information on participants' credit standing.

ASX Clear's Clearing Risk Management (CRM) unit is responsible for monitoring participants' credit standing and credit exposures to participants.

Within CRM, the Exposure Risk Management team monitors day-to-day developments in, among other things, open positions, market price moves and settlement obligations to the CCPs. Participants' positions are marked to market and ASX Clear calculates initial and variation (or mark-to-market) margin requirements on both cash-equity transactions and derivative contracts at the end of each business day. When market movements exceed certain thresholds, ASX Clear calculates and, where appropriate, calls intraday margin on derivatives positions reflecting both price movements and changes in participant positions (see CCP Standard 6.4). ASX Clear conducts daily stress testing to monitor the effects of extreme but plausible scenarios on participants' portfolios. Where stress-test results are above a defined limit, AIM is called (see CCP Standard 4.4).

Within CRM, the Counterparty Risk Assessment team is responsible for the ongoing monitoring, assessment and investigation of matters relating to financial requirements (including participants' monthly financial statements) for any issues of concern. CRM is also responsible for determining and reviewing participants' credit standing, drawing in part on information provided by participants in regular financial returns to ASX. ASX determines an Internal Credit Rating (ICR) for each participant. The ICR takes into account the participant's external credit rating, if available, or that of its parent if either that parent provides a formal guarantee to the CCP or the participant carries the parental corporate name. Otherwise, the rating is based on the participant's capital position (or that of its parent where that parent is unrated but provides a formal guarantee to the CCP).

CRM also coordinates a 'watch list' of participants deemed to warrant more intensive monitoring. Inclusion on the watch list is based on a range of factors, such as: concentration risk; concerns emerging from a specific event or media report; significant changes in a participant's own share price, bond yield or credit default swap price; ICR downgrades; calls for AIM; operational issues; compliance issues; or issues arising from ASX's routine review of financial returns, for example regular losses or breaches of minimum capital requirements. The assessment of watch list factors monitored by CRM, ASX Compliance and the Operations Division is coordinated by the CROCC. Based on such an assessment, ASX Clear may decide to place restrictions on a participant's trading, clearing and settlement activities (see CCP Standard 4.3). During the 2012/13 Assessment period, three participants were included on the watch list, but all had resigned as ASX Clear members by the end of the period.

As part of a broad review of ASX's concentration risk policy due to be finalised in early 2014, ASX Clear has been considering steps to enhance its monitoring of concentration of participant positions in particular market segments. This monitoring is intended to identify situations where a participant's share of positions in a market segment is sufficiently large that it could create complications in closing out or transferring these positions if the participant were to default.

For details of ASX Clear's other participation requirements and participant monitoring arrangements, see CCP Standard 17.

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

Participants on ASX's watch list may be subject to trading restrictions, or additional credit risk controls such as additional margins, higher capital requirements, additional capital reporting or a reduced STEL. CRM will typically also carry out a detailed credit review. As an example, during the Assessment period, one participant was placed on the CRM watch list after it was unable to meet a contributions and additional collateral (CAC) call (see CCP Standard 4.4). As a result, this participant: was required to provide additional general cover; had conditions placed on its trading and clearing participation; had its STEL significantly reduced; and was subject to an external audit requiring an assessment of its risk management framework.

ASX Clear may also call capital-based position limit (CBPL) AIM from participants with large portfolios (measured by initial margin requirements) relative to their capital. ASX Clear may also call AIM from participants where it has other counterparty credit risk concerns.

4.4 A central counterparty should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources (see CCP Standard 5 on collateral and CCP Standard 6 on margin). In addition, a central counterparty that is involved in activities with a more complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the central counterparty in extreme but plausible market conditions. All other central counterparties should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the central counterparty in extreme but plausible market conditions. In all cases, a central counterparty should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount of total financial resources it maintains.

In June and July 2013, ASX raised $553 million of capital by means of a stock entitlement offer. Funds from this capital raising were not used to increase ASX Clear's total pooled financial resources; however, on 28 June 2013 $100 million was used to repay a principal-reducing subordinated commercial bank loan to ASXCC that in turn had funded a subordinated loan to ASX Clear, which previously formed part of ASX Clear's prefunded pooled risk resources. At the same time, the ASXCC subordinated loan to ASX Clear was replaced by equity. Following the capital raising, ASX Clear's $250 million of prefunded financial resources consist of: own equity ($103.5 million); funds held in a restricted capital reserve ($71.5 million); and fully drawn subordinated loans from ASXCC (totalling $75 million), which are ultimately funded by a subordinated loan from ASX Limited ($75 million). ASX Clear also has the right under its Operating Rules and Procedures to levy its participants up to $300 million collectively in ‘Emergency Assessments’ should a loss caused by a participant’s default exceed its other resources.

ASX Clear conducts daily stress tests to ensure that the level of its prefunded financial resources is sufficient to cover the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure to the CCP under a wide range of scenarios (see CCP Standards 4.5 to 4.7). Since they are not prefunded, Emergency Assessments are not taken into account (either by ASX or the Bank) when assessing ASX Clear’s ability to cover such a default. ASX Clear’s capital stress test model was updated in June 2013 to take into account the joint default of a participant and its affiliates; previously only single participant defaults were considered. Since ASX Clear clears only transactions in cash securities and equity derivatives, the Bank does not consider that ASX Clear is involved in activities with a complex risk profile. Further, since ASX Clear clears only domestic products, has a largely domestic participant base and does not require recognition in other jurisdictions, the Bank’s assessment is that ASX Clear is not systemically important in multiple jurisdictions.

Under ASX Clear’s AIM methodology, a participant is required to post additional collateral should stress-test outcomes reveal that the potential loss arising from its positions, as at the close of the previous day, exceeds a predetermined STEL (see CCP Standard 4.7). The AIM methodology replaced the previous CAC methodology in June 2013. The CAC methodology was used prior to the introduction of initial margining for cash equities, and differed from AIM in that the portion of the amount called for STEL breaches relating to cash market positions took the form of pooled ‘contributions’. In contrast, collateral posted under the AIM methodology can be applied only to losses related to the participant subject to the AIM call.

The objective of this regime is to provide additional participant-specific cover against non-systematic spikes in individual participants’ exposures. This mitigates the risk that the default of a participant with a large exposure, in more extreme market conditions than are contemplated by regular initial margin, may deplete or even exhaust prefunded pooled financial resources. By upholding the ‘defaulter pays’ principle, the AIM regime also provides an incentive for participants to manage the risk they bring to the CCP. However, it is not a substitute for holding sufficient pooled risk resources. There are potential shortcomings to relying too heavily on variable calls related to stress-test exposures, particularly given lags in the calculation and settlement of such calls (see CCP Standard 4.7).

4.5 **A central counterparty should, through rigorous stress testing, determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a central counterparty should perform a comprehensive and thorough analysis of stress-testing scenarios, models and underlying parameters and assumptions used to ensure they are appropriate for determining the central counterparty’s required level of default protection in light of current and evolving market conditions. A central counterparty should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a central counterparty’s participants increases significantly. A full validation of a central counterparty’s risk management model should be performed at least annually.**

ASX Clear uses daily capital stress tests to monitor risk exposures to individual participants and the adequacy of its financial resources. Capital stress tests are based on a range of scenarios covering extreme price moves and volatility shifts at the market-wide, sector and individual-stock levels (see CCP Standard 4.6). ASX Clear applies a set of underlying parameters and assumptions in performing capital stress tests, including that: profits in client accounts cannot be used to offset house losses; prices may rebound following a large fall; price and volatility move independently; and the close-out period is one day.[9] These assumptions are subject to periodic review. During the third quarter of 2013, ASX will be updating its capital stress-test methodology to incorporate enhanced sensitivity analysis based on changes to assumptions such as the number of concurrent defaults, or the timing of defaults. ASX also plans to incorporate analysis of the concentration of positions held by participants and market liquidity into a monthly review process for model scenarios. ASX has indicated that reverse stress testing will also be part of its analysis of the adequacy of margins and pooled financial resources.

ASX's Model Validation Standard requires that all models that are critical to ASX (as measured against a series of risk factors) undergo a full annual validation (see CCP Standard 2.6). Criticality to ASX is measured according to a series of factors, including the internal and external impact of the model, frequency of use, and complexity. This includes ASX's margining models and both the capital and liquidity stress-testing models. The first of these validations will be undertaken during the 2013/14 Assessment period. The validation of the models will be coordinated by Internal Audit, but external consultation will be sought where deemed necessary by the RQG.

4.6 In conducting stress testing, a central counterparty should consider the effect of a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.

The same set of stress tests used to judge whether a participant is required to post AIM is also used to judge the adequacy of pooled resources. Stress tests are based on 102 scenarios, each calibrated to a once in 30 year event. In order to meet these targeted probabilities, stress-test scenarios are calibrated to cover 99.987 per cent of daily price and volatility movements, based on a sample distribution constructed from 20 years of price and volatility data. Stress tests do not cover market price movements of the scale observed in the 1987 stockmarket crash, since these are deemed implausible in light of structural market changes since that time. These scenarios have to date been reviewed annually, with the most recent review conducted in December 2012. As noted in CCP Standard 4.5, review of these scenarios will move to a monthly basis over the next Assessment period.

ASX Clear uses six market-wide scenarios that cover price movements ranging from a 15 per cent decrease to a 7 per cent increase, increases in volatility of up to 150 per cent, and scenarios that combine changes in price and increases in volatility. Other scenarios cover seven broad market sectors (such as consumer staples, energy and financials), applying hypothetical extreme increases and decreases in price across these sectors, and a

9 Protection of client funds under the Corporations Act is discussed further under CCP Standard 14.

150 per cent increase in volatility. Finally, stress-test scenarios are included for 26 individual stocks, chosen based on total open derivatives positions; these scenarios cover a 30 per cent increase in price, a 30 per cent decrease in price and a 250 per cent increase in volatility.

The largest stress-test exposures are commonly generated by market-wide price movements, i.e. the market down 15 per cent or market up scenarios. However, small or medium-sized participants often record their largest stress-test results against single-stock stress-test scenarios where they have concentrated positions in a single stock.

4.7 A central counterparty should have clearly documented and effective rules and procedures to report stress-test information to appropriate decision-makers and ensure that additional financial resources are obtained on a timely basis in the event that projected stress-test losses exceed available financial resources. Where projected stress-test losses of a single or only a few participants exceed available financial resources, it may be appropriate to increase non-pooled financial resources; otherwise, where projected stress-test losses are frequent and consistently widely dispersed across participants, clear processes should be in place to augment pooled financial resources.

Capital stress-test exposures are regularly reported to ASX management, the CS Boards and the Bank. Participant stress-test losses are used to gauge the adequacy of ASX Clear's available financial resources, with widespread and/or large STEL breaches an indicator that resources may need to be increased. STEL breaches are reported to management and persistent breaches are escalated in the first instance to the RQG and CALCO. The CS Boards and ASX Limited Board are responsible for approving any increase to pooled financial resources where this is considered necessary (see below).

Each participant in ASX Clear is allocated a STEL based on its ICR. A-, B-, C-, D- and E-rated participants are allocated STELs of $250 million, $200 million, $80 million, $40 million and $10 million, respectively. In April 2013, ASX Clear reduced the STEL available to C-rated participants (previously $125 million), while in June 2013 it made changes to the STELs of several participants that are part of corporate groups. Under the latter changes, where a group of participants are affiliated (i.e. part of the same corporate group), STELs are set such that the sum of affiliated participants' STELs is equal to or lower than ASX Clear's prefunded financial resources. This means that ASX Clear's combined exposure to these affiliated participants cannot increase above its available financial resources without triggering an AIM call (see below). As there are only a limited number of affiliated participant groups with combined ICR-based STELs that would exceed ASX Clear's prefunded financial resources, ASX Clear allows these groups to elect how the required reduction in STELs is distributed across the group.

Where a participant's projected stress-test losses exceed its STEL, ASX will make an AIM call. Typically AIM calls are made on participants by 9.30 am and must be settled within two hours, either via the transfer of cash in Austraclear, or, under exceptional circumstances and as a transitional measure over the first three years of cash equity margining, through the provision of a bank guarantee from an approved authorised deposit-taking institution (ADI). In normal market conditions, highly rated (i.e. A-rated and B-rated) participants are eligible for discounts on the additional collateral called. However, these discounts have not applied since April 2010 because ASX has not considered market conditions to be normal.

In deciding whether ASX Clear has sufficient pooled financial resources, ASX considers the size, frequency, duration and distribution of additional collateral calls across participants. This process is documented in guidance on the circumstances in which ASX would consider increasing ASX Clear's pooled resources. ASX Clear would consider increasing its pooled resources if stress-test results in excess of pooled resources were persistent and widespread. In other cases, ASX Clear would generally rely on additional collateral collected under the AIM regime.

4.8 **A central counterparty should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the central counterparty. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds a central counterparty may borrow from liquidity providers. These rules and procedures should also indicate the central counterparty's process to replenish any financial resources that the central counterparty may employ during a stress event, so that the central counterparty can continue to operate in a safe and sound manner.**

CCP Standard 4.8 comes into effect on 31 March 2014.

Currently, if ASX Clear's prefunded pooled financial resources are insufficient to fully cover its credit losses following a participant default, ASX Clear may call up to $300 million in Emergency Assessments from surviving participants to cover residual losses. ASX has documented a process for making decisions regarding replenishment of a CCP's pooled financial resources following any draw down arising from a participant default. Responsibility for determining if the resources will be replenished and, if so, how this should be achieved, ultimately lies with the ASX Limited Board, which would make this decision in consultation with the ASX Clear Board. ASX has documented replenishment intentions, which include several options; the particular approach taken to replenishment will depend on the specific circumstances, including the severity of the loss and the market environment (see CCP Standard 12.1). ASX Limited has also committed to maintaining a certain level of equity capital in ASX Clear (including via ASXCC), provided certain conditions are met, including that the CCP is solvent.

Following the release of finalised CPSS-IOSCO guidance on recovery planning, expected in late 2013, ASX Clear will consider additional mechanisms to fully allocate credit losses and processes for replenishing financial resources following a participant default.

Standard 5: Collateral

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

Rating: Observed

ASX Clear limits the assets it routinely accepts as collateral to cash, or highly liquid stocks or funds with low credit and market risks (CCP Standard 5.1). Assets accepted as collateral are commonly accepted in the Australian market and there is sufficient depth in these assets that their eligibility as collateral is not considered to have any material market impact (CCP Standard 5.2). ASX Clear applies haircuts to collateral that are calibrated to stressed market conditions, to avoid the need for procyclical adjustments (CCP Standards 5.3, 5.4). Collateral holdings are not sufficiently concentrated as to impair ASX Clear's ability to liquidate such assets quickly without significant adverse price effects (CCP Standard 5.5). ASX Clear employs well-designed and operationally flexible systems to manage collateral movements for securities and derivatives trades (CCP Standard 5.7).

The Bank will monitor the outcome of ASX's review of collateral policies, including with respect to its collateral haircutting methodology, and the implementation of its planned standard on concentration risks, during the 2013/14 Assessment period (CCP Standards 5.1, 5.3, 5.5).

Based on this information, the Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 5 during the 2012/13 Assessment period. ASX Clear's collateral acceptance policies are further described under the following sub-standards.

5.1 A central counterparty should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity and market risks.

Initial and premium margin obligations may be met by posting either cash or non-cash collateral.[10] Non-cash collateral is subject to a haircut. Variation and intraday margin obligations, must be met by cash collateral (see CCP Standard 6).

ASX Clear specifies criteria for eligible securities collateral. Acceptable collateral includes S&P/ASX 200 index constituent stocks; exchange-traded funds that ASX Clear determines to be mature and liquid, and for which issuer risk is considered low (currently only the SPDR S&P/ASX 200 Fund); and other stocks lodged as specific cover for call options written on the same stock. The list of acceptable collateral is reviewed at least quarterly, including to reflect changes to the S&P/ASX 200 constituent list. ASX Clear prohibits the use of participant entity stock except when it is used as specific cover for a transaction in that stock, and restricts the use of related entity issued stocks to client transactions (subject to strict concentration limits) as collateral to manage the potential risk of correlated default of a participant and the collateral issuer. Collateral must be unencumbered.

ASX will be reviewing its current collateral policies and developing revised formal collateral policies and standards in the first quarter of 2014. This review will be coordinated through the CRPC as part of the wider review of the Clearing Risk Policy Framework (see CCP Standard 3). The Bank will monitor the outcome of this review.

