2014 Assessment of ASX Clearing and Settlement Facilities

CPSS-IOSCO Principles for Financial Market Infrastructures

September 2014

Contents

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1. Introduction and Executive Summary

The *Principles for Financial Market Infrastructures* (the PFMIs), published by the Committee on Payment and Settlement Systems (CPSS, now the Committee on Payments and Market Infrastructures (CPMI)) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) in April 2012,[1] establish a set of international standards for financial market infrastructures (FMIs). The principles within the PFMIs consist of 24 headline 'Principles', each supported by one or more 'Key Considerations' containing more detailed requirements for FMIs. The scope of the Principles includes central counterparties (CCPs) and securities settlement facilities (SSFs) – collectively, clearing and settlement (CS) facilities – as well as systemically important payment systems and trade repositories.[2]

This report presents the joint Assessment of the Australian Securities and Investments Commission (ASIC) and the Reserve Bank (the Bank) as to how well the four licensed CS facilities in the ASX Group (ASX) – the two CCPs, ASX Clear Pty Limited (ASX Clear) and ASX Clear (Futures) Pty Limited (ASX Clear (Futures)); and the two SSFs, ASX Settlement Pty Limited (ASX Settlement) and Austraclear Limited (Austraclear) – observed the requirements of the Principles as at 30 June 2014 (the PFMI Assessment). Consistent with their international responsibilities, ASIC and the Bank have committed to periodically carry out PFMI Assessments of licensed domestic CS facilities.

The PFMI Assessment draws heavily on the Bank's assessment of the ASX CS facilities against Financial Stability Standards (FSS) determined by the Bank, which is published alongside this report (the FSS Assessment).[3] The FSS are fully aligned to requirements in the Principles and associated Key Considerations that address matters relevant to financial stability. They do not, however, incorporate several Principles and Key Considerations that are solely relevant to ASIC's regulatory remit. In addition, the FSS contain several more detailed requirements that go beyond the minimum standard set out in the Principles. This report therefore repackages the material in the FSS Assessment, principally for an international audience, and adds information relevant to ASIC's responsibilities so as to cover the full range of relevant Principles. Also published alongside this report is a Self-assessment of ASIC's and the Bank's regulation and oversight of CS facilities against the *Responsibilities for central banks, regulators and other relevant authorities for financial market infrastructures* (the Responsibilities), which also form part of the PFMIs.[4]

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1 The Principles are available at <http://www.bis.org/publ/cpss101.htm>.

2 In this report, 'clearing and settlement facility' is defined as in Part 7.1, Division 6 of the *Corporations Act 2001*.

3 The FSS Assessment is available at <http://www.rba.gov.au/payments-system/clearing-settlement/assessments/2013-2014/index.html>.

4 The Self-assessment against the Responsibilities is available at <http://www.rba.gov.au/payments-system/policy-framework/principles-fmi/responsibilities-of-authorities.html>.

This report has been produced by ASIC's Financial Market Infrastructure Stakeholder Team and the Bank's Payments Policy Department. It is expected that this report will be an input into ongoing work of the CPMI and IOSCO to monitor implementation of the PFMIs across jurisdictions, including Australia.

The Assessment concludes that the ASX CS facilities either observe or broadly observe all relevant Principles. ASIC and the Bank have nevertheless made a number of recommendations to further strengthen the ASX facilities' observance of requirements under the Principles. Some recommendations have also been made to encourage continuous improvement, even where relevant requirements have been observed.

1.1 Background

The *Corporations Act 2001* establishes conditions for the licensing and operation of CS facilities in Australia and gives ASIC and the Bank powers and responsibilities relating to these facilities. These powers are exercised under the governance of ASIC's Commission and the Bank's Payments System Board (PSB), respectively. The regulators' respective roles are defined in the Corporations Act.

- The Bank is responsible for ensuring that CS facilities comply with FSS that it determines, and that facilities take any other necessary steps to reduce systemic risk.
- ASIC is responsible for ensuring that CS facilities comply with all other obligations under the Corporations Act, including the fair and effective provision of services.

The Bank has determined two sets of FSS relevant to its oversight of CS facilities: one which applies to CCPs (CCP Standards), and another which applies to SSFs (SSF Standards).

ASX operates four licensed CS facilities: two CCPs and two SSFs.

- *CCPs*. A CCP acts as the buyer to every seller, and the seller to every buyer in a financial market. It does so by interposing itself as the legal counterparty to all purchases and sales via a process known as novation:
  - ASX Clear provides CCP services for cash equities, debt products and warrants traded on the ASX and Chi-X markets, and equity-related derivatives traded on the ASX market.
  - ASX Clear (Futures) provides CCP services for futures and options on interest rate, equities, energy and commodity products traded on the ASX 24 market, as well as Australian dollar-denominated over-the-counter (OTC) interest rate derivatives.
- *SSFs*. A SSF provides for the final settlement of securities transactions and the maintenance of records of transfer of title:
  - ASX Settlement provides SSF services for cash equities, debt products and warrants traded on the ASX and Chi-X markets; ASX Settlement also provides SSF services for non-ASX listed securities.
  - Austraclear provides SSF services for trades in debt securities, including government bonds and repurchase agreements.

1.2 Assessment

This Assessment was conducted as at the end of June 2014. Consistent with the division of responsibilities for oversight of CS facilities under the Corporations Act, ASIC and the Bank have allocated responsibility for the assessment of each of the Principles between the two authorities (see Section 2.2 and Table A1 in Appendix A). On the basis of the evidence presented in this report, ASIC and the Bank have concluded that the ASX CS facilities either observe or broadly observe all relevant Principles. The areas in which the ASX facilities have been found to broadly observe the requirements of the Principles relate to the CCPs' model validation framework and investment policy, as well as three areas in which the Bank granted transitional relief from the corresponding requirements of the FSS: recovery planning; segregation and portability; and liquidity risk management.

Model validation

During 2013/14, ASX significantly enhanced its model validation approach, including by:

- implementing substantial enhancements to the backtesting and sensitivity analysis of margin models
- introducing reverse stress testing
- engaging external experts for a three-year period to undertake a comprehensive validations of all key risk models.

As a result of ASX's progress in this area, the Bank's assessment is that both ASX Clear and ASX Clear (Futures) have observed most relevant model validation requirements under the Principles. Aside from a specific recommendation around liquidity stress testing at ASX Clear (see below), it is expected that both CCPs will fully observe all relevant requirements once the first year of the independent external model validation program has been completed. The CCPs are also encouraged to continually refine and enhance their margin backtesting, sensitivity analysis and reverse stress-testing methodologies and their integration into existing risk management processes.

Investment risks

In its recent assessments of the ASX CCPs against the FSS, the Bank has expressed the concern that the ASX CCPs' treasury investment policy allows relatively large and concentrated exposures to a small number of domestic banks. In response, ASX has lowered the limits on its unsecured exposures to the large domestic banks, and taken steps to improve its capacity to both make secured investments and invest with a broader range of high-quality counterparties. While the Bank welcomes the steps taken to date, it expects further progress before the ASX CCPs will be deemed to have fully observed the relevant Principle. The Bank has opened a dialogue with ASX on the detail of its expectations around credit limits on unsecured exposures to non-government-related entities and the liquidity profile of the investment portfolio. This dialogue will reveal any practical issues or implementation challenges. It will also clarify a reasonable time frame over which a transition should be achieved.

FSS transitional relief

A small number of CCP and SSF Standards that were previously subject to transitional relief came into effect at end March 2014. ASX has made a number of enhancements to rules and processes relevant to the CS facilities' observance of the corresponding requirements of the Principles. Some of this work is, however, ongoing. It is expected that the relevant ASX facilities will fully observe these requirements once the remaining work is completed (in most cases during the coming year).

- *Recovery planning.*[5] While final CPSS-IOSCO guidance on recovery planning has still not yet been published, in early 2014 ASX developed a basic recovery plan based on the facilities' existing powers under their Operating Rules. ASX has also formulated a plan to enhance those rules in order to be able to fully address any uncovered credit losses and liquidity shortfalls and replenish financial resources following a participant default. It plans to consult on its proposed recovery approach in the second half of 2014.

- *Segregation and portability.* In accordance with requirements of the Principles, ASX Clear (Futures) has introduced individual client segregation within its account structures for both OTC derivatives and exchange-traded futures. Sitting alongside the pre-existing omnibus client account structure for exchange-traded products, the new arrangements give clients a choice in the level of protection they receive and the likelihood that positions and associated collateral could be transferred to an alternative participant in the event of a clearing participant default. ASX Clear has also implemented the first of two phases of enhancements to its cash market arrangements to provide clients with equivalent protection to house/client omnibus segregation. Implementation of the second phase will be required for ASX Clear to fully observe the relevant Principle.

- *Liquidity risk.* Both CCPs' prefunded liquid resources are currently considered to be sufficient to meet the required level of cover for liquidity exposures arising from derivatives transactions. However, ASX Clear's prefunded liquid resources may not be sufficient to cover extreme but plausible payment obligations arising from the settlement of cash equity transactions. In April 2014, ASX introduced changes to its Operating Rules whereby participants commit to provide liquidity to ASX Clear to address any funding shortfall. Under these arrangements, ASX Clear would settle transactions by entering into 'offsetting transaction arrangements' with participants that were due to deliver securities to the defaulted participant. The Bank considers these arrangements to be consistent with the relevant Principle. ASX plans to make enhancements to ASX Clear's liquidity stress testing, including to routinely provide more information to management and the Bank on the degree of contingent reliance on offsetting transaction arrangements. The Bank will monitor these enhancements and discuss further with ASX how such information might best be disseminated to participants to support their liquidity management and planning.