ASX Clear currently accepts guarantees from banks with a short-term S&P credit rating of at least A-1+ as long as the bank is not a related entity of the participant. As a transitional measure for three years, following the introduction of margining for cash equities in June 2013, ASX Clear will permit participants to meet margin (including AIM) obligations, but only in exceptional circumstances and at the discretion of the CRO. ASX Clear has established a standard format for eligible bank guarantees, and any requests by banks or participants for material deviations from this format require clearance from ASX's legal unit.

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

ASX Clear takes into account market liquidity in determining the eligibility of collateral. Stocks in the S&P/ASX 200 index and the SPDR S&P/ASX 200 Fund are considered by ASX Clear to be

[10] Premium margin is used to cover the amount that would be required to close out short positions in exchange-traded options positions (see CCP Standard 6.1).

sufficiently liquid that the eligibility of these assets as collateral will not have any material impact on market liquidity or price. The depth of liquidity in these assets also enables ASX Clear to liquidate this collateral in a timely fashion when required (see CCP Standard 5.1). Eligible collateral assets in ASX Clear are well known and understood to participants in the Australian market.

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

Since S&P/ASX 200 stocks and the SPDR S&P/ASX 200 fund are highly liquid, price information is readily available. ASX revalues collateral on a daily basis using end-of-day prices. If there is no price information available for a particular day (for example due to a corporate action) then ASX Clear uses the previous day's price to value the relevant asset.

ASX Clear sets haircuts to cover a fall in the collateral value of stocks over a one-day period under extreme but plausible scenarios. Haircuts are based on the largest price falls used in corresponding capital stress-test scenarios (see CCP Standard 4.6). For stocks that are not used in individual stock stress-test scenarios, the largest price fall applied in any individual stock stress-test scenario is used to determine the haircut. Collateral haircuts are intended to be reviewed annually to take into account any changes to historically observed volatility trends. The methodology applied to set collateral haircuts will be reviewed in the first quarter of 2014 as part of the broader review of collateral policies and standards.

5.4 In order to reduce the need for procyclical adjustments, a central counterparty should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.

ASX Clear's collateral haircutting policy is designed to cover extreme but plausible scenarios based on market price and volatility movements observed in the past 20 years, which includes the extreme volatility observed during the 2008-09 financial crisis. This is intended to ensure that haircuts remain stable over the business cycle, even in stressed market conditions.

5.5 A central counterparty should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.

Currently, ASX Clear does not have formal limits on concentrations of collateral in particular assets. Over the Assessment period, the maximum holding of non-cash collateral was $4.5 billion; this was used to meet less than $1 billion of collateral requirements, after haircuts, with the remaining amount representing excess collateral lodged by participants or their clients. For most of the Assessment period around 30 per cent of margin requirements were met by cash collateral; however, this proportion rose to around half following the introduction of cash market margining in June 2013, as participants posted additional cash collateral to cover anticipated peaks in margin requirements. During the Assessment period, ASX began a review of concentration risks, including risks associated with the concentration of collateral holdings. ASX intends to finalise a standard setting out its approach to monitoring and managing concentration risks in the first quarter of 2014.

5.6 A central counterparty that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.

ASX Clear does not accept any cross-border or foreign currency collateral.

5.7 A central counterparty should use a collateral management system that is well designed and operationally flexible.

Collateral management system

ASX Clear manages the calculation and execution of margin calls through its Derivatives Clearing System (DCS) and CMM System, and is able to accurately monitor initial and variation margin levels and flows on an intraday basis (although intraday margin is not calculated or called for cash equities). The timely deposit, withdrawal and substitution of non-cash collateral are facilitated by CHESS. ASX intends to extend its collateral management service, currently available for debt securities held in Austraclear, to securities in CHESS. This would increase the ease of collateral substitution for ASX Clear participants.

Re-use of collateral

ASX Clear does not re-use non-cash collateral posted by participants and the re-use of such collateral is not supported under its Operating Rules.

Standard 6: Margin

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

Rating: Broadly observed

ASX Clear applies initial and variation margin to both derivatives products and cash securities transactions, using margin systems that are tailored to the particular attributes of these product types (CCP Standard 6.1). Timely price data are available for most products subject to ASX Clear's margining systems, and ASX Clear applies appropriate models to estimate prices when timely and reliable data are not available (CCP Standard 6.2). ASX Clear's margin models for both cash securities and derivatives ensure that initial margin meets a single-tailed confidence level of at least 99 per cent of the estimated distribution of future exposure, applying appropriate and conservative assumptions regarding close-out periods, product risks, portfolio effects and product offsets to limit the need for procyclical changes (CCP Standards 6.3, 6.5). In addition, ASX Clear applies variation margin to both securities and derivatives positions daily, and may call intraday margin on derivatives positions in the event of significant market movements (CCP Standard 6.4).

ASX Clear conducts daily checks of initial margin against variation margin requirements and performs an annual review of margin policy. ASX Clear implemented an enhanced backtesting regime in July 2013, but is still in the process of implementing its standards for comprehensive validation of its margin models, and developing its approach to sensitivity analysis of those models (CCP Standards 6.6, 6.7). The operating hours of ASX Clear's margin systems are consistent with those of related payment and settlement systems in Australia (CCP Standard 6.8).

The Bank notes the following steps that ASX Clear should take to fully observe CCP Standard 6:

- Implement plans to conduct monthly sensitivity analysis of material model assumptions (CCP Standard 6.6).

The Bank will also monitor annual validation and ongoing review of margin and stress-testing models under the ASX Model Validation Standard, and the implementation and further enhancement of the new margin backtesting regime, and will continue to monitor ASX Clear's approach to portfolio margining of cash equities in light of this enhanced analysis (CCP Standards 6.6, 6.7).

Based on this information, the Bank's assessment is that ASX Clear has broadly observed the requirements of CCP Standard 6 during the 2012/13 Assessment period. ASX Clear's margin system is described in further detail under the following sub-standards.

6.1 A central counterparty should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio and market it serves.

ASX Clear applies initial and variation margin to both derivatives products, and cash securities transactions. In June 2013, ASX Clear introduced CMM, which involves the collection of initial margin and mark-to-market margin in respect of unsettled cash equity transactions. The routine margining of cash equities was identified by the Bank as a useful risk management tool in its 2008/09 Assessment, and subsequent Assessments have reported on ASX Clear's progress towards introducing CMM. The introduction of CMM in June 2013 met the Bank's expectation for the timing of implementation as set out in its 2011/12 Assessment. The selected methodology for initial margin calculation is largely based on the historical simulation of value at risk (HSVAR). The HSVAR methodology calculates hypothetical changes in the value of a portfolio of securities, using historical price moves, and determines a margin requirement from these taking into account the desired degree of confidence (see CCP Standard 6.3). For less liquid stocks, or securities with an insufficient price history to apply HSVAR, ASX Clear applies flat rate margins. Currently 18 of the 500 stocks that make up the All Ordinaries Index are margined on a flat-rate basis. Margins calculated using HSVAR currently make up around 70 per cent of total margins collected through the CMM system. Around 90 per cent of flat-rate margin collections relate to trades in warrants and stocks outside the All Ordinaries Index, which attract higher margin rates. Transactions in CGS depository interests, introduced in May 2013, are margined according to the flat rate applied to fixed interest products.

In December 2012, ASX Clear replaced its previous proprietary Theoretical Inter-market Margin System with CME SPAN for the margining of derivatives positions. The CME SPAN methodology is a widely used version of the internationally accepted Standard Portfolio Analysis of Risk (SPAN) methodology. Initial (risk) margin provides cover in the event that a participant defaults and an adverse price change occurs before the CCP can close out its exposure to the defaulted participant. ASX Clear also levies so-called 'premium' margin on short exchange-traded option positions, updating this daily to reflect mark-to-market changes in the close-out price, and levies variation (mark-to-market) margin on both long and short low exercise price options, and all futures positions. All margin rates are reviewed on a three-monthly cycle, supplemented with ad hoc reviews during especially volatile market conditions.

ASX Clear predominantly clears standardised, exchange-traded products with risks that are well known to both ASX Clear and its participants. The only OTC products cleared by ASX Clear are equity options that share similar characteristics to exchange-traded products.

6.2 A central counterparty should have a reliable source of timely price data for its margin system. A central counterparty should also have procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable.

ASX Clear has access to timely price data for the majority of its exchange-traded products. For less liquid stocks (e.g. stocks outside the All Ordinaries Index and warrants) and new stocks for which there is insufficient historical price data, ASX Clear applies flat rate margins. These are based on available price information for individual stocks in the All Ordinaries Index, or for grouped categories of other products. The settlement value of exchange-traded options is calculated throughout the day using the Derivative Pricing System (DPS). Where available, the DPS uses recent traded prices, but the system is able to extrapolate prices from previous pricing periods or untraded bids and offers where traded price data are not available. For OTC equity options, ASX Clear interpolates the value using the prices of similar exchange-traded options.

ASX is in the process of introducing enhancements to the DPS to improve the calculation of prices for less liquid stocks. These include new limits on implied volatilities, and cross-checks of calculated prices against trades in similar options. The pricing period has also been extended from a portion of a trading day to the whole day to increase the use of traded prices. ASX continues to review the DPS to ensure that it provides appropriate pricing data for margin calculations, and has engaged an external consultant to assist in this review. The DPS is considered a key risk model and accordingly will be subject to annual validation by ASX Internal Audit under ASX's Model Validation Standard.

6.3 A central counterparty should adopt initial margin models and parameters that are risk based and generate margin requirements sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single-tailed confidence level of at least 99 per cent with respect to the estimated distribution of future exposure. For a central counterparty that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a central counterparty that calculates margin at more granular levels, such as at the sub-portfolio level or by product, the requirement should be met for corresponding distributions of future exposure. The model should: use a conservative estimate of the time horizons for the effective hedging or close out of the particular types of products cleared by the central counterparty (including in stressed market conditions); have an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products; and to the extent practicable and prudent, limit the need for destabilising, procyclical changes.

ASX's approach to margining takes into account price history at a granular level. Where price history is inadequate, the ASX methodology makes appropriately conservative adjustments. ASX Clear applies different margin models to securities and derivatives transactions.

Securities

For securities transactions, ASX applies a HSVAR-based model, which is calibrated to meet a single-tailed confidence interval of 99 per cent of the estimated distribution of future exposure. Estimates of the distribution of future exposure under this model are based on 2 years of 1-day price moves applied to current participant portfolios (see CCP Standard 6.5).

To limit the need for procyclical changes, ASX applies an additional multiple to the margin rate determined via the HSVAR calculation.

For securities that do not have the required price history to apply HSVAR, ASX applies, consistent with its overall CMM approach, flat rate margins calibrated to cover 1-day price moves with a 99 per cent confidence at a portfolio level. In order to achieve the desired confidence level at the portfolio level, confidence intervals and close-out periods applied to individual stocks differ according to liquidity and available price information. Stocks in the ASX 200 target a 99.7 per cent confidence interval applied to a 1-day close-out period; other stocks in the All Ordinaries target a 97 per cent confidence interval over a 2-day close-out period; and all other products target a 95 per cent confidence interval over a 3-day close-out period. ASX Clear has developed a comprehensive backtesting methodology to verify that these parameters satisfy the desired level of cover for securities transactions at the portfolio level (see CCP Standard 6.6).

Derivatives

For derivatives transactions, ASX Clear calculates initial margin requirements using the CME SPAN methodology. The adoption of CME SPAN in December 2012 was designed to facilitate better calibration of exposures to ASX Clear's risk tolerance. The CME SPAN methodology calculates initial margin requirements that reflect the total risk of each portfolio – for ASX Clear, each house or client account is considered a separate portfolio. The key parameters in the CME SPAN methodology are the 'price scanning range' and 'volatility scanning range'. These scanning ranges are calibrated to the distribution of price and volatility movements for a set of related contracts under normal market conditions. The scanning ranges are used to construct a set of 16 hypothetical risk scenarios used to measure the loss from a portfolio caused by a range of changes in price and volatility.

ASX Clear sets the scanning ranges at three standard deviations (a confidence interval of 99.7 per cent) of 60 days of historical data, using the higher of one- or two-day price movements. The sample period reflects a preference for incorporating recent market conditions. The inclusion of two-day price movements reflects a conservative assumption that a defaulter's positions may take up to two days to close out. ASX also evaluates margin rates against multiple look-back periods incorporating both short- and long-term periods (7 business days, 120 business days and 12 months).

ASX Clear also applies a series of adjustments within CME SPAN to account for correlations and specific risks. First, there is an upward adjustment to the margin requirement for a given set of related contracts, to account for less-than-perfect correlation between contracts with different expiries. ASX Clear also applies offsets designed to account for reliable and economically robust correlations across different contract types (see CCP Standard 6.5). In addition, ASX Clear applies an adjustment to cover its exposure on the day of contract expiry, since expiring positions are otherwise not included in that day's initial margin calculations. ASX also maintains a minimum margin requirement on short positions to ensure the collection of margin on deep out-of-the-money options that would otherwise return no scanning range.

Under the ASX Margin Rate Setting policy, the Manager or General Manager of ASX's CRM unit can approve adjustments to margin rates if the standard statistical analysis would result in an economically inappropriate outcome. This may be required if the backward-looking statistical analysis does not take appropriate account of expected future price movements.

Other reasons for using management discretion include insufficient historical data (e.g. where a product is new), seasonality in some products, and isolated spikes in price movements that result in a distortion of statistical recommendations. The ASX Margin Rate Setting policy also allows the General Manager of Clearing Risk Policy to approve exceptions to the normal margin rate setting process based on a broader risk assessment.

6.4 A central counterparty should mark participant positions to market and collect variation margin at least daily to limit the build-up of current exposures. A central counterparty should have the authority and operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to participants.

Margin requirements are calculated overnight, with variation margins based on closing prices each day, and are notified to participants the next morning. All margin obligations are settled via Austraclear and regular calls must be met by 10.30 am. When market movements exceed certain thresholds, ASX Clear will calculate intraday margin requirements on derivatives positions. This involves calculating the net mark-to-market losses on all positions, and the initial margin on any new positions opened during the day. Where a participant's margin shortfall is greater than $100 000 and represents an erosion of initial margin of 40 per cent or more, ASX Clear will call intraday margin. This must be met by participants within two hours of notification.

Under ASX Clear's AIM methodology (discussed above in relation to CCP Standard 4) a participant is also required to post additional collateral should stress-test outcomes reveal that the potential loss arising from its positions, as at the close of the previous day, exceeds a predetermined STEL or if participants have large portfolios relative to their capital (see CCP Standards 4.3 and 4.7).

Where margin payments are not made by the required time, ASX will contact the participant to determine the reasons for the delayed payment. Delayed payments are commonly the result of communication or technical issues involving the participant and/or its payment provider, and early communication by ASX is intended to ensure that, in such cases, payment can still be made within a short period of the required time. Where the matter is more serious, ASX will investigate to decide whether a default event should be declared, and if so how the default should be managed (see CCP Standard 12).

6.5 In calculating margin requirements, a central counterparty may allow offsets or reductions in required margin across products that it clears or between products that it and another central counterparty clear, if the risk of one product is significantly and reliably correlated with the risk of the other product. Where a central counterparty enters into a cross-margining arrangement with one or more other central counterparties, appropriate safeguards should be put in place and steps should be taken to harmonise overall risk management systems. Prior to entering into such an arrangement, a central counterparty should consult with the Reserve Bank.

ASX Clear applies margin at a portfolio (clearing participant) level for its securities products using its HSVAR methodology. This implicitly reduces the margin requirements for any products within the portfolio that have displayed negatively correlated risks over the previous 2 years. The use of historical simulation over a 2-year period establishes the significance and reliability of these correlations. ASX Clear also implicitly applies offsets to its flat-rate margining of less liquid products, such as warrants, fixed interest products and stocks outside the ASX 200, as the flat rates for these products are calibrated to confidence intervals of less than 99 per cent. The reliability and significance of the correlations underlying these offsets, which do not represent a significant proportion of ASX Clear's overall risk exposure, are subject to regular verification through backtesting (see CCP Standard 6.6). The Bank will continue to monitor ASX Clear's approach to portfolio-based margining of cash equities in light of the results of enhanced backtesting analysis.

In applying the CME SPAN methodology to derivatives transactions, ASX allows offsets in the form of 'inter-commodity spread concessions'. These offsets reduce margin requirements to account for reliable and economically robust correlations observed across different 'combined commodities' – sets of contracts related to the same underlying. Inter-commodity spread concessions are only applied where measures of correlation between contracts exceed 30 per cent, and the correlation is based on economic fundamentals. Changes to inter-commodity spread concessions must be approved by the RQG, which considers whether changes identified by CME SPAN appropriately reflect underlying economic relationships, including through periods of market stress.

ASX Clear does not have any cross-margining arrangements with any other CCP, although at a later date ASX plans to reconsider introducing margin offsets between certain contracts cleared by ASX Clear and ASX Clear (Futures).

6.6 A central counterparty should analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting and at least monthly, and more frequent where appropriate, sensitivity analysis. A central counterparty should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears. In conducting sensitivity analysis of the model's coverage, a central counterparty should take into account a wide range of parameters and assumptions that reflect possible market conditions, including the most volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices.

CRM conducts daily checks of initial margin requirements against observed variation margin calls. Mark-to-market price movements that exceed particular thresholds relative to initial margin coverage trigger additional actions. Variation margin calls that exceed 30 per cent of initial margin trigger a discussion with the participant and are brought to management's attention, while calls that exceed 50 per cent constitute a margin breach that will require further investigation of margin settings.

Under its new Model Validation Standard, daily backtesting has been enhanced so as to test whether the margining models reliably cover price movements to a 99 per cent confidence interval. Initial margin collected from each participant is compared against variation margin collected over the following one or two days, depending on which is the larger amount. Where variation margin is greater than initial margin an 'exception' is recorded. CRM compares the number of exceptions to the expected number of exceptions, based on a 99 per cent confidence interval. The magnitude of exceptions is also reviewed. As part of its broader review of model validation procedures, ASX is considering extending its backtesting approach to the analysis of hypothetical portfolios, in order to decompose exceptions caused by a change in participant position from those that may reveal a shortfall in margin coverage, and thereby further ensure the robustness of the margining model. The Bank will monitor the progress of work to further enhance backtesting over the coming Assessment period.

As well as enhancing its daily margin backtesting, ASX intends to commence monthly sensitivity analysis of all material model assumptions by the end of 2013, including the look-back period used in backtesting, the liquidation (close-out) period, and the confidence interval used.

6.7 A central counterparty should regularly review and validate its margin system.

ASX Clear's margin methodologies will also be subject to a comprehensive annual validation and ongoing review under ASX's Model Validation Standard (see CCP Standard 4.5). The RQG will be responsible for performing the regular reviews of models, while Internal Audit will coordinate the independent validation process, including the use of external experts where this is deemed necessary by the RQG. This independent validation process will occur annually.

At ASX, the margining process is governed by a Margin Rate Setting policy, which is reviewed annually, with material changes approved by the CS Boards. The authorisation and documentation process for margin parameter changes and guidelines for the application of management discretion are also reviewed annually. ASX publishes detailed margining information on its website, including descriptions of the margining methodology, schedules of margin rates, and daily SPAN margin parameter files – allowing participants to perform margin calculations on hypothetical or actual portfolios. A number of third-party vendors use this information to provide margin estimation software to participants.

6.8 In designing its margin system, a central counterparty should consider the operating hours of payment and settlement systems in the markets in which it operates.

ASX Clear primarily provides clearing services for the Australian-based ASX market and Chi-X, as well as some OTC equity options on Australian stocks. ASX Clear's operating hours are consistent with the relevant payment and settlement systems (ASX Settlement, Austraclear and the Reserve Bank Information and Transfer System (RITS)).

Standard 7: Liquidity risk

A central counterparty should effectively measure, monitor and manage its liquidity risk. A central counterparty 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 central counterparty in extreme but plausible market conditions.

Rating: Observed

ASX Clear maintains a robust framework for managing its liquidity risk (CCP Standard 7.1). Under this framework, ASX Clear provides participants with information to assist them in managing their liquidity needs and risks, and employs an experienced Portfolio Risk Manager to monitor and manage ASX Clear's own settlement and funding flows (CCP Standard 7.2). ASX Clear holds sufficient liquid resources to meet its payment obligations on time in the event that the participant with the largest payment obligation to the CCP was to default in the extreme but plausible scenarios envisaged in its stress tests, although these tests assume the ability to reschedule cash equity transactions for large participants (CCP Standards 7.3, 7.8). These liquid resources comprise a portfolio of high-quality liquid assets managed by ASXCC on ASX Clear's behalf, supported by procedures to ensure timely and reliable access to liquidity from the portfolio as required (CCP Standards 7.4, 7.6). To enhance its management of liquidity risk, ASX Clear has access, via ASXCC's ESA, to Australian dollar liquidity from the Reserve Bank against eligible collateral (CCP Standard 7.7).

The Bank also notes the following steps that ASX Clear should take to strengthen its observance of CCP Standard 7:

- In order to observe CCP Standard 7.3, which comes into effect on 31 March 2014, develop and implement appropriate arrangements to cover its largest liquidity exposure to a single participant and its affiliates in respect of cash equity transactions, without rescheduling settlements.
- In order to meet the requirements of CCP Standard 7.9, which comes into effect on 31 March 2014, for derivatives transactions, implement mechanisms consistent with forthcoming CPSS-IOSCO guidance on recovery planning that fully address any uncovered liquidity shortfalls, in order to settle any payment obligations on a same-day basis.

The Bank will also monitor steps taken by ASX to align its liquidity stress tests to new liquidity arrangements (CCP Standard 7.8).

Based on this information, and noting that CCP Standards 7.3 and 7.9 are not yet in force, the Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 7 during the 2012/13 Assessment period. ASX Clear's arrangements to measure, monitor and manage its liquidity risk are described under the following sub-standards.

7.1 A central counterparty 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.

Sources of liquidity risk

The primary source of liquidity risk in ASX Clear is the potential default of a participant with payment obligations to the CCP, on which the CCP may rely to make payments to other participants. Payment obligations to and from participants may be in the form of payments for settlement of a securities transaction, or initial and variation margin. ASX Clear does not currently rely on commercial bank money settlement agents, nostro agents, custodians or liquidity providers in meeting its Australian dollar payment obligations.

Managing liquidity risk

ASX Clear minimises the size of its liquidity obligations to participants through daily (and in the case of significant market movements, intraday) settlement of variation margin. This prevents the build up of large (credit and) liquidity exposures. ASX Clear's framework for managing its remaining liquidity risks involves the monitoring of liquidity exposures through daily stress testing (see CCP Standard 7.8) and the maintenance of sufficient liquid resources to be able to meet payment obligations in the event of a participant default (see CCP Standard 7.3).

ASX Clear also provides participants with information to help them manage their liquidity needs and risks, which in turn protects the CCP. Participants are provided with sufficient information to understand their intraday margin call obligations, and replicate stress-test outcomes. ASX publishes a daily CME SPAN and CMM margin parameter file that allows participants to estimate payment obligations associated with margin requirements for actual or hypothetical portfolios. ASX provides advance warnings and communications in respect of calls for additional margin, and margin rate changes. For example, participants are notified if their stress-testing results approach their STELs. Additionally, ASX works closely with participants where new obligations are likely to affect their liquidity needs; for example, conducting educational workshops for the introduction of CME SPAN and CMM.

7.2 A central counterparty 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.

Daily cash flows and investment of funds across the ASX CCPs are monitored and managed by an experienced Portfolio Risk Manager. In addition, the CRM unit reviews a daily report of key risk indicators that encompasses liquidity measures, with any issues being escalated to the CRO. Funding arrangements, such as settlement flows, are also monitored in real time by the CRM and Treasury functions. Portfolio Risk Management uses reports provided by CRM to monitor CME SPAN-calculated margin flows originating from DCS, which feed into ASX's Treasury Management System. Portfolio Risk Management inputs required deals to manage cash-flow movements in the Treasury Management System, which are accessed by Clearing and Settlement Operations via daily settlement reports. These reports are used to generate settlement instructions in Austraclear. Cash flow movements are monitored in RITS. Margin payments from participants must be made by 10.30 am, while payments to participants are manually managed in the RITS queue, and are only released once all margin obligations have been settled (generally by 12.00 pm).

ASX Clear mitigates potential liquidity risks in several ways. ASX Clear maintains $250 million in prefunded financial resources (see CCP Standard 4). In addition, ASX Clear has $50 million available to it under a committed standby liquidity facility from ASX Limited. ASX Clear does not include promissory commitments in its liquidity calculations, including in its stress tests, in recognition of the potential delay in receipt of these resources.

ASX Clear's liquid assets are invested and managed on its behalf by ASXCC (see 'ASX Group Structure' in Appendix B). ASXCC's Investment Mandate establishes a clear definition of liquid assets: liquid assets must be available for use within two hours and held in the form of either a restricted set of highly liquid securities or securities eligible for repurchase with the Reserve Bank (see CCP Standard 7.4).

7.3 A central counterparty should maintain sufficient liquid resources in all relevant currencies to settle securities-related payments, make required variation margin payments and meet other payment obligations on time with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the central counterparty in extreme but plausible market conditions. In addition, a central counterparty that is involved in activities with a more complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the central counterparty in extreme but plausible market conditions.

CCP Standard 7.3 comes into effect on 31 March 2014.

ASX Clear's liquid resources include margin and other collateral posted by participants, as well as its own holdings of liquid assets and a committed liquidity facility from ASX Limited. ASX

Clear's holdings of liquid assets and cash collateral posted by participants are invested on its behalf by ASXCC in accordance with its Investment Mandate. The ASXCC Investment Mandate requires that ASX hold liquid assets sufficient to cover the sum of:

- The total available financial resources (AFR) across the ASX CCPs. The AFR for ASX Clear is currently set at $300 million (including $50 million in respect of its committed liquidity facility from ASX Limited) and is calibrated to cover the largest stressed liquidity exposure to a single participant and its affiliates, with the exception of peak liquidity exposures to A-rated and B-rated participants (see CCP Standard 7.8). The AFR for ASX Clear (Futures) is currently $550 million and is expected to rise further to $650 million in coming months (see Appendix B1.2, CCP Standard 7.3).
- An 'ordinary liquidity requirement', which is intended to cover day-to-day liquidity requirements, such as the return of margin to participants, and is specified as a percentage of the ASXCC portfolio. This is calibrated to the maximum margin outflow in normal market conditions over the last 12 months and is reviewed quarterly.
- An amount sufficient to cover the cash margin requirement of the largest participant of ASX Clear and its affiliates and the two largest participants of ASX Clear (Futures), based on the largest margin amounts held by participants over the previous quarter.

The requirement to cover the AFR across both CCPs takes a conservative approach in that it provides for the simultaneous default, under extreme but plausible market conditions, of the largest participant and its affiliates in ASX Clear and in the two largest participants in ASX Clear (Futures).

In the event of the default of a participant with net securities-related payment obligations, ASX Clear's liquidity needs may be significantly greater than its credit exposure. From a credit risk perspective, ASX Clear is exposed only to replacement cost risk from an adverse price movement in the resale of any securities due to be purchased. Funds received from the sale may be used to offset its payment obligation. However, there is a timing mismatch between the point at which ASX Clear must meet the defaulting participant's payment obligation in relation to the purchased securities and that at which it receives funds from the resale of these (typically 3 days later). This creates a gross liquidity exposure for ASX Clear that may significantly exceed any replacement cost exposure on the same default. As a result, ASX Clear's AFR may be insufficient to meet its full liquidity exposure on a default.

ASX Clear would currently address any liquidity shortfall by rescheduling trades. It would employ ASX Settlement's back-out algorithm to remove transactions from the batch in a way that would allow ASX Clear to remove its payment obligations on behalf of the defaulting participant, while avoiding an increase in net payment obligations for other participants (see Appendix B2.1, SSF Standard 10.2). Before the back-out procedures were initiated, the ASX Default Management Committee would determine whether ASX Clear would inject sufficient liquidity to ensure that settlement of payment obligations occurred as expected. If not, ASX Clear would rely on the back-out procedures to complete settlement.

ASX Clear has acknowledged that its liquid resources are insufficient to meet this standard under current arrangements, and ASX has recently consulted on a proposal to address this issue. ASX is proposing to amend the ASX Settlement Operating Rules to give effect to a set of transactions that enable the CCP to settle its payment obligations on the intended settlement date in the event of a participant default. This would occur through an arrangement with non-defaulting participants to which ASX Clear has payment obligations, such as the purchase of stock, to offset the underlying settlement obligations to and from those participants with a separate 'offsetting transaction arrangement' – also referred to as a stock repurchase arrangement. Under the first leg of the offsetting transaction arrangement ASX Clear would, in effect, re-deliver the stock to the relevant non-defaulting participant in return for payment equal to the amount of the payment obligation of ASX Clear to that participant. Under these arrangements, ASX Clear would agree to repurchase the stock the next business day under the final leg of the transaction. If this transaction was unable to be settled on the next business day, subsequent offsetting transactions would be entered into on a daily basis until the settlement of on-market close-out trades took place.

Under the proposed solution, in the event of a participant default, ASX Clear would use the existing $300 million of available financial resources prior to executing offsetting repurchase transactions with non-defaulting participants.

7.4 For the purpose of meeting its minimum liquid resource requirement, a central counterparty'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 central counterparty has access to routine credit at the central bank of issue, the central counterparty 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.

ASXCC holds an ESA at the Bank to facilitate money settlements on behalf of ASX Clear (and ASX Clear (Futures)) (see CCP Standard 7.7). As an ESA holder, ASXCC is eligible for access to Australian dollar liquidity under the Bank's overnight and intraday liquidity facilities (against eligible collateral within its investment portfolio), including in times of market stress.

The ASXCC Investment Mandate requires the Portfolio Risk Manager to maintain high-quality liquid assets to meet ASX Clear's minimum liquidity requirements, consistent with the definition of qualifying liquid assets under this standard. Liquid assets must be available for use within two hours and held in securities eligible for repurchase transactions with the Bank. Investments held in the form of bank bills, negotiable certificates of deposit and floating rate notes issued by approved counterparties or obligors are required to be tradable on a robust secondary market. Over the Assessment period, term deposits averaged just over 40 per cent of the ASXCC investment portfolio, at-call deposits around 30 per cent, with holdings of other approved securities making up the balance. The arrangements for offsetting repurchase transactions proposed in ASX's recent consultation (see CCP Standard 7.3) would also meet the definition of qualifying liquid resources for the purpose of this standard, since they would be prearranged, committed and reliable (since they effectively utilise funds otherwise due to participants). Eligible investment counterparties are discussed under CCP Standard 15.

ASX Clear's committed liquidity facility with ASX Limited is contractually based, and can be considered highly reliable due to the corporate relationship between the two entities. These funds would be sourced from ASX Limited's cash resources, and are not routinely utilised in any other part of ASX's operations.

7.5 **A central counterparty may supplement its qualifying liquid resources with other forms of liquid resources. If the central counterparty 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 central counterparty 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 central counterparty should not assume the availability of emergency central bank credit as part of its liquidity plan.**

ASX Clear does not supplement its qualifying liquid resources with other forms of liquid resources.

7.6 **A central counterparty 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 central counterparty 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 central counterparty should regularly test its procedures for accessing its liquid resources at a liquidity provider.**

The Portfolio Risk Manager, in consultation with the CRO, is responsible for the provision of timely liquidity to fund margin and settlement obligations to non-defaulting participants. The Default Management Framework (see CCP Standard 12.1) covers liquidation of participant non-cash collateral, as well as the liquidation of treasury investments representing participant cash collateral and other prefunded financial resources. While the order of use of particular collateral types will depend on the particular circumstances, a typical order of use may be cash first, followed by other non-cash collateral. The order of liquidation of non-cash collateral to meet funding requirements will depend on factors such as prevailing market conditions, liquidity needs and the amount of funds required relative to the size of each collateral lodgement. Procedures for dealing with liquid assets in the treasury investment portfolio are documented, and are available for Portfolio Risk Management staff at both primary and backup sites.

7.7 **A central counterparty with access to central bank accounts, payment services or securities services should use these services, where practical, to enhance its management of liquidity risk. A central counterparty that the Reserve Bank determines to be systemically important in Australia and has obligations in Australian dollars should operate its own Exchange Settlement Account, in its own name or that of a related body corporate acceptable to the Reserve Bank, to enhance its management of Australian dollar liquidity risk.**

ASXCC holds an ESA, making it eligible for access to Australian dollar liquidity under the Bank's overnight and intraday liquidity facilities (against eligible collateral). Updates to its Investment Mandate in 2012/13 clarified ASXCC's ability to make use of these services, by specifying the list of securities (from the Bank's approved list) available for repurchase, including the securities of the Commonwealth, certain states and major banks (CCP Standard 15).

ASX Clear uses ASXCC's ESA to settle its AUD margin and cash settlement obligations in RITS (see also CCP Standard 9).

7.8 A central counterparty should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. A central counterparty should have clear procedures to report the results of its stress tests to appropriate decision-makers at the central counterparty and to use these results to evaluate the adequacy of, and adjust, its liquidity risk management framework. In conducting stress testing, a central counterparty 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 central counterparty, include all entities that might pose material liquidity risks to the central counterparty (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 central counterparty should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.