The remainder of this report is structured as follows. Section 2 provides an overview of the clearing and settlement landscape in Australia, while Section 3 summarises the conclusions and recommendations arising from ASIC's and the Bank's detailed assessment of each ASX CS facility against the Principles. Finally, the detailed assessments of the ASX CS facilities against the Key Considerations for each Principle are set out in Appendix A.

5 Recovery refers to steps taken by an FMI to respond to a threat to its continued viability; the related concept of resolution refers to steps taken by public authorities to restore an FMI in distress to viability or wind it down.

2. Overview of the Clearing and Settlement Landscape

2.1 Clearing and Settlement in Australia

CCPs and SSFs are key components of the financial system, delivering services critical to the smooth functioning of securities and derivatives markets.

- A CCP acts as the buyer to every seller, and the seller to every buyer in a financial market. It does so by interposing itself as the legal counterparty to all purchases and sales via a process known as novation. Following novation, the exposure of all parties – whether it be for the few days until an equity trade is settled, or for the several years of payment flows under a longer-term interest rate swap contract – is to the CCP, rather than the bilateral counterparty in the original trade.
- A SSF provides for the final settlement of securities transactions, executed either over the counter or on an exchange, and the maintenance of records of transfer of title. Settlement typically involves transfer of the title to the security and transfer of cash. These functions are linked via appropriate delivery-versus-payment (DvP) arrangements incorporated within the settlement process.

Well-designed and reliable CS facilities can be a source of both financial stability and operational efficiency. Indeed, this has been the experience in Australia and internationally. CS facilities act as a coordinating device in financial markets, bringing a network of counterparties together to support liquidity and the netting of exposures and settlement obligations. They also establish secure arrangements for the timely clearing and settlement of obligations between counterparties, assist institutions in the management of counterparty credit risks, and help to coordinate actions in the event of a market participant's default.

Many of these benefits derive from the size and breadth of the network that a CS facility controls. Accordingly, there is a tendency towards a single CS facility, or relatively few CS facilities, providing services in any given market. This is currently the case in Australia where, with the exception of CCP services in the market for OTC derivatives, only one CS facility operates in each product market.

Given their typically large size, their lack of substitutability in the markets they serve, and strong connections with banks and other financial institutions, CS facilities are generally systemically important. Indeed, this is the presumption in the PFMIs (PFMIs, p 12). Accordingly, it is critical that both CCPs and SSFs identify and properly control risks associated with their operations and conduct their affairs in accordance with regulatory standards that promote overall stability in the financial system.

Table 1 presents an overview of the systemically important CCPs and SSFs currently licensed to operate in Australia. Under the Corporations Act, these facilities are regulated jointly by ASIC and the Bank. The applicable regulatory regime is introduced in Section 2.2 below.

Table 1: Systemically Important CCPs and SSFs Operating in Australia[(a)]

	Description of Activity	Values Cleared/Settled, Daily)[(b)]	Number of participants[(c)]
Central Counterparties			
ASX Clear	Clearing of cash equities and equity-related derivatives	Cash equities: $4 billion traded value Equity options: $115 million traded value/$2.8 billion underlying	36 active direct participants (including Australian/foreign banks, brokers)
ASX Clear (Futures)	Clearing of ASX 24 exchange-traded derivatives and AUD OTC interest rate derivatives	$167 billion for five major listed financial contracts $4.1 billion notional value for OTC derivatives	19 direct participants (including Australian/foreign banks). Large number of indirect participants for listed derivatives
LCH.Clearnet Ltd's SwapClear Service	Clearing of OTC interest rate derivatives	$1.3 trillion notional value for all currencies $11.7 billion notional value for AUD-denominated trades[(d)]	90 direct participants internationally (including two Australian banks)
Securities Settlement Facilities			
ASX Settlement	Settlement of cash equities	$8.3 billion[(e)]	78 direct participants (including Australian/ foreign banks, brokers)
Austraclear	Settlement of OTC trades in debt securities, AUD payments	$41 billion for securities trades $11 billion for payment-only transactions	847 participants (including financial institutions and corporates); some access indirectly

(a) A third small licensed SSF is operated by IMB Limited for trades in its own securities. Since the value of financial obligations settled by IMB Limited in any financial year falls well below $200 million, IMB Limited is not subject to the Bank's FSS for SSFs (SSF Standards).
(b) Average for the year ended 30 June 2014; ASX OTC derivatives data for June 2014.
(c) As at 30 June 2014.
(d) Average single-sided notional value of trades registered per day. Data for AUD-denominated trades are for 1 September 2013 to 30 June 2014.
(e) Includes settlement of off-market trades.
Sources: ASX; Bloomberg; LCH.Clearnet Limited; RBA

2.2 Regulatory Framework

Part 7.3 of the Corporations Act establishes a licensing regime for CS facilities in Australia. Licensing authority rests ultimately with the responsible Minister, with licence obligations specified in the Corporations Act – and in any supplementary licence conditions – administered by ASIC and compliance overseen jointly by ASIC and the Bank.

- Under s 827D of the Corporations Act, the Bank may determine standards 'for the purposes of ensuring that CS facility licensees conduct their affairs in a way that causes or promotes overall stability in the Australian financial system'. In accordance with this provision, the Bank has determined FSS, with which all the licensees listed in Table 1 must comply. The Bank also has responsibility to ensure that licensees take any other necessary steps to reduce systemic risk. The Bank carries out continuous oversight of CS facilities against the FSS, periodically conducting formal assessments of licensees' compliance and reporting its findings to the Minister. These formal assessments are published on the Bank's website.[6]

- Under the *Reserve Bank Act 1959*, responsibility for the exercise of the powers granted to the Bank in the Corporations Act is assigned to the PSB. The PSB is tasked with ensuring that its powers are exercised in a way that 'will best contribute to the overall stability of the financial system'. Also relevant to its responsibility for stability, the PSB has powers under the *Payment Systems and Netting Act 1998* (PSNA) to ensure that settlement finality in approved payment, clearing and settlement systems and netting arrangements is legally certain (see Section 2.2.2, below). The PSB comprises the Governor as chair, one other Bank appointee, an appointee from the Australian Prudential Regulation Authority (APRA), and up to five other members.

- Under the Corporations Act, ASIC is responsible for ensuring that CS facilities comply with all other obligations, including for the fair and effective provision of services. Together, the Corporations Act and the *Australian Securities and Investment Commission Act 2001* (ASIC Act) give ASIC a range of inspection, investigation and enforcement powers. These enable ASIC to carry out its regulatory functions, including for licensed CS facilities.

  In the exercise of its regulatory functions and powers, ASIC considers whether a CS facility licensee is providing its services in a fair and effective manner such that it would meet the desired regulatory outcomes in Part 7.3 of the Corporations Act. These desired regulatory outcomes are elaborated in ASIC *Regulatory Guide 211: Clearing and Settlement Facilities: Australian and Overseas Operators* (RG 211).[7] The outcomes cover four key regulatory areas: CS facility stability; the clearing and settlement process; facility and participant supervision; and risk management. In considering whether a CS facility is meeting these regulatory outcomes, ASIC considers a range of matters, including the reliability of operations, the transparency of the clearing and settlement process, participants' confidence in the facility, the licensee's supervision of participants, and the facility's risk management.

The Principles have been implemented in Australia and are applied as regulatory standards jointly by ASIC and the Bank. Since both ASIC and the Bank are responsible for overseeing CS facility licensees under the Corporations Act, implementing the Principles in Australia involves coordination between the regulators. A statement issued by ASIC and the Bank in December 2012 (the Joint Statement) sets out the actions taken by the regulators to implement the Principles in Australia:[8]

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6 The Bank has set out its policy on frequency of formal assessments of CS facilities, confirming that systemically important facilities will be assessed annually: see 'Frequency of Regulatory Assessments of Licensed Clearing and Settlement Facilities', available at <http://www.rba.gov.au/payments-system/policy-framework/frequency-of-assessments.html>. The Bank's assessments of CS facility licensees have been published on the Bank's website since 2007. Annual assessments of the CS facilities under the ASX group are available at <http://www.rba.gov.au/payments-system/clearing-settlement/assessments/2012-2013/index.html>.

7 ASIC's RG 211 is available at <http://www.ASIC.gov.au/rg>.

8 A policy statement setting out how the Principles have been implemented in Australia is available at <http://www.rba.gov.au/payments-system/policy-framework/principles-fmi/implementing-principles-australia.html>.

- ASIC revised its regulatory guidance on licensing and oversight of CS facility licensees in RG 211. The updated regulatory guidance incorporates the Principles that are relevant to ASIC's regulatory remit as matters it will consider in:
  - framing its advice to the Minister about any CS facility licence application
  - assessing a CS facility licensee's compliance with its ongoing obligations under the Corporations Act.
- The PSB approved the determination of new FSS in November 2012.[9] These standards, which became effective from 29 March 2013, are aligned with the requirements in the Principles that address matters relevant to financial stability (see Section 2.2.1, below).