ASX Clear uses daily liquidity stress testing to assess the adequacy of its liquidity arrangements. The stress-testing model, which is adapted from ASX Clear's capital stress tests (described under CCP Standard 4), calculates the maximum liquid funds that ASX Clear would need to access in order to meet obligations arising in the event of the joint default of a clearing participant and its affiliates. The liquidity stress tests assume that a default occurs just prior to receipt of the previous day's variation margin payments, if owed by the defaulter, or just after any variation margin payments have been paid, if owed to the defaulter. The stress tests thereby calculate the worst-case liquidity requirement under each stress-test scenario.

ASX Clear's liquidity stress tests apply different assumptions depending on the size and credit standing of the defaulting participant. For A-rated and B-rated participants, liquidity stress-test results are derived directly from the capital stress test. This is based on the assumption that, for these large participants, excess liquidity exposures generated by the securities settlement cycle would be addressed through the rescheduling of trades (and in future by the proposed offsetting repurchase transactions entered into by participants, see CCP Standard 7.3). For other participants, the liquidity stress test combines the results from two independent models: one for derivatives transactions and one for the cash market. Since securities settle on a three day cycle, the liquidity stress test for the cash market uses projected cash inflows and outflows from settlements and margin payments to calculate the cumulative liquidity requirement for each of the four days following a participant default. The stress-test result used in the liquidity stress-test model is taken from the day with the largest cumulative requirement.

The cash market and derivatives stress tests each apply three default scenarios, combined with a number of market change scenarios.

For the cash market stress test, two market change scenarios are applied: an increase of 10 per cent and a decrease of 15 per cent. In the cash market stress test, the default scenarios apply different assumptions to:

- the priming of settlement accounts before default (either 90 per cent or 100 per cent of deliverable securities are assumed to be in the defaulting participant's settlement account)

- the use of non-novated transactions to offset obligations in respect of novated transactions
- whether the defaulter's sell transactions are deferred for three days or settled as soon as securities are available.

In the derivatives stress test the market change scenarios are based on the price and volatility changes set out in the capital stress-test scenarios (see CCP Standard 4.6). The three default scenarios for the derivatives stress test assume that ASX Clear is able to transfer all, some or only profit-making client accounts.

The results of the liquidity stress tests give a 'default liquidity requirement' (DLR), which is compared with ASX Clear's AFR (currently set to $300 million). A stress-test result above the AFR for three consecutive trading days is considered a breach of the AFR and triggers a detailed investigation into the breach. When assessing the materiality of a liquidity stress-test breach, the CCPs will consider contributing and mitigating factors, such as changes in the ICR of the participant, atypical trading activity, and any AIM that is being held. In order to test the sufficiency of ASX's overall liquid resources, the results of liquidity stress testing are also aggregated across both CCPs to calculate the worst-case aggregated DLR.

The results of liquidity stress testing are regularly reported to ASX senior management, the CS Boards and the Bank. All liquidity stress-test breaches are reported to the CRO, the General Manager of Clearing Risk Policy, and the Portfolio Risk Manager. A sustained or widely distributed breach may lead to a review of the adequacy of the AFR. Over the Assessment period there were a number of liquidity stress-test breaches caused by ASX Clear's exposures to C-rated participants. ASX's review of these breaches concluded that an increase in the AFR was not required, due to the narrow base of participants affected, the ability to call additional margin under the AIM regime (see CCP Standard 4.7), and the proposed introduction of new offsetting repurchase transaction arrangements with participants (see CCP Standard 7.3). The change in the composition of available liquid resources implied by the last of these factors suggests that ASX Clear should review its liquidity stress-test approach alongside the introduction of new liquidity arrangements.

7.9 A central counterparty should establish explicit rules and procedures that enable the central counterparty 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 central counterparty'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.

CCP Standard 7.9 comes into effect on 31 March 2014. Following the release of finalised CPSS-IOSCO guidance on recovery planning, expected in late 2013, ASX Clear will be considering arrangements to ensure settlement of payment obligations can be achieved on time in circumstances in which its liquid resources under CCP Standard 7.3 have been exhausted.

ASX Clear's proposal to enter into offsetting repurchase transaction arrangements with participants would be expected to meet the requirements of this sub-standard for liquidity exposures generated by securities transactions. However, additional mechanisms may be required to address uncovered liquidity shortfalls generated by derivatives transactions. The Bank will continue its dialogue with ASX on these matters over the coming Assessment period.

Standard 8: Settlement finality

A central counterparty should ensure clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, a central counterparty should facilitate final settlement intraday or in real time.

Rating: Observed

ASX Clear's settlements involve AUD cash payments between participants and the CCP for the purposes of margin payments and other derivative related payments such as options premia and the settlement of cash securities trades. Cash settlements of margin occur via Austraclear, with interbank obligations settled on a real-time gross settlement (RTGS) basis across ESAs at the Bank, via RITS. Settlement of securities trades and lodgement of non-cash collateral takes place in ASX Settlement, with securities delivery obligations effected within CHESS and interbank cash obligations also settled via RITS on an RTGS basis.

ASX Clear defines the point at which settlement is final through contract specifications set out in its Operating Rules and Procedures, and those of ASX. The finality of its money settlements is further defined in the Austraclear Regulations and ASX Settlement Operating Rules, supported by the PSNA (CCP Standard 8.1). Contract specifications set out in ASX Clear's and ASX's Operating Rules and Procedures also specify procedures and timetables for final settlement (CCP Standard 8.2). Participants are not able to submit payment or transfer instructions in ASX Clear that may be revoked (CCP Standard 8.3).

Based on this information, the Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 8 during the 2012/13 Assessment period. ASX Clear's arrangements for ensuring finality of these settlements are described in further detail under the following sub-standards.

8.1 A central counterparty's rules and procedures should clearly define the point at which settlement is final.

The settlement of obligations in ASX Clear is final according to the terms of ASX Clear's and ASX's Operating Rules and Procedures, which set out the means of settlement. For payments settled in Austraclear, settlement is final according to Austraclear's Regulations and Procedures and its approval under Part 2 of the PSNA. This approval protects the finality of payments made in the event of a participant entering external administration (see Appendix B2.2, SSF Standard 7.1). For payments and securities obligations settled through ASX Settlement, finality is supported both by ASX Settlement's Operating Rules and Procedures and its approval under Part 3 of the PSNA. This approval protects ASX Settlement's netting arrangements for securities and payment obligations. Any interbank transactions arising from settlements in either Austraclear or ASX Settlement are settled in real time across ESAs held with the Bank. Payments within this system are also final and irrevocable; this is supported by the approval of RITS under Part 2 of the PSNA.

8.2 A central counterparty should ensure final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk.

The settlement of obligations in ASX Clear is governed by ASX Clear's and ASX's Operating Rules and Procedures. These specify that securities-related obligations use the settlement facility provided by ASX Settlement, while other (e.g. margin) payments to and from the CCP must use the facility provided by Austraclear. In each case, ASX Clear calculates bilateral net positions between itself and its clearing participants that reflect both cash payment and securities obligations. The relevant netting arrangements are outlined in the ASX Clear Operating Rules and Procedures and are protected as a netting market under Part 5 of the PSNA.

Margin payments

Participants settle routine margin payments via cash transfers in Austraclear, which settle in real time via RITS, or via the lodgement of securities in CHESS. Daily margin payments are due by 10.30 am each day, and are settled using ASXCC's ESA. Intraday margin requirements are calculated and notified to participants following significant market movements (see CCP Standard 6.4) and must be settled within the notified time frame, which is generally 2 hours.

Delivery of securities

ASX Settlement's settlement process involves the use of a delivery-versus-payment (DvP) model 3 mechanism, whereby cash payments and securities transfers are settled simultaneously in a single daily multilateral net batch (see CCP Standard 11). Within this batch ASX Settlement nets both novated transactions cleared by ASX Clear and non-novated transactions from outside the CCP. As the outcome of this process, ASX Settlement participants face a net cash settlement obligation to or from ASX Settlement and a net securities settlement obligation for each line of stock.

Participants are required to have sufficient securities in their settlement account by 10.30 am on the day of settlement. Once participants' net delivery obligations have been determined, ASX Settlement confirms that sufficient securities are available in each participant's securities account in CHESS. The transfer of securities 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 (see CCP Standard 9). Once cash settlement has been confirmed, ASX Settlement effects the net transfer of securities within CHESS and settlement is usually completed by around 11.30 am.

Failed settlements are removed from the multilateral net batch via the CHESS back-out algorithm (for a securities shortfall), and rescheduled for settlement on the next day (see Appendix B2.1, SSF Standard 11).

Options delivery

Payments to settle up-front premium amounts for equity options occur via Austraclear, and are due by 10.30 am on the day following a trade. Following the exercise of an equity option contract, obligations are settled in the same manner as cash securities transactions. Any contract which is in the money on the day of its expiry is automatically exercised where the account is set to auto-exercise. When an options contract is exercised, performance obligations are allocated via a random process to a seller of a contract within the same series.

8.3 A central counterparty should clearly define the point after which unsettled payments, transfer instructions or other obligations may not be revoked by a participant.

Participants are not able to submit payment or transfer instructions in ASX Clear that may be revoked.

Standard 9: Money settlements

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

Rating: Observed

ASX Clear conducts its money settlements across ESAs at the Bank, via RITS (CCP Standard 9.1). Margin payments are settled in RITS via Austraclear instructions, while securities-related payment obligations are settled in RITS via the CHESS batch operated by ASX Settlement. ASX Clear does not conduct settlement across its own books or in commercial bank money (CCP Standards 9.2, 9.3, 9.4, 9.5). The role and responsibilities of commercial settlement banks acting on behalf of participants for money settlements are governed by legal agreements between those banks, ASX Clear, ASX Settlement and the Australian Payments Clearing Association (APCA) (CCP Standard 9.3).

Based on this information, the Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 9 during the 2012/13 Assessment period. ASX Clear's money settlement arrangements are discussed in further detail under the following sub-standards.

9.1 A central counterparty should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks. A central counterparty that the Reserve Bank determines to be systemically important in Australia and has Australian dollar obligations should settle its Australian dollar obligations across an Exchange Settlement Account held at the Reserve Bank, in its own name or that of a related body corporate acceptable to the Reserve Bank.

ASX Clear's money settlements are all settled in central bank money. Margin payments are settled via Austraclear on an RTGS basis across ESAs at the Bank, via RITS. ASX Clear uses ASXCC's ESA to settle these obligations in RITS.

Settlement of net securities-related payment obligations arising in the CHESS settlement batch operated by ASX Settlement (see CCP Standard 8.2) also occurs on an RTGS basis across ESAs at the Bank, via RITS. These obligations are settled on behalf of participants between commercial settlement banks known as Payment Providers.

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

ASX Clear's money settlements are all settled in central bank money.

9.3 If a central counterparty 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 central counterparty 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 central counterparty 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 Clear does not settle in commercial bank money or effect settlement using a commercial settlement bank. The role of commercial settlement banks acting on behalf of participants is covered by the terms of the CHESS Payment Interface Standard Payments Provider Deed entered into by ASX Settlement, ASX Clear, APCA and the relevant commercial bank. This deed sets out payment authorisation deadlines and other operational requirements for Payment Providers acting as commercial settlement banks for participants. The deed was updated in September 2012 to amend deadlines for the authorisation or rejection of payment obligations on behalf of participants (see Appendix B2.1, SSF Standard 8.3).

9.4 If a central counterparty conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks.

ASX Clear does not conduct money settlements on its own books.

9.5 A central counterparty'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 central counterparty and its participants to manage credit and liquidity risks.

ASX Clear does not conduct settlements via commercial bank money settlement agents.

Standard 10: Physical deliveries

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

Rating: Not applicable

No contracts assigning physical delivery obligations to ASX Clear were traded during the Assessment period. Wool futures contracts, which were previously cleared by ASX Clear and subject to physical delivery, were delisted in April 2013 and no contracts were traded during 2012/13.

Based on this information, the Bank has concluded that CCP Standard 10 does not apply to ASX Clear.

10.1 A central counterparty's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.

Not applicable to ASX Clear.

10.2 A central counterparty should identify, monitor and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.

Not applicable to ASX Clear.

Standard 11: Exchange-of-value settlements

If a central counterparty is involved in the settlement of transactions that comprise two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by ensuring that the final settlement of one obligation is conditional upon the final settlement of the other.

Rating: Observed

ASX Clear eliminates principal risk in the settlement of cash equity transactions by ensuring that the transfer of securities occurs if and only if payment occurs (CCP Standard 11.1). In order to eliminate principal risk, ASX Clear employs the DvP model 3 settlement mechanism in ASX Settlement (CCP Standard 11.2).

Based on this information, the Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 11 during the 2012/13 Assessment period. ASX Clear's arrangements for DvP settlement of linked obligations are discussed in further detail under the following sub-standards.

11.1 A central counterparty should eliminate principal risk associated with the settlement of any obligations involving two linked obligations by ensuring that the payment system or securities settlement facility employed operates in such a way 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 Clear eliminates principal risk by ensuring that settlement of all securities transactions takes place in ASX Settlement using a DvP model 3 settlement mechanism (see CCP Standard 11.2).

11.2 A central counterparty should eliminate principal risk associated with the settlement of linked obligations by ensuring that it employs an appropriate delivery versus payment (DvP), delivery versus delivery (DvD) or payment versus payment (PvP) settlement mechanism.

ASX Clear employs the DvP model 3 settlement mechanism in ASX Settlement to eliminate principal risk associated with its securities transactions. Under this arrangement, settlement of novated and non-novated transactions takes place in a daily batch process run by CHESS. All scheduled securities transfers are reduced to a single multilateral net transfer per line of stock for each participant. Payments associated with these transactions are similarly settled on a multilateral net basis, in RITS, contemporaneously with the securities transfers (see Appendix B2.1, SSF Standard 10.2 for a detailed description of ASX Settlement's settlement model).

The use of a DvP model 3 settlement mechanism is acceptable for ASX Clear given the relatively low average value of securities transactions involved. In 2012/13, the average value of individual gross settlement instructions in ASX Settlement for novated transactions cleared by ASX Clear was around $5 000. This compares with an average of $28.3 million for an individual DvP settlement instruction for debt securities in Austraclear. While, in its 2008 *Review of Settlement Practices for Australian Equities*, the Bank encouraged ASX to consider introducing a DvP model 1 settlement mechanism for cash equities over the medium term, the Bank accepts that neither ASX nor market participants are persuaded of the need to move to a new settlement model at this time. Furthermore, the Bank notes the actions taken by ASX since the 2008 review to further strengthen the resilience of the batch settlement process (see Appendix B2.1, SSF Standard 10.2).

Standard 12: Participant default rules and procedures

A central counterparty 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 central counterparty can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

Rating: Observed

ASX Clear has sufficient powers under its Operating Rules and Procedures to manage a participant default, and has documented an internal framework setting out its default management approach (CCP Standard 12.1). Powers available to ASX Clear include powers to suspend a defaulting participant, apply margin and pooled financial resources to meet losses, and a range of close-out and hedging tools (CCP Standards 12.1, 12.2). Participants are also required to report default events or an expected default to the CCP. ASX Clear has published its Operating Rules that set out its default management powers, and a high-level overview of its approach to default management (CCP Standard 12.3). Default management procedures are tested and reviewed on at least an annual basis (CCP Standard 12.4). ASX Clear's default management arrangements are designed for the particular characteristics of its activities, and take into account potential impacts on Australian markets.

Based on this information, the Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 12 during the 2012/13 Assessment period. ASX Clear's default management arrangements are discussed in further detail under the following sub-standards.

12.1 A central counterparty should have default rules and procedures that enable the central counterparty to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default. A central counterparty should ensure that financial and other obligations created for non-defaulting participants in the event of a participant default are proportional to the scale and nature of individual participants' activities.

Rules and procedures

The Operating Rules and Procedures provide ASX Clear with the authority and flexibility to deal with a participant default using a variety of methods to manage its exposure. For cash market transactions, ASX Clear may enter into market transactions to sell or purchase securities to facilitate the settlement of novated transactions, and is currently also able to reschedule any settlements involving the failed participant, or those affected by its failure. For derivatives, ASX Clear has the ability to close out any open contracts, to exercise or terminate open contracts, or to seek to transfer (port) client positions. The specific close-out method will depend on market conditions and the products in question.