While the Bank has the power to set standards and assess licensees' compliance, enforcement powers rest with the Minister and ASIC. A failure to comply with licence obligations may be a trigger for the exercise of enforcement powers. The Minister or ASIC may take enforcement action independently or on the advice of the Bank. ASIC and the Bank have agreed an MOU, which is intended to promote transparency, help prevent unnecessary duplication of effort, and minimise the regulatory burden on CS facilities.[10] Further to these objectives, ASIC and the Bank have agreed on the appropriate division of each of the Principles between the two regulators, as published in Appendix 2 of RG 211 (see also Table A1 of Appendix A). Some Principles are relevant to both regulators and accordingly are jointly overseen. ASIC and the Bank have recently undertaken a joint Self-assessment against the Responsibilities that form part of the PFMIs.[11]

Following a request by the then Deputy Prime Minister and Treasurer in 2011, the Council of Financial Regulators (CFR, comprising the heads of regulatory authorities) consulted on a number of enhancements to the regulatory framework for FMIs. A number of recommendations were made to the government in February 2012. Some of these, relating to the application of 'location requirements' for FMIs operating across borders, were reflected in revisions to ASIC's RG 211 and the FSS in 2012. Other proposals are being developed by the CFR agencies, including in relation to special resolution arrangements for FMIs.[12]

2.2.1 The Bank's Financial Stability Standards

In accordance with its responsibilities under the Corporations Act, the Bank first determined FSS for licensed CCPs and SSFs in 2003. The standards were drafted at a high level, establishing an obligation for licensees to conduct their affairs 'in a prudent manner' so as to contribute to 'the overall stability of the Australian financial system'. Each FSS was supported by a set of measures and guidance that

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9 The Bank's FSS are available at <http://www.rba.gov.au/payments-system/clearing-settlement/standards/index.html>.

10 The MOU between ASIC and the Bank is available at <http://www.rba.gov.au/media-releases/2002/mr-02-08.html#mou>.

11 The Self-assessment is available at <http://www.rba.gov.au/payments-system/policy-framework/principles-fmi/responsibilities-of-authorities.html>.

12 The Council of Financial Regulators' recommendations to the Deputy Prime Minister and Treasurer are available at <http://www.treasury.gov.au/~/media/Treasury/Consultations%20and%20Reviews/Consultations/2012/CFRWG%20on%20Financial%20Market%20Infrastructure%20Regulation/Key%20Documents/CoFR_Letter_to_Deputy_PM.ashx>.

the Bank would take into account in assessing a licensee's compliance. Minor variations were made to the FSS in 2005 and 2009.

As noted above, following the release of the Principles, the Bank updated its FSS to bring them into line with the stability-related Principles. The updated FSS also introduce some additional and varied requirements to reflect the Australian regulatory and institutional context. These include measures to ensure that regulators can maintain appropriate influence over cross-border facilities.

Consistent with the higher level of detail of the Principles relative to the previous international standards, the new FSS are specified at a more detailed level than the earlier standards. They cover matters such as legal basis, governance, credit and liquidity management, settlement models, operational resilience, and management of business and investment risks. Reflecting standards introduced in the Principles, the new FSS include more specific requirements for financial resources held to cover any losses incurred by CCPs in the event of a participant default, and a new requirement to develop a comprehensive and effective plan for the recovery or orderly wind-down of a CCP or SSF in the event that it experienced a threat to its continued viability.

2.2.2 The Payments Systems and Netting Act

The Bank, under the governance of the PSB, has powers under the PSNA to remove two important legal risks in the Australian payments system:

- the risk that a court may apply the 'zero hour' rule and unwind any payments that have settled since midnight of the day preceding a bankruptcy order
- the risk that a court may unwind net payment obligations, restoring gross obligations.

Practically, this is achieved through the Bank having the power to 'approve' a real-time gross settlement (RTGS) system or a netting arrangement. Any RTGS system approved under the PSNA is protected from zero hour risk, while any netting arrangement approved under that Act is protected from both zero hour risk and the possible unwinding of netting. In assessing an application for approval, the PSNA sets out a number of tests including that, without such approval, the bankruptcy of a participant could cause systemic disruption.

To date, the Bank has approved three RTGS systems, including the Reserve Bank Information and Transfer System, in which all CS facilities ultimately settle in central bank money, as well as Austraclear. The Bank has also approved a number of multilateral netting arrangements, including the multilateral net settlement batch for cash equities operated by ASX Settlement.

Separately, the Commonwealth Treasury has responsibility for approving market netting arrangements under the PSNA. Approval provides legal certainty in respect of a number of matters relevant to CCPs, particularly in the event that a participant becomes insolvent. These include arrangements for novation and netting, and dealing with securities posted as collateral by participants.

2.3 ASX Clearing and Settlement Facilities

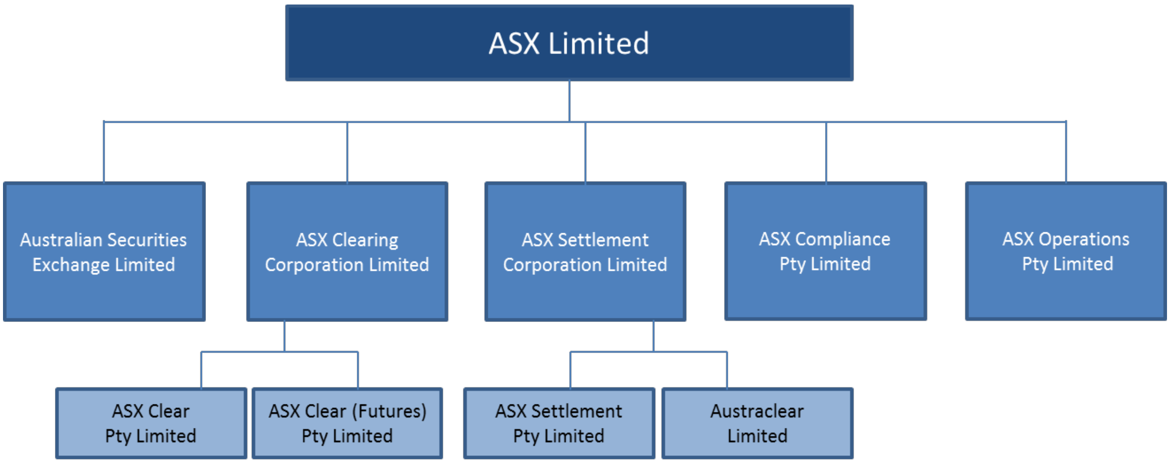
The ASX Group operates four CS facilities: two CCPs and two SSFs. Each of these facilities holds a CS facility licence, and each is required under the Corporations Act to comply with applicable FSS determined by the Bank and to do all other things necessary to reduce systemic risk. The ASX CS facilities are currently the only facilities of significant size incorporated and based primarily in

Australia, and hence for which ASIC and the Bank are the authorities responsible for primary oversight in respect of the Principles (Table 1). LCH.Clearnet Limited, a third licensed CCP, operates under an overseas CS facility licence; its primary regulator is the Bank of England.

2.3.1 ASX Group Structure

All four CS facilities are part of the ASX Group (ASX). In the ASX corporate structure, the two central counterparties (CCPs) – ASX Clear and ASX Clear (Futures) – are subsidiaries of ASX Clearing Corporation Limited (ASXCC), while the two securities settlement facilities (SSFs) – ASX Settlement and Austraclear – are subsidiaries of ASX Settlement Corporation Limited (Figure 1). ASXCC and ASX Settlement Corporation Limited are in turn subsidiaries of the ASX Group's parent entity, ASX Limited. ASX Limited is the licensed operator of the ASX market, while another subsidiary, Australian Securities Exchange Limited, is the licensed operator of the ASX 24 market. The ASX market provides a trading platform for ASX listed securities and equity derivatives, while ASX 24 is an exchange for futures products. ASX Clear and ASX Settlement provide clearing and settlement services for the ASX market, and ASX Clear (Futures) provides clearing services for the ASX 24 market.[13]

Figure 1



ASX Limited is a listed company. The ASX Limited Board is responsible for overseeing the processes for identifying significant risks to ASX and ensuring that appropriate policies as well as adequate control, monitoring and reporting mechanisms are in place. In addition, ASX Limited's Board assigns certain responsibilities to subsidiaries within the group, including the boards of the four CS facilities (the CS Boards). The CS Boards are responsible for managing the particular clearing and settlement risks faced by each respective CS facility, including through compliance with the FSS. The CS Boards are subject to common governance arrangements with high-level objectives set out in the CS Boards' Charter. A majority of the directors on the CS Boards are common to the boards of all four CS facilities; however, one of the directors on the ASX Clear and ASX Settlement Boards does not sit on

[13] ASX Clear and ASX Settlement also provide clearing and settlement services for markets other than ASX; these are noted in Section 2.3.2.

the ASX Clear (Futures) and Austraclear Boards, and two of the directors on the ASX Clear (Futures) and Austraclear Boards do not sit on the ASX Clear and ASX Settlement Boards.

ASX Clearing Corporation Limited (ASXCC) is a wholly owned subsidiary of ASX Limited. ASXCC is the holding company for and manages the financial resources of the two CCPs. It invests these resources according to a treasury investment policy and investment mandate approved by the CS Boards.

The CS facilities rely in the delivery of their services on group-wide operational and compliance resources that reside in ASX Operations Pty Limited, which is a wholly owned subsidiary of ASX Limited.

- ASX Operations Pty Limited (ASX Operations) provides most operational resources required by the CS facilities, including services to enable ASX Compliance to perform its services.
- ASX Compliance Pty Limited (ASX Compliance) provides compliance services to the licensed entities of the ASX Group, including monitoring and enforcing participants' compliance with the Operating Rules of the CS facilities.