The formal Rules and Procedures are supplemented by an internal Default Management Framework (DMF), applicable to both ASX Clear and ASX Clear (Futures), to assist in the management of a clearing participant default. The DMF is based on high-level principles regarding the management of a default that have been approved by the CS Boards. In particular, these principles specify that the key aim in handling a default is to minimise the impact of the event on the CCP, clearing participants and the market. The DMSG provides oversight and review of the DMF, including discussion of proposed changes prior to submission to the CS Boards.

The DMF covers each stage of a default, from the identification of a default event, to the management of the defaulter's position, real-time monitoring of financial solvency, and financial offset and reconciliation. It is intended to be flexible, rather than prescriptive, and may be developed and adapted as appropriate.

The DMF outlines the key roles and responsibilities in managing a clearing participant default. The ASX Group has established a Default Management Committee (DMC), comprising senior management from relevant policy and operational areas, to be the primary decision-making forum for the management of a default. The DMC's responsibilities range from recommending declarations of default and suspensions, to devising a risk neutralisation plan and overseeing its implementation.

Use and sequencing of financial resources

Following a declaration of default, ASX Clear will suspend the defaulting participant's authority to clear. Suspension, rather than termination, ensures that the participant remains bound by the central counterparty's rules. There are no further payments or collateral movements to the clearing participant following declaration of a default. This enables the central counterparty to 'crystallise' the defaulting participant's position and generate detailed account and position data (including collateral held). This establishes the basis for the close out of exposure to the defaulting participant.

In the first instance, ASX Clear would meet obligations arising from a participant default using collateral lodged by that participant. Collateral may be in the form of cash or eligible securities (see CCP Standard 5.1). Where the defaulting participant's contributions are insufficient, ASX Clear may draw upon pooled financial resources (see CCP Standard 4). In addition to its $250 million of prefunded resources, ASX Clear has the capacity to call a further $300 million in Emergency Assessments from participants.

ASX has documented, in an internal paper provided to the ASX Limited Board, a process for making decisions regarding replenishment of ASX Clear's financial resources following any draw down arising from a participant default. Responsibility for determining if financial resources will be replenished and, if so, how this should be achieved, ultimately lies with the ASX Limited Board, which would make this decision in consultation with the ASX Clear Board. ASX's documented replenishment intentions canvass several options, including the injection of additional funds from within the ASX Group, from participants or from third-party institutions. The particular approach taken will depend on the specific circumstances, including the severity of the loss and the market environment (see also CCP Standard 4.8). ASX Limited has also committed to maintaining a certain level of equity capital in ASX Clear (including via ASXCC) provided certain conditions are met, including that ASX Clear is solvent. For its part, the Bank would require that any potential new formulation of financial resources continued to meet the CCP Standards.

Default management

The DMF and the Operating Rules and Procedures allow ASX Clear to employ a variety of methods to close out or otherwise manage the positions of a defaulting participant. These include transfer, on- or off-market liquidation, expiry, exercise, compulsory settlement (generally considered to be a last-resort method of closing out) and hedging (see CCP Standard 12.2(b) for more information on close-out arrangements).

12.2 A central counterparty 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 central counterparty 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 central counterparty; and

(b) have the ability to close out, hedge or transfer, a participant's open contracts in order to appropriately control risk of a participant that:

(i) becomes subject to external administration; or

(ii) breaches a risk-control requirement of the central counterparty.

To facilitate early identification of a default event, the ASX Clear's Operating Rules and Procedures require that participants inform ASX Clear immediately in the event of a default, or if there is a reasonable expectation of such an event. This requirement is legally binding and would continue to apply even in the event that an external administrator was appointed to the clearing participant. The Operating Rules and Procedures envisage a number of possible events of default. These include: becoming subject to external administration; being unable to meet obligations relating to open contracts; default of the clearing participant at another CCP or exchange; and being in breach of the CCP's risk-control requirements, such as failing to fulfil margin or other payment obligations to the CCP.

Although the ASX Clear Operating Rules set out specific events of default, declaration of a default is never automatic. Instead, ASX Clear maintains the right to investigate a potential default fully, taking into account any extenuating circumstances. The process of investigating, and the subsequent handling of, a potential default depends on its nature. Specifically, the rules distinguish between 'operational', 'compliance' and 'financial' defaults. This differentiation appropriately reflects the gravity and potential ramifications of a declaration of default. Ultimately, the declaration of any default is the responsibility of the Managing Director and Chief Executive Officer of ASX, under delegated responsibility from the CS Boards.

The DMF and the Operating Rules and Procedures allow ASX Clear to employ a variety of methods to close out or otherwise manage the positions of a defaulting participant. These include transfer, on- or off-market liquidation, expiry, exercise, compulsory settlement (generally considered to be a last-resort method of closing out) and hedging. There are advantages and disadvantages to each close-out method and therefore the specific method used in practice will depend on market conditions and the products in question. For example, subject to other legal and practical impediments, the account structure used by the CCP is a factor in determining the ease with which client positions can be transferred following a default event. The individually segregated client account structure for derivative positions at ASX Clear supports the possibility of transfer. While the commingled house/client accounts for cash market transactions make achieving transfer difficult, it is likely that the scope for transfer of cash market positions would be limited under any account structure due to the short (three-day) equity settlement cycle (see CCP Standard 13).

12.3 A central counterparty should publicly disclose key aspects of its default rules and procedures.

ASX Clear's Operating Rules are available on ASX's public website. These rules outline when ASX Clear can take action against a participant and the powers of ASX Clear in the event of a default, including the ability of ASX to transfer client derivative positions to other participants. ASX Clear's Operating Rules set out the treatment of proprietary and customer positions. In addition, ASX has published a high-level overview of its approach to managing a participant default on its website.

12.4 A central counterparty should involve its participants and other stakeholders in the testing and review of the central counterparty's default procedures, including any close out 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.

The DMF is reviewed on an annual basis, or more frequently as needed, and is regularly tested by in-house default management 'fire drills'. These tests ensure that relevant ASX personnel are familiar with the default management process and identify areas where the DMF should be updated. Findings, including any recommended enhancements to the DMF, are reported to the DMSG after each fire drill. The Bank observed the ASX fire drill exercise conducted at the end of 2012 and will continue to observe future fire drills. In the 2011/12 Assessment period the DMF was updated to incorporate lessons learnt from the default of MF Global. In the current Assessment period, ASX undertook a comprehensive review of the DMF in light of new requirements of the FSS and the introduction of clearing for OTC interest derivatives in ASX Clear (Futures).

Currently, participants are not directly involved in default management fire drills for the ASX CCPs. This allows ASX to more freely incorporate scenarios based on actual participants and portfolios into its fire drills, involving the use of confidential information that cannot be shared with other participants. However, after each fire drill a sample order file is sent to each of the default brokers that would be used by ASX to execute close-out trades, in order to test the compatibility of the file with their systems.

In addition to the default management information provided on its website, ASX provides detailed responses to any targeted requests for information made by clearing participants. Clearing participants have the ability to provide feedback and seek further information on default processes through this mechanism.

The default arrangements in ASX Clear take into account, as far as possible, the implementation of any resolution regime governing the CCP's participants. ASX has undertaken analysis on the impact of ADI resolution proceedings on a CCP's default management processes. While acknowledging that ADI resolution authorities may have broad powers to intervene in the arrangements of an insolvent ADI participant, the analysis suggests that, in general, resolution proceedings should not impede a CCP's default management processes. ASX will be conducting further analysis on the interaction between ADI and financial market infrastructure (FMI) resolution once international work on FMI resolution and the proposed domestic framework for FMI resolution have been finalised. Additionally, ASX intends to address the management of an ADI participant default in its 2013 default management fire drill.

12.5 A central counterparty 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.

The DMF identifies that the key aim in handling a default is to minimise the impact of the event on ASX Clear, its participants and the market. Since the decision in respect of close out by the DMC is complex and involves consideration of the specific circumstances surrounding the default, the default management procedures are not prescriptive. Rather, ASX Clear would consider a range of high level factors in a default situation, including: any systemic risk implications; potential contagion and implications for wider market liquidity;

interdependencies with other entities; the impact on the CCP's risk profile and financial standing; additional risks that could be incurred by participants; and market conditions and default portfolio complexity.

Participants include both Australian and overseas brokers with a significant domestic presence, including subsidiaries of Australian and overseas banks. Products cleared by ASX Clear are traded on Australian markets and denominated in AUD. Accordingly, default management actions would be taken during the local time zone for all participants.

Standard 13: Segregation and portability

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

Rating: Observed

ASX Clear offers three types of account structure: individual client segregation for options and futures; omnibus segregation with net margining for futures; and commingled house/client accounts for cash market transactions (CCP Standard 13.2). Individual client segregation for options and futures provides protection to customers against the default of both their clearing participant and a fellow client, and supports transfer to another clearing participant in such a scenario. Omnibus segregation offers an appropriate degree of protection to customers against the default of their clearing participant, but makes achieving transfer to another participant unlikely in the event of such a default. The commingled account structure for cash market transactions also makes achieving transfer to another participant difficult in the event of a default, and does not offer customers the protections of segregation (CCP Standards 13.1, 13.3). ASX Clear is currently consulting on options to change its account structure to offer a greater degree of segregation for cash market accounts. ASX Clear has publicly disclosed its current segregation and portability arrangements, including the current obstacles to portability (CCP Standard 13.4).

The Bank notes the following steps that ASX Clear should take to meet the requirements of CCP Standards 13.1, 13.2 and 13.3, which come into effect on 31 March 2014:

- Complete development and commence implementation of arrangements for client account segregation in its cash equities clearing service.

Based on this information, and noting that CCP Standards 13.1, 13.2 and 13.3 are not yet in force, the Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 13 during the 2012/13 Assessment period. ASX Clear's progress towards implementing segregation and portability requirements is described under the following sub-standards.

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

CCP Standard 13.1 comes into effect on 31 March 2014.

ASX Clear has the capacity to transfer (port) participants' customers' (also known as 'clients') positions and collateral under its Operating Rules. During the Assessment period, an amendment to Part 5 of the PSNA removed a legal impediment to portability, by allowing a CCP to transfer client collateral of a defaulting participant as provided for by its Operating Rules without the need to seek approval from the participant's external administrator. ASX Clear maintains segregated account structures for its options and futures products (see CCP Standard 13.2). However, its commingled house/client account for cash market transactions does not offer clients the protections of segregation.

ASX released a consultation paper in July 2013 in which it asked stakeholders to consider and provide feedback on the existing single house account structure. In this publication, ASX discussed two further options: a client omnibus and an individually segregated client account structure. ASX views these options as potential solutions to ensure that ASX Clear meets the new regulatory requirements. These potential solutions could either replace or be provided as additional choices to the existing structure for participants and their clients.

13.2 A central counterparty should employ an account structure that enables it readily to identify positions of a participant's customers and to segregate related collateral. A central counterparty should maintain customer positions and collateral in individual customer accounts or in omnibus customer accounts, or equivalent.

CCP Standard 13.2 comes into effect on 31 March 2014.

Currently, ASX Clear offers individual client segregation for options and a choice of individual client segregation or omnibus segregation for futures transactions. However, ASX Clear does not offer a segregated account structure for cash market transactions. ASX Clear is consulting on possible changes to account structures for cash market transactions that would provide segregation between client and house positions and collateral.

13.3 To the extent reasonably practicable under prevailing law, a central counterparty should structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be transferred to one or more other participants.

CCP Standard 13.3 comes into effect on 31 March 2014.

Although ASX Clear has the power under its Operating Rules to transfer client positions and collateral following a participant default, legal and operational impediments have made it unlikely that such a transfer could be achieved. The PSNA amendments referred to in CCP Standard 13.1 have now removed an important legal impediment to portability. However, the commingled account structure used for cash market transactions creates practical difficulties for achieving portability. The commingled account structure makes it difficult to identify client positions, and even if positions could be identified, since house and client positions are margined on a net basis across the commingled account, there is unlikely to be sufficient collateral at the CCP to achieve the fully collateralised transfer of individual client positions to alternative clearing participants. However, even under a segregated account structure the scope for transfer of cash market positions would be limited due to the short (three-day) equity settlement cycle

13.4 A central counterparty should disclose its rules, policies and procedures relating to the segregation of a participant's customers' positions and related collateral. In particular, the central counterparty should disclose whether customer collateral is segregated on an

individual or omnibus basis. In addition, a central counterparty should disclose any constraints, such as legal or operational constraints, that may impair its ability to segregate or port a participant's customers' positions and related collateral.

Current arrangements for segregation and portability are defined in the ASX Clear Operating Rules and Procedures. ASX has also published a public overview of clearing participant default arrangements, which outlines the current operational constraints to portability and the implications of different account structures.

In addition, ASX has publicly discussed current and proposed segregation and portability arrangements for derivatives transactions in an October 2012 consultation paper. Its July 2013 consultation paper discusses arrangements for cash market transactions cleared in ASX Clear, and ASX is expected to continue the dialogue with participants and other stakeholders on these arrangements over coming months. In particular, the July 2013 consultation paper outlines the practical difficulties associated with achieving portability for cash market transactions within the three-day equity settlement cycle.

Standard 14: General business risk

A central counterparty 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.

Rating: Broadly observed

ASX Clear identifies, monitors and manages its general business risks in the context of its overall Enterprise Risk Management Policy (CCP Standard 14.1). It has access to sufficient funds held at group level, and invested in high-quality and sufficiently liquid assets to continue operations as a going concern if it incurs general business losses, and plans to enhance the legal basis of such access through a new clause in the ASX Group Support Agreement (CCP Standards 14.2, 14.4). ASX maintains viable arrangements to raise additional equity for its CS facilities as required. This was demonstrated by its $533 million capital raising during the Assessment period (CCP Standard 14.5).

The Bank notes the following steps that ASX Clear should take in order to fully observe CCP Standard 14:

- In order to meet the requirements of CCP Standard 14.2, implement plans to enhance intragroup legal agreements to explicitly reflect the allocation and availability of business risk capital to ASX Clear.
- In order to meet the requirements of CCP Standard 14.3, which comes into effect on 31 March 2014, ASX Clear should develop and maintain a viable recovery plan and ensure that the capital it holds under CCP Standard 14.2 is sufficient to fund this plan. The plan should be consistent with forthcoming CPSS-IOSCO guidance on recovery planning. As ASX Clear develops its recovery plan, it should also review and integrate the recapitalisation processes described under CCP Standard 14.5 with its broader recovery planning arrangements.

Based on this information, and noting that CCP Standard 14.3 is not yet in force, the Bank's assessment is that ASX Clear has broadly observed the requirements of CCP Standard 14 during the 2012/13 Assessment period. ASX Clear's management of general business risk is described in further detail under the following sub-standards.

14.1 A central counterparty 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 CCP 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 (as distinct from collateral lodged by participants) may be exposed to market risk due to changes in market variables such as interest rates, foreign currency rates and equity prices. Mitigants for market risk include hedging of foreign exchange risk and monitoring of equity price risk, with appropriate capital allocation.
- Credit risk for general business activities arises in the collection of receivables, which principally comprises fees from market participants, issuers, users of market data and other customers. Mitigants include active collection procedures on trade receivables and 'ageing' of receivable amounts.
- Liquidity risk is mitigated by prudent liquidity management, with forward planning and forecasting of liquidity requirements.
- ASX manages its capital at a group level, in accordance with an objective of maintaining a prudent level of surplus net tangible equity. Ongoing monitoring of cash flows and capital adequacy is conducted via quarterly meetings of CALCO.

ASX undertakes periodic strategic risk assessments in the context of its overall business plans, through which the ASX strategic risk environment is analysed. This analysis is used to identify new strategic business initiatives, such as the projects that delivered clearing and settlement of retail CGS, and the ASX Collateral and OTC derivatives clearing services. New projects identified through this process are subject to financial analysis, which includes high, low and base case revenue assumptions and forecasts. Impacts on capital are also determined and analysed.

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 CCP Standard 16.4). Under this framework an initial high-level risk indication is defined at project concept stage. This is followed by a formal project risk assessment undertaken across both project delivery risks and impacts to business activities at the project definition stage. ASX will typically conduct a series of workshops involving project staff to discuss risks associated with the planned service. Prior to the project being approved for launch/production, ASX prepares an operational readiness summary and conducts a final workshop to discuss risks that may be associated with initial launch. This includes consideration of potential failure scenarios and workarounds, procedures for escalation of issues, and help desk and key staff availability.

Following launch, the risks of a new activity are captured in business unit risk profiles that are prepared by business unit management every six months. CALCO also monitors actual and forecast capital and liquidity requirements on a quarterly basis, including the impact of new projects.

14.2 A central counterparty 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 central counterparty 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.