ASX has adopted a group-wide organisational structure to manage the business operations of its various entities, including the CS facilities. Its business units are organised into nine main divisions:

- Office of the Chief Executive Officer (CEO)
- Risk
- Operations
- Technology
- Business Development
- ASX Compliance
- Office of General Counsel and Company Secretariat, Regulatory Policy and Regulatory Assurance
- Chief Financial Officer (CFO) Office
- Human Resources.

Risk contains a number of departments that play key roles in the management of risks faced by the CS facilities:

- Clearing Risk Strategy and Policy – develops and maintains policies and standards related to CCP risk management, with a focus on longer term strategic initiatives.
- Clearing Risk Quantification – maintains and validates CCP risk and pricing models.
- Clearing Risk Management – implements CCP risk management policies and standards, and maintains effective procedures for carrying out those policies and standards.
- Enterprise Risk – responsible for enterprise-wide risk management, including general business risk.
- Portfolio Risk Management – responsible for managing investment and liquidity risks associated with ASXCC's investment portfolio.
- Internal Audit – conducts risk-based reviews of internal controls and procedures across ASX. Internal Audit reports to the Chief Risk Officer for administrative purposes only.

ASX's clearing risk policy framework also sets out roles for a number of internal committees that bring together decision makers and experts from departments across the group:

- Clearing Risk Policy Committee (CRPC) – reviews policies and standards prior to CS Board submission.
- Capital and Liquidity Committee (CALCO) – advises on changes to clearing risk policies and standards related to capital, liquidity and balance sheet management.
- CCP Risk, Operations and Compliance Committee (CROCC) – discusses and shares information across relevant operational, compliance and risk management departments.
- Enterprise Risk Management Committee (ERMC) – reviews and approves enterprise risk management policy and related reporting prior to Board submission.
- Risk Quantification Group (RQG) – responsible for quantitative risk management matters.
- Default Management Committee (DMC) – coordinates ASX's response to a clearing participant default, and conducts the review and testing of the CCPs' default management approach.

ASX's settlement risk policy framework sets out roles for a number of additional internal committees:

- Settlement Risk Policy Committee (SRPC) – reviews policies and standards prior to CS Board submission.
- SSF Risk, Operations and Compliance Committee (SROCC) – discusses and shares information across relevant operational, compliance and risk management departments.
- Participant Incident Response Committee (PIRC) – coordinates ASX's response to a settlement participant incident, and provides input into policy determinations and settings as necessary in response to such incidents.

2.3.2 ASX central counterparties

The ASX Group includes two CCPs that are required to conduct their affairs in accordance with the Principles. Primary responsibility for the design and operation of a CCP in accordance with the Principles lies with a CS facility licensee's board and senior management.

- *ASX Clear* provides CCP services for cash equities, debt products and warrants traded on the ASX and Chi-X markets, and equity-related derivatives traded on the ASX market.
- *ASX Clear (Futures)* provides CCP services for futures and options on interest rate, equities, energy and commodity products, as well as Australian dollar-denominated OTC interest rate derivatives.

2.3.3 ASX securities settlement facilities

The ASX Group includes two SSFs that are required to conduct their affairs in accordance with the Principles. Primary responsibility for the design and operation of an SSF in accordance with the Principles lies with a CS facility licensee's board and senior management.

- *ASX Settlement* provides SSF services for cash equities, debt products and warrants traded on the ASX and Chi-X markets; ASX Settlement also provides SSF services for non-ASX listed securities.

- *Austraclear* provides SSF services for trades in debt securities, including government bonds and repurchase agreements.

3. Summary Assessment and Recommendations

This Section summarises ASIC's and the Bank's Assessment of the ASX CS facilities, and sets out recommendations identified by ASIC and the Bank from this Assessment.

3.1 Summary Assessment

Tables 2 to 5 summarise ASIC and the Bank's Assessment of ASX's CS facilities against the Principles. In setting out this Assessment, ASIC and the Bank have applied the rating system used in the *Principles for Financial Market Infrastructures: Disclosure Framework and Assessment Methodology* produced by CPSS and IOSCO in December 2012.[14] Under this rating system, a facility's observance of a Principle may be rated as:

Observed – The FMI observes the Principle. Any identified gaps and shortcomings are not issues of concern and are minor, manageable and of a nature that the FMI could consider taking them up in the normal course of its business.

Broadly observed – The FMI broadly observes the Principle. The assessment has identified one or more issues of concern that the FMI should address and follow up on in a defined timeline.

Partly observed – The FMI partly observes the Principle. The assessment has identified one or more issues of concern that could become serious if not addressed promptly. The FMI should accord a high priority to addressing these issues.

Not observed – The FMI does not observe the Principle. The assessment has identified one or more serious issues of concern that warrant immediate action. Therefore, the FMI should accord the highest priority to addressing these issues.

Not applicable – The Principle does not apply to the type of FMI being assessed because of the particular legal, institutional, structural or other characteristics of the FMI.

ASIC and the Bank have assessed how well each CS facility has complied with each Principle, and applied a single overall rating to each Principle, reflecting this assessment. The summarised assessments of each of the CS facilities against the Principles are supplemented by detailed information under each Key Consideration set out in Appendix A. Recommendations arising from the Assessment are set out in Section 3.2.

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[14] The disclosure framework and assessment methodology are available at <http://www.bis.org/publ/cpss106.htm>.

Table 2: ASX Clear Summary Assessment

Summary Assessment by Principle

Principle 1. Legal basis

Rating: Observed

ASX Clear is a separate legal entity within the ASX Group that solely provides clearing services. ASX Clear's legal basis is founded on clear and understandable rules that operate within the framework of relevant laws and regulations (Key Considerations 1, 2). 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 PSNA, and protection for settlements conducted via ASX Settlement and Austraclear under the same legislation, and is subject to periodic review by ASX Legal (Key Considerations 1, 4). 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 (Key Consideration 3). ASX has not identified any material risks arising from potential conflicts of law relating to the operations of ASX Clear (Key Consideration 5).

Principle 2. Governance

Rating: Observed

ASX Clear pursues objectives that place a high priority on risk management, through compliance with relevant FSS and the broader Corporations Act requirement to do all other things necessary to reduce systemic risk. ASX Clear must also comply with all its other obligations under Part 7.3 of the Corporations Act, including to operate in a fair and effective manner. 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 (Key Consideration 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. Board and committee charters document Board roles and lines of responsibility and accountability (Key Considerations 2, 3). 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. Changes to the composition of the CS facility Boards (CS Boards) during 2013/14 further support these conflict handling procedures (Key Consideration 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 (Key Consideration 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 (Key Consideration 5). Remuneration of senior management in risk management roles is structured to provide appropriate incentives for sound and effective risk management. ASX maintains a clear and documented risk management framework, subject to regular internal and external review. Key processes and internal controls are subject to review by ASX's Internal Audit department, which is itself subject to periodic external review (Key Consideration 6). 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, introduced in accordance with commitments under the ASX *Code of Practice for Clearing and Settlement of Cash Equities in Australia* (the Code of Practice), which provides user feedback in relation to the ongoing development of cash market clearing and settlement infrastructure and services (Key Consideration 7).

Principle 3. Framework for the comprehensive management of risks

Rating: Broadly 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 and a governance structure to oversee ASX Clear's risk management activities (Key Consideration 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 (Key Consideration 2). 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 (Key Consideration 3). ASX Clear has prepared a basic recovery plan on the basis of its existing powers and plans to consult on enhancements to its Operating Rules that would support a more comprehensive recovery plan (Key Consideration 4).

Summary Assessment by Principle

Principle 4. Credit risk

Rating: Broadly observed

ASX Clear maintains a comprehensive framework for managing its credit exposures to participants (Key Consideration 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. In responding to any issues identified through monitoring, ASX Clear is able to impose activity restrictions or additional controls, including calls for additional collateral (Key Consideration 2).

ASX Clear also monitors and manages the magnitude of exposures to participants through both daily and intraday initial and variation margin calculations (Key Consideration 2), and through daily stress tests that measure the effects of extreme but plausible scenarios on exposures (Key Consideration 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 (Key Considerations 4, 6). ASX Clear has the capacity to call additional margin from participants in the event that their stress-test exposures exceed pre-determined stress-test exposure limits (STELs). During 2013/14, ASX Clear enhanced the review of its capital stress-test model by introducing monthly reverse stress testing and review of market conditions to supplement the existing daily and formal annual review of scenarios. ASX Clear has also engaged an external expert to conduct an annual validation of the capital stress-test model. This work is ongoing. 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 (Key Consideration 5). ASX Clear can allocate any uncovered credit losses to participants via Emergency Assessments, which are subject to a cap. ASX plans to consult on proposals to enhance its loss allocation and replenishment powers (Key Consideration 7).

Principle 5. Collateral

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 (Key Consideration 1). ASX Clear applies haircuts to collateral that are calibrated to stressed market conditions, to avoid the need for procyclical adjustments (Key Consideration 2, 3). Collateral holdings are not sufficiently concentrated as to impair ASX Clear's ability to liquidate such assets quickly without significant adverse price effects (Key Consideration 4). ASX Clear does not accept cross-border or foreign currency collateral (Key Consideration 5). ASX Clear employs well-designed and operationally flexible systems to manage collateral movements for securities and derivatives trades (Key Consideration 6).

Principle 6. Margin

Rating: Broadly observed

ASX Clear applies initial and variation margin to both derivatives exposures and cash securities transactions, using margin systems that are tailored to the particular attributes of these product types (Key Consideration 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 (Key Consideration 2). ASX Clear's margin models for both cash securities and derivatives ensure that initial margin meets a single-tailed confidence level of 99.7 per cent of the estimated distribution of future exposure, applying appropriate and conservative assumptions regarding close-out periods, product risks, portfolio effects, product offsets and floors to limit the need for procyclical changes (Key Considerations 3, 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 (Key Consideration 4).

ASX Clear performs daily and periodic backtesting of its margin models to assess the adequacy of initial margin against the targeted level of cover, and performs an annual review of margin policy. ASX Clear uses quarterly sensitivity analysis to validate the assumptions underpinning margin models, including to test the reliability of implicit or explicit product offsets (Key Consideration 6). ASX Clear regularly reviews and validates its margin models. An external expert was recently engaged for a three-year period to conduct a comprehensive review of all key risk models, including those that support margining (Key Consideration 7). This work is ongoing.

Summary Assessment by Principle

Principle 7. Liquidity risk

Rating: Broadly observed

ASX Clear maintains a robust framework for managing its liquidity risk (Key Consideration 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 (Key Consideration 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 (Key Considerations 4, 9). 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 (Key Considerations 5, 7). In addition, ASX Clear is able to source liquidity from participants via offsetting transaction arrangements to address liquidity shortfalls related to cash equity transactions (Key Consideration 4). To enhance its management of liquidity risk, ASX Clear has access, via ASXCC's Exchange Settlement Account (ESA), to Australian dollar liquidity from the Reserve Bank against eligible collateral (Key Consideration 8). The use of offsetting transaction arrangements with participants should ensure that ASX Clear does not face a liquidity shortfall in respect of cash market transactions, while ASX plans to consult on proposals to address uncovered liquidity shortfalls in respect of derivatives transactions as part of broader enhancements to its recovery plan (Key Consideration 10).

Principle 8. Settlement finality

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 (Key Consideration 1). Contract specifications set out in ASX Clear's and ASX's Operating Rules and Procedures also specify procedures and timetables for final settlement (Key Consideration 2). Participants are not able to submit payment or transfer instructions in ASX Clear that may be revoked (Key Consideration 3).

Principle 9. Money settlements

Rating: Observed

ASX Clear conducts its money settlements across ESAs at the Bank, via RITS (Key Consideration 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 (Key Considerations 2, 3, 4, 5). The role and responsibilities of commercial settlement banks acting on behalf of participants for money settlements, known as Payment Providers, are governed by legal agreements between those banks, ASX Clear, ASX Settlement and the Australian Payments Clearing Association (APCA). ASX is considering the introduction of a formal framework to engage Payment Providers on changes to settlement processes.

Principle 10. Physical deliveries

Rating: Not applicable

ASX Clear does not clear any contracts with physical delivery obligations.

Principle 11. Central securities depositories

Rating: Not applicable

Principle 11 not relevant to central counterparties.

Summary Assessment by Principle

Principle 12. Exchange-of-value settlement systems

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 the associated payment is settled at the same time (Key Consideration 1). In order to eliminate principal risk, ASX Clear employs the DvP model 3 settlement mechanism in ASX Settlement.

Principle 13. Participant-default rules and procedures

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 (Key Consideration 1). Powers and tools available to ASX Clear include the power to suspend a defaulted participant, the power to apply margin and pooled financial resources to meet losses, and a range of close-out and hedging tools (Key Considerations 1, 2). Participants are also required to report any default event or 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 (Key Consideration 3). Default management procedures are tested and reviewed on at least an annual basis (Key Consideration 4).

Principle 14. Segregation and portability

Rating: Broadly observed

ASX Clear offers three types of account structure: individual client segregation for options and futures; omnibus segregation with net margining for futures; and single accounts for all house and client cash market transactions (Key Consideration 2). Individual client segregation for options and futures provides protection to customers (or 'clients') against the default of both their clearing participant and a fellow client, and supports transfer to another clearing participant in such a scenario. ASX has proposed an arrangement for cash market transactions that ensures that commingled accounts will afford materially equivalent protection to that provided by omnibus protection. The first of two stages of implementation of arrangements to enhance protection of client cash equities positions in this way has been completed (Key Considerations 1, 2 and 3). ASX Clear has publicly disclosed its current segregation and portability arrangements, including the current obstacles to portability (Key Consideration 4).

Principle 15. General business risk

Rating: Broadly observed

ASX Clear identifies, monitors and manages its general business risks in the context of its overall Enterprise Risk Management Policy (Key Consideration 1). It has access to sufficient funds held at group level to support continued operations as a going concern if it incurs general business losses. These funds are backed by equity and invested in liquid assets. The legal basis of ASX Clear's access to funds held at group level has been enhanced through a new clause in the ASX Group Support Agreement (Key Considerations 2, 3, 4). ASX Clear has developed a basic recovery plan and has commenced work towards enhancing this plan in line with forthcoming CPSS-IOSCO guidance on recovery planning (Key Consideration 3). ASX maintains viable arrangements to raise additional equity for its CS facilities as required (Key Consideration 5).

Principle 16. Custody and investment 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 (Key Consideration 1). A portion of these assets is held in liquid form to ensure prompt access as required (Key Consideration 2). ASXCC invests the assets of ASX Clear according to its Investment Mandate in instruments with low credit, market and liquidity risk. Following changes during 2013/14, ASX Clear's treasury investments place less reliance on unsecured investments concentrated in the large domestic banks (Key Consideration 4). ASX is in dialogue with the Bank about its expectations for further reductions in these exposures. ASXCC does not use custodian banks for its investments (Key Consideration 3).

Summary Assessment by Principle

Principle 17. Operational risk

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. ASX Clear considers that it has sufficient well-trained and competent personnel and other resources to operate DCS and CHESS, and has taken steps to ensure that business development work does not risk the availability of these resources for key systems (Key Consideration 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 individual departments. The management of each department is responsible for implementing operational risk controls in their respective areas (Key Consideration 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 during 2013/14 (Key Considerations 3, 4). ASX Clear maintains physical and information security policies based on relevant domestic and international standards (Key Consideration 5).

ASX Clear 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. 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 scale of their business. ASX Clear monitors participants' compliance with these requirements, and broader operational performance, on an ongoing basis (Key Consideration 6).

ASX Clear manages operational interdependencies with participants, ASX Settlement and Austraclear through its participant monitoring processes and group-wide risk management framework. Its dependencies on service providers and utilities are subject to ongoing monitoring and contingency arrangements where appropriate. ASX Clear has introduced clauses in its legal agreements with key outsourcing and critical service providers that impose requirements on those providers equivalent to those under the FSS (which align with the Principles). Additional clauses provide for access to information for the Bank, and notice to the Bank in the case of termination (Key Consideration 7).

Principle 18. Access and participation requirements

Rating: Observed

ASX Clear has objective and transparent participation requirements set out in its Operating Rules and Procedures (Key Consideration 1). These include minimum capital and other financial requirements, which were reviewed in 2013/14, as well as the requirement that participants maintain operational and risk management arrangements tailored to the specific activities of ASX Clear. ASX Clear's participation requirements promote the efficient operation of the facility, and do not impose discriminatory or restrictive access constraints such as minimum turnover levels (Key Consideration 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 (Key Consideration 3).

Principle 19. Tiered participation arrangements

Rating: Observed

ASX Clear applies a risk-based approach to its monitoring of tiered participation arrangements, with a particular focus on client activity in exchange-traded derivatives. ASX Clear does not formally monitor concentration in tiered participation arrangements for cash market transactions due to the relatively low exposures involved. ASX Clear has a formal standard that governs its risk-based approach to monitoring of concentration in tiered participation arrangements and documents mitigating steps (Key Consideration 4).

During 2013/14, clients of ASX Clear's participants represented 78 per cent of the initial margin held by ASX Clear to cover its derivatives-related credit exposures to both participants and (indirectly) their clients. In managing the risks associated with tiered arrangements, ASX Clear's ability to monitor tiering risks on cash market transactions is limited by the commingling of house and client positions. ASX can, however, gather more detailed information from participants on an ad hoc basis (Key Considerations 1, 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 (Key Consideration 3). ASX Clear conducts daily monitoring of client-level data on derivatives-related exposures, with the use of predefined triggers for further action.

Summary Assessment by Principle

Principle 20. FMI links

Rating: Observed

ASX Clear maintains links to two other FMIs: ASX Settlement and Austraclear. ASX Clear assumes no direct financial risks from these links, but is exposed to operational risks. These are managed in the context of ASX's group-wide framework for operational risk management (Key Consideration 1). The legal basis of each link is supported by finality legislation (Key Consideration 2). ASX Clear does not maintain links with any other CCPs (Key Considerations 7, 8).

Principle 21. Efficiency and effectiveness

Rating: Observed

ASX Clear offers a range of participation options and clearing services designed to meet the needs of its participants and the ASX and Chi-X markets. ASX's Code of Practice for cash equities clearing and settlement addresses transparency and accessibility in the provision of these services and formalises avenues for user governance, including via a user Forum (Key Consideration 1, see also Principle 2). ASX Clear's goals and objectives are determined by the ASX Limited Board (for group-level strategic direction and business priorities) and the ASX Clear Board (for goals and objectives specific to the clearing service) (Key Consideration 2). ASX Clear measures the effectiveness of its services via participant and user feedback. ASX Clear performance reports are presented to ASX management on a monthly basis. Matters covered in these reports include operational performance, settlement and netting efficiency, incident management and participant complaints (Key Consideration 3).