In 2012/13, ASX revised its approach to business risk capital to take into account the requirements of this standard and requirements arising from its own strategic projects; in particular, the introduction of the OTC derivatives clearing service. A capital raising in June 2013 contributed to an increase in ASX's total capital allocations for operational and business risk from $50 million to $225 million across the ASX Group. ASX Group has also historically held surplus capital of $200 to $250 million, and a little over half of the increase in capital allocated to operational and business risk represents a specific allocation from that surplus. This formalises ASX's previous approach to business risk capital, under which business losses would be met by the surplus capital held. Capital allocations for general business risk across the group, including for each CS facility, are published twice a year by ASX.

Of the $225 million allocation, $15 million has been attributed specifically to ASX Clear's operational and business risks. Since ASX has identified constraints to making business risk capital bankruptcy remote within the CCP, this capital is held at the ASX Group level to ensure that it cannot be applied to meet losses caused by a participant default. A group-wide capital buffer provides protection to allocated business risk capital against potential losses sustained elsewhere in the group. While ASX considers that its existing framework provides a sufficient legal basis for the use of funds allocated to ASX Clear at the group level to cover a business risk loss, ASX will further enhance the legal basis for this arrangement through a new clause in the ASX Group Support Agreement. This clause will clarify that the allocation and availability of business risk capital to the CS facilities to support their obligations under the FSS.

In determining the sufficiency of the $15 million in operational and business risk capital set aside for ASX Clear, ASX has estimated the capital required to cover six months of current operating expenses, with an additional buffer to allow for future growth (see CCP Standard 14.3). These funds are also sufficient to cover the estimated largest general business loss that ASX Clear may incur. Loss scenarios considered include facility closure due to external events such as pandemics, the fraudulent redirection of a participant margin payment, or the unauthorised transfer of invested funds.

14.3 A central counterparty 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 central counterparty 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 CCP Standard 4 on credit risk and CCP Standard 7 on liquidity risk. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.

CCP Standard 14.3 comes into effect on 31 March 2014.

ASX Clear intends to articulate its recovery plans following the release of finalised CPSS-IOSCO guidance on recovery planning, expected in late 2013. The capital that ASX Clear would use to fund operations during implementation of a recovery plan is described under CCP Standard 14.2.

14.4 Assets held to cover general business risk should be of high quality and sufficiently liquid in order to allow the central counterparty 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; CGS; 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.

14.5 A central counterparty 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. For example, in June 2013, ASX Limited conducted a capital raising in the form of a $553 million share entitlement offer, with the majority of the funds being used to increase the risk capital and financial resources of the CS facilities. Recapitalisation processes will be reviewed and integrated with broader recovery planning arrangements following the forthcoming release of CPSS-IOSCO guidance referenced in CCP Standard 14.3.

Standard 15: Custody and investment risks

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

Rating: Broadly observed

The assets of ASX Clear and its participants are administered and held within the ASX Group in accordance with robust group-wide controls (CCP Standard 15.1). A portion of these assets is held in liquid form to ensure prompt access as required (CCP Standard 15.2). ASXCC invests the assets of ASX Clear and its participants according to an Investment Mandate that is broadly consistent with ASX's overall risk management strategy and, following changes during the Assessment period, places less reliance on unsecured investments concentrated in the large domestic banks (CCP Standard 15.4). Changes to the ASXCC Investment Mandate go some way towards addressing recommendations made in the Bank's 2011/12 Assessment.

The Bank notes the following steps that ASX Clear should take to strengthen fully observe CCP Standard 15:

- Implement plans to further reduce the concentration of unsecured exposures to the large domestic banks under the ASXCC Investment Mandate. The Bank will also continue to monitor treasury investment policy and continues to encourage a more rapid transition to lower unsecured exposures.

Based on this information, the Bank's assessment is that ASX Clear has broadly observed the requirements of CCP Standard 15 during the 2012/13 Assessment period. ASX Clear's management of custody and investment risks is further described under the following sub-standards.

15.1 A central counterparty 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.

The assets of ASX Clear and its participants are administered and held within the ASX Group. Intragroup arrangements allow ASX Clear to fully understand the nature of its risk exposure to ASXCC and other group members such as Austraclear (for deposit of AUD-denominated debt securities), and this exposure is managed within the context of ASX's overall Clearing Risk Policy Framework. ASX has robust accounting practices, safekeeping procedures and internal controls to protect its own and its participants' assets (as described under CCP Standard 2.7).

Non-cash collateral is held in CHESS. ASX Clear's Operating Rules and Procedures define how collateral is used. ASX Clear does not re-use non-cash collateral posted by participants.

Cash investments, including cash collateral, clearing participant contributions and shareholder funds, are controlled by ASXCC, of which ASX Clear is a subsidiary (see 'ASX Group Structure' in Appendix B). ASXCC makes its investments in accordance with its Investment Mandate and ASX's Investment Policy, which together define investment objectives, investment specifications, and audit and maintenance of the policy (see CCP Standard 15.4).

15.2 A central counterparty should have prompt access to its assets and the assets provided by participants, when required.

ASXCC's Investment Mandate requires that a portion of its portfolio be held in liquid asset form to cover liquidity risks from both general business risks and risks related to ASX Clear's clearing activities. Only investments in instruments that can be liquidated or repurchased (repo'd) for cash within two hours are treated as 'liquid' products (see also CCP Standard 7.4).

15.3 A central counterparty should evaluate and understand its exposures to its custodians, taking into account the full scope of its relationships with each.

ASXCC does not use custodians to hold assets invested on behalf of ASX Clear.

15.4 A central counterparty'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.

ASXCC is the controlling entity for the investments of both CCPs. In respect of both cash margin collected and pooled risk resources, ASXCC invests funds in accordance with a defined treasury investment policy, endorsed by the CS Boards of both CCPs and itself governed by the ASX Enterprise Risk Management Policy. The cash leg of transactions entered into in accordance with this policy is settled across ASXCC's ESA. The treasury investment policy, set out in a high-level policy document and the more detailed ASXCC Investment Mandate, articulates the basis for ASX Clear's mitigation of liquidity risk (CCP Standard 7). The performance of the investment portfolio in relation to this policy is closely monitored by ASXCC, with trigger points to automatically escalate potential issues to the CRO before actual limits are reached. Trigger points are defined for weighted average maturity, percentage of liquid assets in the form of safe custody bank bills, and percentage of total liquid assets held in non-AUD denominated securities.

The Bank's 2011/12 Assessment encouraged ASX to carry out a review of its treasury investment policy. The Bank had expressed concerns that the policy left open the potential for large and concentrated credit exposures to the four largest domestic banks. Further, where an entity related to the issuer counterparty was also a clearing participant, the performance of investments in the portfolio could be correlated with the very default event against which the CCP's risk resources sought to provide cover. ASX carried out this review during the 2012/13 Assessment period, concluding that a gradual move towards lower concentration of investments in the major banks and a greater reliance on secured investments would be appropriate. As a first step, ASX has modified the ASXCC Investment Mandate to reduce the unsecured limit on exposures to the large domestic banks during 2013/14 and, in the event that one of those banks became a clearing participant, would also reduce these limits by the value of the bank's STEL. The concentration of unsecured exposures to the major banks will be further reduced over time if there is growth in the size of the investment portfolio, as the limits on unsecured investments imply that all additional funds in the portfolio must be invested in secured repo arrangements or government securities. Under this approach, a resulting reduction in concentration would depend on factors such as growth in clearing activity leading to growth in the investment portfolio, and changes in the investment environment to support the planned investment strategy. Accordingly, ASX plans to review concentration limits to investment counterparties again in 2014 and 2015. Over the coming Assessment period, the Bank will continue to monitor steps taken by ASX to reduce the concentration of its unsecured investment exposures to the major banks, and will discuss with ASX the reduction in exposure concentrations required to fully observe this standard.

The ASXCC Investment Mandate defines investment counterparty eligibility criteria and sets investment limits in order to control counterparty investment risk.

- *Counterparty eligibility criteria*. Counterparties must be Commonwealth or State Government entities (including the Bank), or APRA-approved ADIs that are licensed banks in Australia under the *Banking Act 1959*. ADIs must also have a Standard & Poor's short-term credit rating of A1 or above. The Investment Mandate does not permit investments in securities of ASX Group entities. Nor is ASXCC permitted to create unsecured exposures to any investment counterparty that is a participant or affiliated with a participant, other than the four major banks.

- *Counterparty investment limits*. Investment limits are set with the overarching requirement that unsecured exposures do not exceed available ASX capital, with the current exception of the largest Australian banks. Counterparty investment limits are determined according to factors such as the credit quality of the counterparty or obligor, the size of available financial resources, and whether eligible investment counterparties and their affiliates are also clearing participants. Limits are set on the proportion of the portfolio and the absolute amount that can be invested with a single counterparty. Limits are also set on the absolute amount of ASXCC's exposure to an individual counterparty, with regard to the resources ASXCC has available to cover an investment counterparty default.

The Investment Mandate aims for quick liquidation of investments with little, if any, price effect. Only investments in instruments that can be liquidated or repo'd for cash within two hours are treated as 'liquid' products, which are defined based on the depth of market liquidity and the terms of investment. Such liquid assets include CGS, bank bills and certificates of deposits. The policy also sets a five-day 'earnings-at-risk' limit based on a defined share of the portfolio at a 99 per cent confidence interval.

ASXCC's Investment Mandate recognises the primacy of maintaining liquidity and credit quality against achieving investment return, given that funds under management are a critical source of liquidity in the event of a market disruption or clearing participant default. The investment policy and limits are reviewed and approved annually by the ASXCC Board. The broad approach to investment and investment holdings is disclosed publicly in the ASX Annual Report.

Standard 16: Operational risk

A central counterparty 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 central counterparty's obligations, including in the event of a wide-scale or major disruption.

Rating: Observed

ASX Clear's key operating systems are DCS and CHESS.

ASX Clear manages its operational risks in the context of its group-wide Enterprise Risk Management Framework (CCP Standard 16.1). Responsibility for approving and reviewing operational risk management policy is shared between the ASX Limited and CS Boards, the Audit and Risk Committee and business units, the last of which are responsible for implementing operational risk controls (CCP Standard 16.2). ASX Clear sets clear operational reliability objectives and pursues policies designed to achieve those objectives. Key objectives for DCS and CHESS, such as minimum availability of 99.8 per cent and peak capacity utilisation of 50 per cent, were met over the Assessment period (CCP Standard 16.3). ASX Clear maintains sufficient well-trained and competent personnel and other resources to operate DCS and CHESS, and ASX has taken steps to ensure business development work did not risk the availability of these resources for key systems during the Assessment period (CCP Standard 16.4).

ASX Clear manages operational interdependencies with participants, ASX Settlement and Austraclear through its participant monitoring processes and group-wide risk management framework (CCP Standard 16.5). Its dependencies on service providers and utilities are subject to ongoing monitoring and contingency arrangements where appropriate. During the Assessment period, ASX Clear strengthened its arrangements with key outsourcing and critical service providers through additional clauses added to legal agreements that support the providers' compliance with FSS requirements, access to information for the Bank, and notice to the Bank in the case of termination (CCP Standards 16.9, 16.10, 16.11).

ASX Clear also maintains business continuity arrangements that provide a high degree of redundancy and, through the use of dual sites, target the resumption of operations within two hours following disruptive events. These arrangements are regularly tested in real time during live operations (CCP Standard 16.7). Participants are required to maintain appropriate operational and business continuity arrangements that complement ASX Clear's own arrangements, and are appropriate to the nature and size of their business. ASX Clear monitors participants' compliance with these requirements, and broader operational performance, on an ongoing basis (CCP Standards 16.6, 16.8).

The Bank notes the following steps that ASX Clear should take to strengthen its observance of CCP Standard 16:

- In order to meet the requirements of CCP Standard 16.11, which comes into effect on 31 March 2014, review its operational arrangements in light of the proposed Australian FMI resolution regime to ensure that they are consistent with the form of the proposed regime once finalised

On the basis of this information, and noting that CCP Standard 16.11 is not yet in force, the Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 16 during the 2012/13 Assessment period. ASX Clear's arrangements for managing operational risks are described in further detail under the following sub-standards.

Identifying and managing operational risk

16.1 A central counterparty 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 Framework (see Standard 3.1). Under this framework, the ASX Limited Board is responsible for reviewing and overseeing the group's risk management systems. The Board delegates review of the Enterprise Risk Management Framework to its Audit and Risk Committee. An Enterprise Risk Management Committee, comprising executives from across ASX's business units, 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 business units. Individual business units 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.

16.2 A central counterparty's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the central counterparty's operational risk management framework. Systems, operational policies, procedures and controls should be reviewed, audited and tested periodically and after significant changes.

The roles and responsibilities for addressing operational risk are clearly defined in the CS Boards' Charter, the Audit and Risk Committee Charter, and the Enterprise Risk Management Framework. As described above, risk responsibilities are shared between the

ASX Limited Board, the CS Boards, the Audit and Risk Committee, the Enterprise Risk Management Committee and individual business units.

Policies and procedures are the subject of internal and external review. ASX's Internal Audit unit routinely monitors compliance with operational policy, reporting to the Audit and Risk Committee on a quarterly basis. Audit findings may prompt a review of policy, which would be conducted in consultation with key stakeholders. Technology-related security policy is reviewed by external auditors twice a year.

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

- The business continuity framework is benchmarked against the Business Continuity Institute's Good Practice Guidelines 2010, the international standard ISO 22301:2012 Business Continuity Management Systems, and the British standard BS 25999 1:2006.
- The technology risk management framework is benchmarked against the ISO 27001:2005 Information Security Management Systems standard.
- The compliance framework is benchmarked to the AS 3806-2006: Australian Standard Compliance Program.
- The ASX Fraud Control Policy is benchmarked against AS 8000-2008: Fraud and Corruption Control.

The risk framework defines a variety of control procedures to support the core operational systems. These include audit logs, dual input checks, management sign-off and processing checklists as the primary preventative controls, supported by reconciliations and management reviews of activity. ASX Clear operates a separate test environment for its core systems (DCS and CHESS) and has a formal, documented change management process. There are also defined procedures for communicating with participants and vendors around technology upgrade releases, which include regular notices to participants of upcoming changes.

16.3 A central counterparty 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.

Availability targets are documented and defined formally for critical services. DCS and CHESS are required to meet a minimum availability target of 99.8 per cent; over the 2012/13 Assessment period both were available 100 per cent of the time.

System capacity is monitored on an ongoing basis, with monthly 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 50 per cent over peak recorded daily volumes, with the ability to increase to 100 per cent over peak within six months. Capacity data are reported monthly to the CEO. Average capacity utilisation of DCS and CHESS over the Assessment period was 16 per cent and 14 per cent respectively, while peak utilisation was 40 per cent for DCS and 23 per cent for CHESS. ASX Clear maintains sufficient technical and human resources to operate DCS and CHESS during peak periods, including in the event of operational incidents or system failure.

Information security policy is implemented using a risk-based decision process, based on AS 4360, relevant federal and state legislation, and other best-practice standards. The goal of ASX's information strategy is to create a strong and reliable security environment that meets business and functional requirements for customers and employees while balancing risk to the organisation, cost of controls, and richness and flexibility of services. Information security policy applies to all employees, consultants, vendors and contractors of ASX. It also applies to all facilities, equipment and services managed by or on behalf of ASX, including off-site data storage, computing and telecommunications equipment. The policy is reviewed annually or when material or organisational changes are made. The last review was in late 2012.

Testing of information security policy is carried out against production infrastructure where possible. This includes penetration testing against the ASX perimeter and vulnerability testing within the perimeter. ASX Clear performs DCS and CHESS security testing on a quarterly basis. ASX operates a suite of controls designed to prevent a successful cyber attack on its systems, such as denial of service or malware threats. These include steps to monitor suspicious internet traffic, 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 described below.

Physical access is controlled at both an enterprise and business unit level. The key systems supporting ASX's clearing and settlement processes are operated within a secure building. Clearing operations are separated from general office areas with permitted access determined at a senior manager level and records of access maintained. Physical security arrangements for the primary and backup data centres are broadly equivalent.

User access for the key systems is restricted to prevent inappropriate or unauthorised access to application software, operating systems and underlying data. User activities are uniquely identifiable and can be tracked via audit trail reports. The level of access is authorised by the system owner with users granted the minimum level of access to systems necessary to perform their roles effectively. External access to ASX systems must pass through multiple layers of firewalls and intrusion prevention, and individual networks are segregated.

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.

16.4 A central counterparty 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 Clear has arrangements in place to ensure that it has well-trained and competent personnel operating DCS and CHESS. Staff are provided with relevant policies and guidelines from commencement of employment, with weekly communications thereafter. Staff are evaluated with reference to each defined operational process. ASX Clear has a formal succession planning and management process in place for key staff.

To facilitate rapid recovery in the event of an operational disruption, ASX intends to increase the number of operational staff based at its secondary operations site, to around 30 per cent from the current 17 per cent. In case of a disruption to staffing arrangements at the primary site for staff, the secondary operations site has capacity to house 65 per cent of all operational staff. [11]

Resources shared with a related body

Within the ASX group structure, most operational resources are provided by ASX Operations Limited, a subsidiary of ASX Limited (see 'ASX Group Structure' in Appendix B). In the event that ASX Operations Limited became subject to external administration, ASX Clear and the other clearing and settlement corporate entities would be able to retain use of resources under provisions within the written support agreement (to the extent permissible by law).

Major projects

Major projects are overseen by the Enterprise Portfolio Steering Committee (EPSC), which is comprised of representatives of the Group Executive. The EPSC is responsible for determining project priorities across the ASX Group and overseeing the quality of project execution. The EPSC is also 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 changes to business. Project management of major projects is undertaken by the Project Management Office (PMO). For projects affecting core systems (including DCS and CHESS), the PMO rates projects to ensure they receive appropriate access to resources. 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 to ensure all appropriate risk management controls are in place prior to live use of a new or updated system or service.

During the Assessment period, ASX undertook work on over 30 projects, including major projects such as the OTC derivatives clearing service in ASX Clear (Futures) and the ASX Collateral service (see Section 4). Work on these projects, often to challenging time frames, in addition to work required by ASX to ensure compliance with the new FSS, has tested the capacity of ASX's existing resources, although targeted deadlines for key projects have largely been met. In order to meet increased demand for resources associated with these projects and ongoing business requirements, ASX has taken on new staff, employed consultants and utilised partnerships with service providers. ASX's resource management is discussed further in Section 3.5.5 of the Assessment report.

16.5 A central counterparty should identify, monitor and manage the risks that key participants, other FMIs and service and utility providers might pose to its operations. A central counterparty should inform the Reserve Bank of any critical dependencies on utilities or service providers. In addition, a central counterparty should identify, monitor and manage the risks its operations might pose to its participants and other FMIs. Where a central counterparty 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.

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

Dependencies on participants and other FMIs

ASX identifies and monitors potential dependencies on participants in a number of ways: by holding regular discussions with participants on risk management processes (see CCP Standard 3.1); as part of its assessments of project-related risks (see CCP Standard 14.1); and through its general monitoring of risks as part of its risk management framework (see CCP Standard 3.1). For ASX Clear, ASX has identified risks relating to its operational activities arising from participants' increased usage of third-party vendors for back-office systems, and participants outsourcing their back-office processing offshore.

- If multiple participants use the system of a vendor that experiences difficulties, these participants may have difficulty connecting to ASX's clearing and settlement infrastructure. If a vendor issue requires significant system changes, ASX Clear's operations may be affected for an extended period. To date this risk has been managed through technical and business continuity requirements on participants, but there are limitations to this approach. Notwithstanding that there are no contractual relationships between ASX and vendors, ASX has commenced a program to develop stronger direct relationships with key participant vendors. This formalises steps taken by ASX to engage with participant vendors, for example to align margin calculations following the introduction of CME SPAN (see CCP Standard 3.1). The objective of the program is to improve vendors' knowledge of ASX technical updates as well as ASX's knowledge of vendor systems and business continuity arrangements.
- Participants' outsourcing of back-office processes and technology to overseas domiciled hubs or third-party vendors may complicate incident management due to differences in time zones and languages, and possible lack of local market knowledge. Such factors, if improperly mitigated, could increase operational risk. ASX is examining options to mitigate these risks. As part of this, ASX Compliance has initiated a spot review on participants' outsourcing arrangements that will benchmark participants against a number of standards, including APRA's outsourcing prudential standard CPS 231.

ASX Clear has an operational interdependence with Austraclear, which is used to settle margin payments, and ASX Settlement, with which it shares the CHESS system. Operational risk associated with this interdependence is managed within the context of the ASX Group's operational risk management framework. ASX Clear does not have significant operational interdependencies with other FMIs.

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 first conducts a tender 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 and provide the Bank with a list of critical outsourcing arrangements on an annual basis. Issues relating to outsourcing and 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, 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.[12] Contractual arrangements with critical service providers require the approval of ASX Clear before the service provider can itself outsource material elements of its service.

All core ASX Clear 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.

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

- 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 72 hours.
- All external communications links to data centres are via dual geographically separated links.
- ASX conducts regular testing of backup arrangements. Major systems are tested on a two year cycle. Participants are notified of business continuity 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), and incident escalation procedures and contacts.

Disclosure

The nature and scope of ASX Clear's dependencies on critical service providers are disclosed to participants through: Operating Rules; Guidance Notes; Notices and Bulletins; technical documentation available on ASX's website for participants; 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.

16.6 A participant of a central counterparty should have complementary operational and business continuity arrangements that are appropriate to the nature and size of the business undertaken by that participant. The central counterparty's rules and procedures should clearly specify operational requirements for participants.

The ASX Clear Operating Rules and Procedures require participants to maintain adequate business continuity arrangements (see CCP Standard 16.8) to allow the recovery of usual operations within two hours following a contingency event. If a participant fails to do so, 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 been experiencing operational problems. These spot checks examine the participant's governance and processes surrounding resilience and business continuity.

[12] 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.

The Operating Rules 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 operational concerns is to work collaboratively with the participant to educate them on their obligations. If the matter is serious, ASX may require that the participant remediate the weakness. Alternatively, ASX may impose conditions on participation, or require that the participant appoint an independent expert to assist with the remediation task.

Business continuity arrangements

16.7 A central counterparty 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 central counterparty to facilitate settlement by the end of the day of the disruption, even in case of extreme circumstances. The central counterparty should regularly test these arrangements.

ASX Clear maintains extensive contingency plans detailing the appropriate operational response to a CS facility disruption, including coverage of the various lines of authority, means of communication, and failover procedures. These plans are updated periodically. ASX Clear policy requires that failover to the backup data centre should occur within two hours for all systems.

ASX Clear employs a variety of technologies to ensure a high degree of redundancy in its systems – both across sites and within a single site. ASX maintains both primary and backup data centres, with hardware at both locations subject to common operational requirements. Key plant and equipment at the primary site are designed to the Uptime Institute Tier 3 standard of concurrent maintainability.[13] 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 errors by 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 will generally take place within an hour under the control of management; however, the disruption to participants in such a case is reduced due to the high degree of redundancy in the front-end system components, which in most circumstances will maintain communications with external systems and queue transactions until the data servers are reactivated. The integrity of transactions is ensured by queuing messages until they can be processed; storing all transactions in the database with unique identifiers, thereby preventing the loss or duplication of transactions; and synchronised replication of database records across both data centres. Furthermore, in the event that a significant part of a system or an operational site fails, ASX Clear has contingency arrangements to activate an additional tier of redundancy arrangements (either by converting

[13] 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.

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 Clear has clearly defined procedures for crisis and event management. These procedures cover incident notification, emergency response (including building evacuation), incident response (including overall incident assessment and monitoring), and incident management testing. ASX maintains a major incident 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 Clear via the Trade Acceptance Service.

ASX Clear regularly tests its business continuity arrangements. Dual site operational teams across the primary and secondary operations sites effectively test backup operational processes on a continuous basis. For those teams not located across both sites, connectivity and procedural testing of the secondary site are performed monthly by representatives from ASX Clear. Live technology tests, where market and clearing and settlement services are provided in real time from the backup data centre, are conducted on a two-year cycle. Test results are formally documented and reported to ASX senior management and are also made available to internal and external auditors. The use of live tests ensures that participant connectivity to the backup data centre is also tested. ASX's business continuity framework is audited externally every three to five years; the most recent audit, conducted in late 2012, found that ASX's business continuity standards were broadly consistent with widely recognised global standards and did not identify any major areas of concern.

16.8 A central counterparty 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 central counterparty.

The ASX Clear Operating Rules 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 specify that participants must have arrangements that allow for the recovery of usual operations. It is ASX Clear's expectation that this would be within two hours following a contingency event. These arrangements are reviewed as part of the participant admissions process. Participants are also subject to spot checks of their ongoing compliance with operational requirements. 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 Clear'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. ASX Clear conducts regular connectivity tests and maintains an external testing environment for system changes.

Outsourcing and other dependencies

16.9 A central counterparty 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 CCP 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 for provision of critical services to ASX Clear. Similar clauses are also included in the Support Agreement between ASX Clear and ASX Operations Pty Ltd, which provides all internal operational services for the facilities. The clauses seek to ensure that the agreements meet the resilience, security and operational performance requirements of the FSS. In particular, the clauses allow the Bank to gather information from the service provider about the operation of critical functions (see CCP Standard 16.10). 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 Clear were to become insolvent, the clauses give the Bank an opportunity to negotiate with the service provider to continue service provision (see CCP Standard 16.11). ASX is applying these clauses to all new agreements with service providers, and has incorporated them into all of its key existing service agreements. This includes ASX Clear's agreement with a third-party vendor for support of risk management software for cash market margining.

16.10 All of a central counterparty'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 central counterparty 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 ASX Clear. ASX is applying these clauses to all new agreements with service providers, and has incorporated them into all of its key existing service agreements, including its agreement with a third-party vendor for support of cash market margining software.

16.11 A central counterparty 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 central counterparty's operations.

CCP Standard 16.11 comes into effect on 31 March 2014.

ASX Clear has begun to take steps to ensure that it will be able to comply with this standard once it comes into effect. Standard clauses in its agreements with service providers (described in CCP Standards 16.9 and 16.10) require that providers give the Bank notice of any intention to terminate the agreement as a consequence of ASX Clear's failure to pay fees, or in the event of the insolvency of ASX Clear or any other relevant ASX entity. This is intended to give the Bank an opportunity to take action to remedy the breach or otherwise ensure continued service provision.

ASX Clear's arrangements to ensure continuity of operations in the event of a crisis will be shaped by the proposed introduction into Australian law of a resolution regime for FMIs. This was foreshadowed in consultations undertaken by the Council of Financial Regulators and Treasury in 2011 and 2012. ASX Clear will need to ensure that its arrangements to support continuity of operations in a crisis are appropriately adapted to the proposed FMI resolution regime.

Standard 17: Access and participation requirements

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

Rating: Observed

ASX Clear has objective and transparent participation requirements set out in its Operating Rules and Procedures (CCP Standard 17.1). These requirements include minimum capital and other financial requirements, as well as operational and risk management arrangements that are tailored to the specific activities of ASX Clear (CCP Standard 17.2). ASX Clear monitors participants' compliance with requirements on an ongoing basis, and has the authority to suspend or terminate participation, or take other disciplinary or remedial action in the event of a breach of these requirements (CCP Standard 17.3).

In order to strengthen its observance of CCP Standard 17, ASX Clear is encouraged to carry out the planned review of risk-based capital requirements for participants (CCP Standard 17.2).

Based on this information, the Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 17 during the 2012/13 Assessment period. ASX Clear's access and participation requirements are described in further detail under the following sub-standards.

17.1 A central counterparty 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 Clear has objective and transparent participation requirements, which are publicly available and form part of its Operating Rules and Procedures. The Operating Rules and Procedures provide for an appeals process should an application for participation be rejected or a participant's access be terminated.

At the end of June 2013, ASX Clear had 40 participants (excluding inactive participants) – 11 of these were participants that offer clearing services to related entities or third parties.

17.2 A central counterparty's participation requirements should be justified in terms of the safety of the central counterparty and the markets it serves, be tailored to and commensurate with the central counterparty's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, a central counterparty should endeavour to set requirements that have the least restrictive impact on access that circumstances permit.

ASX Clear's participation requirements are designed to promote the safety and integrity of the CCP. They cover minimum capital and financial obligations, business and managerial requirements, operational resources and capabilities, business continuity arrangements, and risk and liquidity management arrangements.

Participants are required to comply with a risk-based capital regime under which participants must hold 'liquid capital' in excess of a 'total risk requirement'.[14] This reflects counterparty risk, large-exposure risk, position risk and operational risk. Brokers that do not have a need to undertake their own clearing, or choose not to hold the required amount of capital, may use the services of General Participants (see CCP Standard 18). Currently, Direct Participants that do not clear for other brokers must maintain a minimum of $5 million in 'core capital'.[15] ASX Clear requires that General Participants maintain a higher level of capital, currently $20 million. ASX management has discretion to impose a higher requirement. Participants that only clear futures may elect to be covered by an alternative capital regime, either on a net tangible asset (NTA) requirement or compliance with the regime of a prudential supervisor. Since August 2013, the alternative of compliance with the regime of a prudential supervisor has been extended to participants undertaking clearing activities for all products in ASX Clear. At the end of the Assessment period all but two of ASX Clear's 40 participants were subject to the risk-based regime, with one participant making use of each of the alternative regimes.

Several aspects of ASX Clear's capital requirements have recently been or are currently subject to review:

- As noted above, ASX Clear's Operating Rules were amended in August 2013 to allow participants undertaking the full range of clearing activities in ASX Clear to be comply with capital requirements via their compliance with the regime of a prudential supervisor. These rule changes were designed to enable ADIs to fully participate in clearing activities at ASX Clear.
- In the second half of 2013, ASX plans to consult with participants and other stakeholders on proposed changes to participation requirements across the two CCPs to achieve greater consistency. This will include consultation on whether to implement a further increase in 'core capital' requirements for Direct Participants in ASX Clear to $10 million.
- Also in the second half of 2013, ASX will be reviewing the risk-based capital regime that applies to most participants in ASX Clear. This review will address the continued need to calculate a risk-based formula for capital requirements, in light of the increase in NTA requirements in recent years, and to consider the appropriateness of such a formula in quantifying the risks generated by the activities of larger participants. Irrespective of the review's conclusions, consideration will need to be given to how information gathered by ASX in order to monitor compliance with the risk-based capital regime, and which may be useful for broader risk-monitoring purposes, can be retained.

Under the Operating Rules and Procedures, a potential participant must satisfy ASX Clear that it 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. A participant must also demonstrate that it has the capacity to make an immediate transfer of funds, on demand, should this be required to meet its obligations.

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[14] 'Liquid capital' is defined by ASX to comprise total tangible shareholders' funds held in liquid assets, net of any guarantees and indemnities.

[15] 'Core capital' is defined by ASX to be the sum of: all paid-up ordinary share capital; all non-cumulative preference shares; all reserves, excluding revaluation reserves; and opening retained profits/losses, adjusted for current year movements.

17.3 A central counterparty 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.

The CRM unit, which covers both CCPs and reports to the CRO, is responsible for risk management in respect of clearing participants. CRM monitors day-to-day developments regarding, among other things, financial requirements, risk profiles, open positions and settlement obligations to the CCPs. Within CRM, the Counterparty Risk Assessment team is responsible for monitoring, assessing and investigating matters relating to financial requirements, including monitoring participants' monthly financial statements for any matters of concern. CRM also carries out a range of participant monitoring spot checks and other initiatives designed to validate the accuracy of the financial and operational information that participants submit to ASX Clear. CRM is also responsible for determining and reviewing participants' ICRs, drawing in part on information provided by participants in their regular financial returns to ASX, and coordinating a 'watch list' of participants deemed to warrant more intensive monitoring (see CCP Standard 4.1). In addition Operations and Compliance perform regular and ad hoc compliance monitoring activities.

ASX Clear has wideranging powers to sanction its participants in order to preserve the integrity of the CCP. ASX Clear may restrict, suspend or terminate a participant's authority to clear some or all market transactions in the event of a default, or in the event of a breach of the Operating Rules and Procedures that may have an adverse effect on the CCP. The action taken will depend on a number of factors, including the materiality of the incident, the participant's financial and operational capacity as well as the participant's history of compliance. Where a breach has been identified and the participant has taken appropriate steps to rectify it, ASX Clear 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 the Executive Office of ASX Compliance for formal disciplinary action. An example of steps taken by ASX Clear to sanction a participant that was unable to meet a CAC call is described under CCP Standard 4.3.

Standard 18: Tiered participation arrangements

A central counterparty should identify, monitor and manage the material risks to the central counterparty arising from tiered participation arrangements.

Rating: Observed

During 2012/13, clients of ASX Clear's participants represented 85 per cent of derivatives initial margin held by ASX Clear in respect of its credit exposures to both participants and (indirectly) their clients. In managing the risks associated with tiered arrangements, ASX Clear is able to gather information on indirect participation, but its ability to monitoring tiering risks is limited by the commingling of house and client cash market positions. This is mitigated by an ability to seek more granular information from participants on an ad hoc basis (CCP Standards 18.1, 18.2). ASX Clear does not maintain formal thresholds at which substantial indirect participants are encouraged to seek direct participation, but does actively manage risks posed by indirect participant activity through its relationship with the direct participant (CCP Standard 18.3). ASX Clear is currently developing a formal policy for monitoring concentration in tiered participation arrangements, including mitigating steps (CCP Standard 18.4).