Principle 22. Communication procedures and standards

Rating: Observed

While ASX Clear uses a proprietary messaging standard, this is acceptable given the domestic orientation of the service. ASX Clear is consulting with users, via a Technical Committee established under the Code of Practice, on a proposal to adopt the internationally accepted ISO 20022 SWIFT standard as part of a broader renewal of its CHESS system (Key Consideration 1).

Principle 23. Disclosure of rules, key procedures, and market data

Rating: Observed

ASX Clear fully discloses its Operating Rules and Procedures to participants, and publicly discloses its rules, fees and a range of additional relevant information on its risk management procedures (Key Consideration 1). This includes information regarding the process of novation, and general descriptions of system design and the roles and obligations of ASX Clear and its participants (Key Consideration 2). 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 (Key Consideration 3). A full breakdown of the various fees ASX Clear charges, including available discount and incentive schemes, is published on the ASX website (Key Consideration 4). ASX has published its response to the CPSS-IOSCO Disclosure Framework and plans to periodically update and enhance this document where appropriate (Key Consideration 5). During 2013/14, ASX redesigned its website, providing links to information that is subject to disclosure requirements from a central location.

Principle 24. Disclosure of market data by trade repositories

Rating: Not applicable

Principle 24 not relevant to central counterparties.

Table 3: ASX Clear (Futures) Summary Assessment

Summary Assessment by Principle

Principle 1. Legal basis

Rating: Observed

ASX Clear (Futures) is a separate legal entity within the ASX Group that solely provides clearing services. ASX Clear (Futures)' legal basis is founded on clear and understandable rules that operate within the framework of relevant laws and regulations (Key Considerations 1, 2). The certainty of this legal basis in relevant jurisdictions is reinforced by supporting legislation, including ASX Clear (Futures)' protection as a netting market under the PSNA and the protection of money settlement finality through Austraclear under the same legislation, and is subject to periodic review by ASX Legal (Key Considerations 1, 4). ASX Clear (Futures) has publicly outlined the key features of its legal basis on its website and, from time to time, for information, provides legal opinions to participants or other stakeholders in respect of the legal basis of significant new services (Key Consideration 3). ASX has not identified any material risks arising from potential conflicts of law relating to the operations of ASX Clear (Futures) (Key Consideration 5).

Principle 2. Governance

Rating: Observed

ASX Clear (Futures) pursues objectives that place a high priority on risk management, through compliance with relevant FSS and the broader Corporations Act requirement to do all other things necessary to reduce systemic risk. ASX Clear (Futures) must also comply with all its other obligations under Part 7.3 of the Corporations Act, including to operate in a fair and effective manner. ASX Clear (Futures) also acknowledges public policy objectives directed at financial market and payments system integrity, as well as the interests of customers and other stakeholders (Key Consideration 1). ASX Clear (Futures)' governance arrangements are documented and publicly disclosed. These arrangements give ultimate responsibility for the oversight of operations and risk management of ASX Clear (Futures) to the ASX Limited Board and the ASX Clear (Futures) Board. Board and committee charters document Board roles and lines of responsibility and accountability (Key Considerations 2, 3). 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. Changes to the composition of the CS Boards during 2013/14 further support these conflict handling procedures (Key Consideration 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 (Futures) Board includes directors appointed for their expertise in clearing and settlement matters (Key Consideration 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 (Key Consideration 5). Remuneration of senior management in risk management roles is structured to provide appropriate incentives for sound and effective risk management. ASX maintains a clear and documented risk management framework, subject to regular internal and external review. Governance of this risk management framework is supported by a newly established participant Risk Committee. Key processes and internal controls are subject to review by ASX's Internal Audit unit, which is itself subject to periodic external review (Key Consideration 6). ASX utilises formal and informal consultation processes to ensure that the design and decisions of ASX Clear (Futures) reflect the interests of participants and other stakeholders, including via the new participant Risk Committee (Key Consideration 7).

Principle 3. Framework for the comprehensive management of risks

Rating: Broadly 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 (Futures). This high-level framework is supported by more granular policies and a governance structure to oversee ASX Clear (Futures)' risk management activities (Key Consideration 1). ASX Clear (Futures)' risk management framework imposes proportional, risk-based obligations such as initial margin and contributions to pooled risk resources that are related to exposures, and places incentives on participants, including additional collateral requirements where required, to control the risks that they bring to the CCP (Key Consideration 2). As part of its risk management framework, ASX Clear (Futures) 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 (Key Consideration 3). ASX Clear (Futures) has prepared a basic recovery plan on the basis of its existing powers and plans to consult on enhancements to its Operating Rules that would support a more comprehensive recovery plan (Key Consideration 4).

Summary Assessment by Principle

Principle 4. Credit risk

Rating: Broadly observed

ASX Clear (Futures) maintains a comprehensive framework for managing its credit exposures to participants (Key Consideration 1). Under this framework, ASX Clear (Futures) 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. In responding to any issues identified through monitoring, ASX Clear (Futures) is able to impose activity restrictions or additional controls, including calls for additional collateral (Key Consideration 2).

ASX Clear (Futures) also monitors and manages the magnitude of exposures to participants through both daily and intraday initial and variation margin calculations (Key Consideration 2), and through daily stress tests that measure the effects of extreme but plausible scenarios on exposures (Key Consideration 5). ASX Clear (Futures) holds sufficient financial resources to cover its largest potential credit exposure to any two participants and their affiliates in the extreme but plausible scenarios covered in its stress tests, consistent with the Bank's view that ASX Clear (Futures) is systemically important in multiple jurisdictions (Key Considerations 4, 6). ASX Clear (Futures) has the capacity to call additional margin from participants in the event that their stress-test exposures exceed predetermined STELs. During 2013/14, ASX Clear (Futures) enhanced the review of its capital stress-test model by introducing monthly reverse stress testing and review of market conditions to supplement the existing daily and formal annual review of scenarios. ASX Clear (Futures) has also engaged an external expert to conduct an annual validation of the capital stress-test model. This work is ongoing. 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 (Key Consideration 5). While ASX Clear (Futures) has some discretionary powers to address uncovered credit losses, these are not sufficient to reliably and fully address losses in all scenarios. ASX plans to consult on proposals to enhance its loss allocation and replenishment powers (Key Consideration 7).

Principle 5. Collateral

Rating: Observed

ASX Clear (Futures) limits the assets it routinely accepts as collateral to cash, or assets with low credit and market risks (Key Consideration 1). ASX Clear (Futures) applies haircuts to collateral. These are calibrated to stressed market conditions, to limit the need for procyclical adjustments (Key Considerations 2, 3). Collateral holdings are not sufficiently concentrated as to impair ASX Clear (Futures)' ability to liquidate such assets quickly without significant adverse price effects (Key Consideration 4). ASX Clear (Futures) retains discretion over whether to accept foreign currency collateral on a case-by-case basis, and takes into account concentration limits in exercising this discretion (Key Consideration 5). ASX Clear (Futures) employs well-designed and operationally flexible systems to manage collateral movements for securities and derivatives trades (Key Consideration 6).

Principle 6. Margin

Rating: Broadly observed

ASX Clear (Futures) applies initial and variation margin to derivatives exposures, using margin systems that are tailored to the particular attributes of the cleared products (Key Consideration 1). Timely price data are available for most products subject to ASX Clear (Futures)' margin systems, and ASX Clear (Futures) applies appropriate models to estimate prices when timely and reliable data are not available (Key Consideration 2). ASX Clear (Futures)' margin models ensure that initial margin meets a single-tailed confidence level of 99.7 per cent of the estimated distribution of future exposure, applying appropriate and conservative assumptions regarding close-out periods, product risks, portfolio effects, product offsets and floors to limit the need for procyclical changes (Key Considerations 3, 5). In addition, ASX Clear (Futures) applies variation margin to derivatives positions daily, and may call intraday margin as part of scheduled processes or in the event of significant market movements (Key Consideration 4).

ASX Clear (Futures) performs daily and periodic backtesting of its margin models to assess the adequacy of initial margin against the targeted level of cover and performs an annual review of margin policy. ASX Clear (Futures) uses quarterly sensitivity analysis to validate the assumptions underpinning margin models, including to test the reliability of implicit or explicit product offsets (Key Consideration 6). ASX Clear (Futures) regularly reviews and validates its margin models. An external expert was recently engaged for a three-year period to conduct a comprehensive review of all key risk models, including those that support margining (Key Consideration 7). This work is ongoing.

Summary Assessment by Principle

Principle 7. Liquidity risk

Rating: Broadly observed

ASX Clear (Futures) maintains a robust framework for managing its liquidity risk (Key Consideration 1). Under this framework, ASX Clear (Futures) 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 (Futures)' own settlement and funding flows (Key Consideration 2). ASX Clear (Futures) holds sufficient liquid resources to meet its payment obligations on time in the event that the two participants with the largest aggregate payment obligation to the CCP were to default in the extreme but plausible scenarios envisaged in its stress tests (Key Considerations 4, 9). These liquid resources comprise a portfolio of high quality assets managed by ASXCC on ASX Clear (Futures)' behalf, supported by procedures to ensure timely and reliable access to liquidity from the portfolio as required (Key Considerations 5, 7). To enhance its management of liquidity risk, ASX Clear (Futures) has access, via ASXCC as an ESA holder, to Australian dollar liquidity from the Reserve Bank against eligible collateral (Key Consideration 8). ASX plans to consult on proposals to address uncovered liquidity shortfalls in ASX Clear (Futures) as part of broader enhancements to its recovery plan (Key Consideration 10).

Principle 8. Settlement finality

Rating: Observed

The vast majority of ASX Clear (Futures) settlements involve AUD cash payments between participants and the CCP for the purposes of margin payments and the settlement of cash-settled derivatives contracts. Each day, ASX Clear (Futures) calculates the net obligations of each of its participants. Those participants with a net obligation to the CCP are required to make payments to ASX Clear (Futures) by 11.00 am, for both AUD and NZD-denominated contracts. Once these payments have been received, ASX Clear (Futures) makes payments to those participants with a net obligation from the CCP. AUD cash settlements occur via Austraclear, with interbank obligations settled on an RTGS basis across ESAs at the Reserve Bank of Australia, via RITS. NZD cash settlements occur via NZClear, an SSF owned and operated by the Reserve Bank of New Zealand.

ASX Clear (Futures) defines the point at which settlement is final through contract specifications set out in its Operating Rules and Procedures, and those of ASX 24. The finality of its money settlements is further defined in the Austraclear and NZClear rules, supported by finality legislation in the relevant jurisdictions (Key Consideration 1). Contract specifications set out in ASX Clear (Futures)' and ASX 24's Operating Rules and Procedures also specify procedures and timetables for final settlement (Key Consideration 2). ASX Clear (Futures) does not allow settlement instructions that may be revoked (Key Consideration 3).

Principle 9. Money settlements

Rating: Observed

ASX Clear (Futures) conducts its AUD money settlements, which constitute over 98 per cent of its settlement flows, via Austraclear instructions that settle across ESAs at the Bank, via RITS. NZD money settlements are also conducted in central bank money via participation as a non-bank in the NZClear system (Key Consideration 1). Other foreign currency settlements take place in commercial bank money (Key Considerations 2, 4). Commercial banks involved in the settlement of foreign currency transactions must be highly rated and subject to prudential regulation to ensure that credit, liquidity and operational risks are minimised (Key Consideration 3). Arrangements with commercial banks are also governed by standard legal agreements that include general information regarding the timing and availability of funds (Key Consideration 5).

Principle 10. Physical deliveries

Rating: Observed

ASX Clear (Futures)' Operating Rules and Procedures clearly state its and participants' obligations with respect to the delivery of physical instruments or commodities (Key Consideration 1). In accordance with these rules and procedures, ASX Clear (Futures) monitors and enforces compliance with delivery procedures (Key Consideration 2).

Principle 11. Central securities depositories

Rating: Not applicable

Principle 11 not relevant to central counterparties.

Summary Assessment by Principle

Principle 12. Exchange-of-value settlement systems

Rating: Observed

ASX Clear (Futures) eliminates principal risk in the settlement of derivatives contracts involving the transfer of a security or physical asset in exchange for cash by ensuring that delivery occurs only if payment occurs (Key Consideration 1). For transactions involving securities transfers, ASX Clear (Futures) employs the DvP model 1 settlement mechanism in Austraclear.

Principle 13. Participant-default rules and procedures

Rating: Observed

ASX Clear (Futures) 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 (Key Consideration 1). Powers and tools available to ASX Clear (Futures) include the power to suspend a defaulted participant, the power to apply margin and pooled financial resources to meet losses, and a range of close-out and hedging tools, including the auction of open OTC derivatives positions to surviving participants (Key Considerations 1, 2). During 2013/14, ASX introduced a mechanism to encourage participants to participate competitively in the auction of a defaulted participants' portfolio. Participants are also required to report any default event or expected default to the CCP. ASX Clear (Futures) has published its Operating Rules that set out its default management powers, and a high-level overview of its approach to default management (Key Consideration 3). Default management procedures are tested and reviewed on at least an annual basis. Participants clearing OTC derivatives are represented on a Default Management Group that participates in annual tests of OTC default management arrangements, including the auction process (Key Consideration 4).

Principle 14. Segregation and portability

Rating: Observed[15]

ASX Clear (Futures) offers individual and omnibus segregation to customers (or 'clients') of its OTC clearing participants and in July 2014 added an individual segregation offering to the existing omnibus segregation for exchange-traded derivatives (Key Consideration 2). Individual segregation provides protection to clients not only in the event of the default of their clearing participant, but also the concurrent default of a fellow client (Key Consideration 1). The availability of individually segregated client accounts, margined on a gross basis, also increases the likelihood that client positions could be transferred in the event of a clearing participant default (Key Consideration 3). ASX Clear (Futures) plans to extend its segregation arrangements to support the posting of excess client collateral. ASX Clear (Futures) has produced a fact sheet on its segregation and portability arrangements, which it requires that participants make available to their clients. This is published on ASX's website (Key Consideration 4).

Principle 15. General business risk

Rating: Broadly observed

ASX Clear (Futures) identifies, monitors and manages its general business risks in the context of its overall Enterprise Risk Management Policy (Key Consideration 1). It has access to sufficient funds held at group level to support continued operations as a going concern if it incurs general business losses. These funds are backed by equity and invested in liquid assets. The legal basis of ASX Clear (Futures)' access to funds held at group level has been enhanced through a clause in the ASX Group Support Agreement (Key Considerations 2, 3, 4). ASX Clear (Futures) has developed a basic recovery plan and has commenced work towards enhancing this plan in line with forthcoming CPSS-IOSCO guidance on recovery planning (Key Consideration 3). ASX maintains viable arrangements to raise additional equity for its CS facilities, as required (Key Consideration 5).

15 While ASX Clear (Futures) is assessed as observing Principle 14, the Bank has assessed that ASX Clear (Futures) broadly observes the corresponding CCP Standard 13. This difference in ratings is due to an additional requirement under the Bank's supplementary interpretation of CCP Standards 13.2 and 13.3 that ASX Clear (Futures) offer an account structure that provides protection for client collateral in excess of margin requirements lodged with the CCP. ASX Clear (Futures) is consulting on proposals to provide this additional protection for client collateral.

Summary Assessment by Principle

Principle 16. Custody and investment risks

Rating: Broadly observed

The assets of ASX Clear (Futures) and its participants are administered and held within the ASX Group in accordance with robust group-wide controls (Key Consideration 1). A portion of these assets is held in liquid form to ensure prompt access as required (Key Consideration 2). ASXCC invests the assets of ASX Clear (Futures) according to an Investment Mandate in instruments with low credit, market and liquidity risk. Following changes during 2013/14, ASX Clear (Futures)' treasury investments place less reliance on unsecured investments concentrated in the large domestic banks (Key Consideration 4). ASX is in dialogue with the Bank about its expectations for further reductions in these exposures. ASXCC does not use custodian banks for its investments (Key Consideration 3).

Principle 17. Operational risk

Rating: Observed

ASX Clear (Futures)' key operating systems are Genium INET (Genium) and Calypso. Genium replaced the previous SECUR system for the clearing of exchange-traded derivatives in May 2014. Calypso was first used for the clearing of OTC derivatives transactions in September 2013.

ASX Clear (Futures) manages its operational risks in the context of its group-wide Enterprise Risk Management Framework. ASX Clear (Futures) considers that it has sufficient well-trained and competent personnel and other resources to operate Genium and Calypso, and has taken steps to ensure that business development work does not risk the availability of these resources for key systems, including recently for the introduction of Genium and Calypso (Key Consideration 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 individual departments. The management of each department is responsible for implementing operational risk controls in their respective areas (Key Consideration 2). ASX Clear (Futures) sets clear operational reliability objectives and pursues policies designed to achieve those objectives. Key objectives for Genium, SECUR and Calypso, such as minimum availability of 99.8 per cent and peak capacity utilisation of 50 per cent, were met during 2013/14 (Key Consideration 3, 4). ASX Clear (Futures) maintains physical and information security policies based on relevant domestic and international standards (Key Consideration 5).

ASX Clear (Futures) 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. Participants are required to maintain appropriate operational and business continuity arrangements that complement ASX Clear (Futures)' own arrangements, and are appropriate to the nature and scale of their business. ASX Clear (Futures) monitors participants' compliance with these requirements, and broader operational performance, on an ongoing basis (Key Consideration 6).

ASX Clear (Futures) manages operational interdependencies with participants and Austraclear through its participant monitoring processes and group-wide risk management framework. Its dependencies on service providers and utilities are subject to ongoing monitoring and contingency arrangements where appropriate, including an escrow arrangement for Genium and Calypso source code subject to third-party vendor support. ASX Clear (Futures) has introduced clauses in its legal agreements with key outsourcing and critical service providers that impose requirements on those providers equivalent to those under the FSS (which align with the Principles). Additional clauses provide for access to information for the Bank, and notice to the Bank in the case of termination (Key Consideration 7).

Principle 18. Access and participation requirements

Rating: Observed

ASX Clear (Futures) has objective and transparent participation requirements set out in its Operating Rules and Procedures (Key Consideration 1). These include minimum capital and other financial requirements, as well as the requirement that participants maintain operational and risk management arrangements tailored to the specific activities of ASX Clear (Futures). Additional requirements apply for OTC derivatives clearing participants. ASX Clear (Futures)' participation requirements promote the efficient operation of the facility, and do not impose discriminatory or restrictive access constraints such as minimum turnover levels or location requirements (Key Consideration 2). ASX Clear (Futures) 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 (Key Consideration 3).