The Bank encourages ASX Clear to investigate options to improve its ability to monitor risks arising from tiered participation arrangements (CCP Standard 18.1). These may include options to gather more granular data in respect of cash markets in light of any changes to cash equity client account structures, and more broadly options to automate existing monitoring activities in respect of tiered participation risks.

Based on this information, the Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 18 during the 2012/13 Assessment period. ASX Clear's approach to tiered participation arrangements is described in further detail under the following sub-standards.

18.1 A central counterparty 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 central counterparty arising from such tiered participation arrangements.

ASX Clear is able to gather information on indirect clearing of equity derivatives by virtue of the individually segregated account structure employed for these products. There are, however, practical limitations in the analysis of indirect participation in cash securities clearing, as the commingled account structure means that ASX is unable to separately identify client positions either at an aggregate or individual level. Options for improving ASX Clear's ability to monitor indirect clearing of securities trades will depend on the outcome of its consultation on account structures (see CCP Standard 13). ASX Clear will reconsider its options for concentration monitoring in this market once the results of this consultation are known. However, ASX Clear is able to monitor significant changes to indirect participation arrangements through its regular risk discussions with participants, including third-party clearers. Business Development, ASX Compliance, Clearing and Settlement Operations and CRM are each involved in the discussion of changes to participants' business models, including those that relate to tiered participation arrangements. For instance, ASX's discussions with third-party clearers have identified situations in which clients of a trading participant clearing via a third-party clearer have taken up large options positions, and in which a third-party clearer took on significant new third-party business over a short period. In both situations ASX increased monitoring of the participants' positions and investigated whether the participants in question had adequate resources and risk management arrangements in place to properly manage the additional risks posed by these situations.

If required, ASX Clear requests more granular information on any indirect client from participants. This information may include further details about the indirect participant including, but not limited to, their intentions in regards to their open positions or physical delivery. In addition, ASX Clear also has an ongoing program of 'thematic' participant reviews, covering risk topics of interest or concern, which could potentially encompass tiering risks if ASX Clear were to perceive an increased risk from indirect relationships. ASX Clear currently considers the risks from concentration of indirect participants to be low.

18.2 A central counterparty should identify material dependencies between direct and indirect participants that might affect the central counterparty.

As noted under CCP Standard 18.1, ASX Clear monitors dependencies arising from tiered participation indirectly through a variety of means, including regular discussions with participants on developments in their business and risk management activities, participants' own risk assessments, discussions with new participants as part of the induction process, monitoring of delivery risk (e.g. options expiries), and ASX Clear's broader array of risk management data collection and monitoring activities. Based on this information, ASX Clear has not identified any material dependencies between direct and indirect participants.

18.3 A central counterparty should identify indirect participants responsible for a significant proportion of transactions processed by the central counterparty and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the central counterparty in order to manage the risks arising from these transactions.

An important potential source of tiered participation risks in ASX Clear arises in the context of the third-party clearing market. Much of the activity in third-party clearing is concentrated in a single participant, but over the Assessment period this participant represented only a small proportion of total positions held at ASX Clear. ASX monitors this participant, and the third-party clearing market more broadly, in the context of its participant monitoring activities described under CCP Standard 18.1.

ASX encourages participants to develop appropriate risk control measures in managing their relationships with indirect participants. ASX does not set thresholds, either formal or informal, at which it would encourage direct participation by an indirect participant. In general, ASX's approach to managing risks associated with participants' business activities is based on a robust risk management framework with the flexibility to detect and react to new risks as they arise, rather than setting firm *ex ante* activity limits. This approach has worked well in managing risk events in recent Assessment periods, notably in managing the default of MF Global in late 2011. In the 2012/13 Assessment period, ASX Clear's participant enforcement was important in managing the transition to regular cash-equity margin collections, which required adjustments to the risk management policies and business activities of some participants.

18.4 A central counterparty should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.

ASX is undertaking a broad review of its concentration risk policy due to be finalised in early 2014, including its approach to the risks arising from tiered participation. The policy will set out key concentration indicators for ASX Clear to monitor, including metrics measuring concentration across clearing participants, across clients and across products. The policy will also address possible mitigating action, although ASX recognises that indicators may return a number of false positives.

Standard 19: FMI links

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

Rating: Observed

ASX Clear maintains links to two other FMIs – ASX Settlement and Austraclear. There are no financial risks associated with these links, but ASX Clear is exposed to operational risks, which are managed in the context of ASX's group-wide framework for operational risk management (CCP Standard 19.1). The legal basis of each link is supported by finality legislation, and link arrangements have been discussed with the Bank (CCP Standards 19.2, 19.3). ASX Clear does not maintain links with any other CCPs (CCP Standards 19.4, 19.5).

Based on this information, the Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 19 during the 2012/13 Assessment period. ASX Clear's management of link-related risks is described in further detail under the following sub-standards.

19.1 Before entering into a link arrangement, and on an ongoing basis once the link is established, a central counterparty should identify, monitor and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that the central counterparty is able to comply with these CCP Standards.

Identifying link-related risks

ASX Clear maintains two links with other FMIs. A link for the purposes of this standard is any connection that is made to another FMI according to a set of contractual and operational arrangements, regardless of the complexity or otherwise of the link and whether it is directly with the FMI or through an intermediary.

The first link is with Austraclear for funds transfers other than the settlement of securities-related payments, such as 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, are submitted automatically to Austraclear by ASX Clear's margin and collateral systems.

The second link is with ASX Settlement for the 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 operates across both ASX Clear and ASX Settlement.

Managing operational risk

The links to ASX Settlement and Austraclear are subject to the same operational risk management framework that applies for all the ASX CS facilities, which addresses operational risks associated with software, infrastructure or network failures and manual processing errors. Incident reports are prepared for each significant technical or operational incident, with 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. Austraclear operations are also covered by the Austraclear System Business Operations Plan, which includes a 'Step-in and Service' agreement with the Bank.

Managing financial risk

ASX Clear does not assume any financial risks by virtue of its links to other FMIs.

19.2 A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the central counterparty and other FMIs involved in the link.

ASX Clear's links to ASX Settlement and Austraclear have their legal basis in the ASX Settlement Operating Rules and Procedures, and the Austraclear Regulations and Procedures. The finality of settlements made via these links is ensured by approvals of Austraclear under Part 2 of the PSNA and ASX Settlement under Part 3 of the PSNA (see CCP Standard 1.5).

19.3 Where relevant to its operations in Australia, a central counterparty should consult with the Reserve Bank prior to entering into a link arrangement with another FMI.

ASX Clear has discussed its current link arrangements with the Bank. ASX Clear did not enter into any new link arrangements during the Assessment period.

19.4 Before entering into a link with another central counterparty, a central counterparty should identify and manage the potential spillover effects from the default of the linked central counterparty. If a link has three or more central counterparties, a central counterparty should identify, assess and manage the risks of the collective link arrangement.

ASX Clear has no links with other CCPs.

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

ASX Clear has no links with other CCPs.

Standard 20: Disclosure of rules, key policies and procedures, and market data

A central counterparty 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 central counterparty. All relevant rules and key policies and procedures should be publicly disclosed.

Rating: Broadly observed

ASX Clear fully discloses its Operating Rules and Procedures to participants, and publicly discloses its rules and a range of additional relevant information on its risk management procedures (CCP Standard 20.1). This includes information regarding the process of novation, and general descriptions of system design and the roles of ASX Clear and its participants (CCP Standards 20.2, 20.3). ASX Clear provides new participants with comprehensive documentation, and verifies their understanding of their responsibilities as participants; existing participants are also provided with education on their obligations where required (CCP Standard 20.4). ASX has published a high-level Disclosure Framework document, but will be expected to expand on this over the next Assessment period (CCP Standard 20.5).

The Bank notes the following steps that ASX Clear should take to fully observe CCP Standard 20:

- Publish an expanded Disclosure Framework document, in a form consistent with that prescribed by CPSS-IOSCO, setting out in detail how ASX Clear meets the requirements of each of the Principles (CCP Standard 20.5).

ASX Clear is also encouraged to provide a central location on the ASX website linking to all information that is subject to disclosure requirements under the FSS. Currently this information is spread across a range of pages.

Based on this information, the Bank's assessment is that ASX Clear has broadly observed the requirements of CCP Standard 20 during the 2012/13 Assessment period. ASX Clear disclosure of rules, key policies and procedures, and market data is described in further detail under the following sub-standards.

20.1 A central counterparty 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 CCP Standards 1.4, 2.2, 12.3, 13.4, 15.4, 17.2 and 17.3).

ASX Clear's Operating Rules and Procedures form the basis of all material aspects of the CCP's service to participants. The Operating Rules and Procedures are disclosed on ASX's public website.[16] The Operating Rules and Procedures are also posted on ASX's participant website.

To assist participants in their understanding of the risks of participating in ASX Clear, and for the information of other interested stakeholders, ASX publishes a range of additional material on its public website. Information specific to ASX Clear includes information about risk management, default management, margins and capital-based position limits, and business continuity arrangements. 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 ASX Group's compliance with the Principles. ASX also operates a dedicated website that discloses information relevant to the clearing and settlement of cash equities, to support its disclosure responsibilities under the Code of Practice.

Specific disclosure requirements are dealt with under CCP Standards 1.4, 2.2, 12.3, 13.4, 15.4, 17.2 and 17.3.

20.2 A central counterparty's rules, policies and procedures should clearly identify the nature and scope of the risk exposure assumed by the central counterparty, such as by novation, open offer or other similar legal devices. A central counterparty's rules, policies and procedures should clearly identify the point in the clearing process at which the central counterparty assumes the risk exposure.

ASX publishes on its public website an overview of how the CCPs would manage a clearing participant default, which includes information about the purpose of novation, the point at which novation occurs, and the scope of contractual arrangements. Section 12 of ASX Clear's Operating Rules sets out the arrangements for registration of market contracts, including the point at which a contract is considered to be registered and at which ASX Clear assumes the risk exposure of a trade for transactions on the ASX or Chi-X markets, or OTC equity options (see CCP Standard 1.5).

20.3 A central counterparty should disclose clear descriptions of the system's design and operations, as well as the central counterparty's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the central counterparty (see CCP Standards 2.8 and 9.5).

General descriptions of ASX Clear's system designs and operations are detailed in the 'Disclosure Framework' document, available on ASX's public website (see CCP Standard 20.5).[17] This 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

[16] Available at <http://www.asxgroup.com.au/asx-clear-operating-rules-guidance-notes-and-waivers.htm>.
[17] Available at <http://www.asxgroup.com.au/media/pfmi_disclosure_framework.pdf>.

regulatory framework for clearing and settlement, and provides a high-level overview of steps taken by ASX to ensure compliance with the Principles and the corresponding FSS. ASX's public website also provides introductory information, including high-level descriptions of systems and operations, for each CS facility.

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

All applicants for participation in ASX Clear are provided with a comprehensive application pack, which includes information regarding key requirements of the facilities. Applicants are provided with access to the Operating Rules, Procedures and Guidance Notes via the ASX website, as well as publicly available information about the facilities, services and participation requirements. When ASX Clear has completed an initial assessment of an application, the applicant is also invited to attend formal 'on boarding' meetings with the Compliance, Clearing Risk Management and Operations units to discuss key areas of importance for participants.

As part of the formal admission process, the applicant must provide supporting evidence demonstrating its capacity to comply with the rules. This is reviewed and discussed with the applicant prior to approving admission. For example, ASX Clear and ASX Settlement participants are required to have a management plan which outlines the governance, risk and compliance arrangements of the participant. When reviewing the submissions, ASX will make enquiries of participants about their risk assessments, the design of the controls to mitigate those risks, and the applicable supervisory arrangements.

Where ASX becomes aware of a participant demonstrating a lack of understanding of the Operating Rules and Procedures, or the risks of participation, ASX will generally work collaboratively with the participant to educate them on their obligations. ASX may become aware of issues through its normal risk monitoring activities or through its regular discussions with participants. Examples of matters that might raise concerns are if a participant was slow in making required payments, or had a high frequency of intraday margin calls. Steps available to ASX to address serious matters may include ASX calling for AIM or additional cover from that participant, requiring the participant to hold additional capital, requiring the participant to remediate the weakness, imposing conditions on participation; or requiring that the participant appoint an independent expert to assist with the remediation task (see also CCP Standard 16.6).

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

ASX has published a Disclosure Framework document that describes its approach to meeting the disclosure framework, including a summary of ASX's self-assessment of how its CS facilities meet the applicable principles. ASX will update this document to reflect information provided to the Bank through the annual Assessment process. This update will add more detail as to how the CS facilities meet the Principles and corresponding FSS. ASX plans to update the document at least annually or as necessary. The Bank will be monitoring how ASX elaborates on this disclosure document over the forthcoming Assessment period.

Standard 21: Regulatory reporting

A central counterparty 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 central counterparty should also regularly provide information to the Reserve Bank regarding its financial position and risk controls on a timely basis.

Rating: Observed

The Bank meets regularly with ASX Clear to discuss matters relevant to its compliance with the FSS, and related aspects of its risk management and operational arrangements, and has been kept informed of relevant developments during the Assessment period (CCP Standard 21.1). ASX Clear provides the Bank with financial, activity, risk and operational data and reports on a regular and timely basis (CCP Standard 21.2).

The Bank's assessment is that ASX Clear has observed the requirements of CCP Standard 21 during the 2012/13 Assessment period. ASX Clear's regulatory reporting arrangements with the Bank are described under the following sub-standards.

21.1 A central counterparty should inform the Reserve Bank as soon as reasonably practicable if:

(a) it breaches, or has reason to believe that it will breach:

(i) a CCP 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 central counterparty becomes subject to external administration, or if the central counterparty 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 central counterparty has reasonable grounds for suspecting that a participant will become subject to external administration;

(e) a participant fails to meet its obligations under the central counterparty's risk control requirements or has its participation suspended or cancelled because of a failure to meet the central counterparty'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 central counterparty; or**

(n) **any other matter arises which has or is likely to have a significant impact on its risk control arrangements (see also CCP Standards 1.6, 16.10 and 19.3).**

Three routine quarterly meetings are held between the Bank and ASX:

- executive-level meetings to discuss developments relevant to compliance with the FSS, involving the Chief Risk Officer and other relevant members of ASX's management team
- risk management meetings, involving general managers and other staff responsible for clearing risk policy and the implementation of risk management arrangements
- operations meetings, involving the Executive General Manager, Operations, and other members of the management team responsible for implementation of operational strategy, management of operational risk and business continuity planning.

In addition, the Bank, ASIC and ASX hold a monthly meeting to discuss matters of common interest, including proposed rule changes and regulatory developments. 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 audits. Matters discussed in the formal scheduled meetings are followed up, as appropriate, in more focused targeted sessions.

The Bank expects to be notified immediately of any significant developments in ASX Clear's risk exposure; for example, if ASX Clear has reason to believe that a participant default may be imminent or there is evidence of distress in ASX Clear's markets. Notification to the Bank of significant developments is specified in many of ASX's key internal risk management policies. The Bank and ASX hold ad hoc meetings to discuss relevant matters as required.

During the 2012/13 Assessment period, ASX kept the Bank up to date with several minor operational incidents and the status of important project milestones, such as the introduction of cash equity margining, development of the OTC derivatives clearing service in ASX Clear (Futures), and the rollout of ASX Collateral. The Bank is satisfied with its level of communication with ASX over this period.

21.2 A central counterparty 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, including detailed information on margining and stress testing, 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, while ASX provides the Bank with quarterly statements of balance sheet, income, and collateral held for each CS facility.

The Bank conducts a quarterly review of ASX's adherence to the FSS, focusing on any material developments in its risk management activities. As part of this review process, ASX provides a quarterly risk management report, as well as detailed activity, risk and operational data. The risk management report includes information on stress-test results, adequacy of financial resources, and developments in risk management policy. Data provided quarterly to the Bank include changes to participants' ICRs, daily margin collections (including intraday margin calls), stress-test results, collateral holdings, and any late payments. Quarterly risk management review meetings between the Bank and ASX provide a forum for discussion of developments.

From time to time the Bank will request additional information from ASX Clear on topics of interest, particularly in regard to any operational incidents or the status of projects with significant risk implications.

During the second half of 2013, the Bank will be conducting a review of the data it collects from ASX to better support its assessment of the CS facilities against the requirements of the FSS.