Summary Assessment by Principle

Principle 19. Tiered participation arrangements

Rating: Observed

ASX Clear (Futures) applies a risk-based approach to its monitoring of tiered participation arrangements. To date, the focus of this monitoring has been on client activity in exchange-traded derivatives, since an account structure that permits client clearing of OTC derivatives transactions has only relatively recently been introduced. ASX Clear (Futures) has a formal standard that governs its risk-based approach to monitoring of concentration in tiered participation arrangements and documents mitigating steps (Key Consideration 4).

During 2013/14, clients of ASX Clear (Futures)' participants represented 69 per cent of initial margin held by ASX Clear (Futures) to cover its credit exposures to both participants and (indirectly) their clients. In managing the risks associated with tiered arrangements, ASX Clear (Futures) is able to gather information on indirect participation, although with some limitations. ASX Clear (Futures) will obtain better data to support its monitoring as participants and their clients make use of the newly introduced individually segregated account structure for both OTC and exchange-traded derivatives. Where data limitations remain, ASX can also seek more detailed information from participants on an ad hoc basis (Key Considerations 1, 2). ASX Clear (Futures) does not maintain formal thresholds at which large 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 (Key Consideration 3). ASX Clear (Futures) conducts daily monitoring of its client-level data, with the use of predefined triggers for further action.

Principle 20. FMI links

Rating: Observed

ASX Clear (Futures) maintains links to two other FMIs: Austraclear and NZClear. ASX Clear (Futures) assumes no direct financial risks from these links, but is exposed to operational risks. These are managed in the context of the operational risk management practices of both FMIs (Key Consideration 1). The legal basis of each link is supported by finality legislation (Key Consideration 2). ASX Clear (Futures) does not maintain links with any other CCPs (Key Considerations 7, 8).

Principle 21. Efficiency and effectiveness

Rating: Observed

ASX Clear (Futures) offers a range of participation options and clearing services designed to meet the needs of its participants and the ASX 24 market. ASX Clear (Futures) participants are able to influence risk management policies and broader service developments via a participant Risk Committee and OTC Product Committee that make recommendations and proposals to the ASX Clear (Futures) Board (Key Consideration 1, see also Principle 2). ASX Clear (Futures)' goals and objectives are determined by the ASX Limited Board (for group-level strategic direction and business priorities) and the ASX Clear (Futures) Board (for goals and objectives specific to the clearing service) (Key Consideration 2). ASX Clear (Futures) measures the effectiveness of its services via participant and user feedback. ASX Clear (Futures) performance reports are presented to ASX management on a monthly basis. Matters covered in these reports include operational performance, netting efficiency, incident management and participant complaints (Key Consideration 3).

Principle 22. Communication procedures and standards

Rating: Observed

ASX Clear (Futures) uses the internationally used OMnet Application Programming Interface as a communication standard for clearing of financial products traded on ASX 24. For OTC interest rate derivatives, ASX Clear (Futures) uses the internationally used Calypso clearing system for clearing-related messaging (Key Consideration 1).

Principle 23. Disclosure of rules, key procedures, and market data

Rating: Observed

ASX Clear (Futures) fully discloses its Operating Rules and Procedures (including the OTC Handbook) to participants, and publicly discloses its rules, fees and a range of additional relevant information on its risk management procedures (Key Consideration 1). This includes information regarding the process of novation, and general descriptions of system design and the roles and obligations of ASX Clear (Futures) and its participants (Key Consideration 2). ASX Clear (Futures) 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 (Key Consideration 3). A full breakdown of the various fees ASX Clear (Futures) charges, including available discount and incentive schemes, is published on the ASX website (Key Consideration 4). ASX has published its response to the CPSS-IOSCO Disclosure Framework and plans to periodically update and enhance this document where appropriate (Key Consideration 5). During 2013/14, ASX redesigned its website, providing links to information that is subject to disclosure requirements from a central location.

Summary Assessment by Principle
Principle 24. Disclosure of market data by trade repositories ***Rating: Not applicable*** Principle 24 not relevant to central counterparties.

Table 4: ASX Settlement Summary Assessment

Summary Assessment by Principle

Principle 1. Legal basis

Rating: Observed

ASX Settlement is a legal entity within the ASX Group that solely provides settlement services. ASX Settlement's legal basis is founded on clear and understandable rules that operate within the framework of relevant laws and regulations (Key Considerations 1, 2). The certainty of this legal basis in relevant jurisdictions is reinforced by supporting legislation, including ASX Settlement's protection as an approved netting arrangement under the PSNA, and is subject to periodic review by ASX Legal (Key Considerations 1, 4). ASX Settlement 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 (Key Consideration 3). ASX has not identified any material risks arising from potential conflicts of law relating to the operations of ASX Settlement (Key Consideration 5).

Principle 2. Governance

Rating: Observed

ASX Settlement pursues objectives that place a high priority on risk management, through compliance with relevant FSS and the broader Corporations Act requirement to do all other things necessary to reduce systemic risk. ASX Settlement must also comply with all its other obligations under Part 7.3 of the Corporations Act, including to operate in a fair and effective manner. ASX Settlement also acknowledges public policy objectives directed at financial market and payments system integrity, as well as the interests of customers and other stakeholders (Key Consideration 1). ASX Settlement's governance arrangements are documented and publicly disclosed. These arrangements give ultimate responsibility for the oversight of the operations and risk management of ASX Settlement to the ASX Limited Board and the ASX Settlement Board. Board and committee charters document Board roles and lines of responsibility and accountability (Key Considerations 2, 3). 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. Changes to the composition of the CS Boards during the 2013/14 further support these conflict handling procedures (Key Consideration 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 Settlement Board includes directors appointed for their expertise in clearing and settlement matters (Key Consideration 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 (Key Consideration 5). Remuneration of senior management in risk management roles is structured to provide appropriate incentives for sound and effective risk management. ASX maintains a clear and documented risk management framework, subject to regular internal and external review. Key processes and internal controls are subject to review by ASX's Internal Audit department, which is itself subject to periodic external review (Key Consideration 6). ASX utilises formal and informal consultation processes to ensure that the design and decisions of ASX Settlement reflect the interests of participants and other stakeholders. This includes the establishment of a new advisory forum, introduced in accordance with commitments under the ASX *Code of Practice for Clearing and Settlement of Cash Equities in Australia* (the Code of Practice), which provides user feedback in relation to the ongoing development of cash market clearing and settlement infrastructure and services (Key Consideration 7).

Principle 3. Framework for the comprehensive management of risks

Rating: Broadly 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 Settlement. This high-level framework is supported by more granular policies (currently being refreshed) and a governance structure to oversee ASX Settlement's risk management activities (Key Consideration 1). ASX Settlement's risk management framework does not place financial obligations on participants, but provides incentives to participants to control the risks that they bring to the SSF (Key Consideration 2). As part of its risk management framework, ASX Settlement reviews on an ongoing basis risks associated with interdependencies with other entities, and in relation to new initiatives, applies appropriate tools to manage these risks (Key Consideration 3). ASX Settlement has prepared a basic recovery plan on the basis of its existing powers and intends to enhance this plan in line with forthcoming CPSS-IOSCO guidance on recovery planning (Key Consideration 4).

Principle 4. Credit risk

Rating: Not applicable

ASX Settlement does not extend credit to participants or provide a settlement guarantee. Accordingly, ASX Settlement does not assume credit risk as principal. ASX Settlement's use of a DvP settlement mechanism ensures that participants do not face credit risks arising from ASX Settlement's settlement processes.

Summary Assessment by Principle

Principle 5. Collateral

Rating: Not applicable

Since ASX Settlement does not assume credit risk as principal (see Principle 4), it does not collect collateral from participants.

Principle 6. Margin

Rating: Not applicable

Principle 6 not relevant to securities settlement facilities.

Principle 7. Liquidity risk

Rating: Observed

ASX Settlement conducts settlement on a DvP Model 3 basis, and does not assume payment obligations in the settlement process. While participants face liquidity exposures arising from the possible reconstitution of the multilateral net batch in a default, including via the implementation of offsetting transaction arrangements related to novated transactions, ASX Settlement's back-out procedures are designed to limit concentrated liquidity exposures for non-defaulting participants (Key Consideration 1). These procedures are disclosed to participants through ASX Settlement's Operating Rules and Procedures (Key Consideration 2). ASX Settlement does not assume liquidity risk as principal through its settlement process (Key Considerations 3, 5, 6, 7, 8, 9, 10). ASX is considering whether any additional information could be disclosed to participants on the potential liquidity impact of reconstitution of the ASX Settlement batch in scenarios that extend beyond the management of an ASX Clear participant default.

Principle 8. Settlement finality

Rating: Observed

ASX Settlement defines the point at which settlement is final in its Operating Rules, and finality is ensured by its approval under Part 3 of the PSNA. Money settlements linked to securities transfers in ASX Settlement occur in RITS. The finality of interbank obligations arising from its settlements is protected by the approval of RITS under Part 2 of the same legislation (Key Consideration 1). Final settlement occurs each day in a single multilateral net batch on a DvP Model 3 basis (Key Consideration 2). ASX Settlement defines clear cut-off times for the cancellation of payment or transfer instructions (Key Consideration 3).

Principle 9. Money settlements

Rating: Observed

ASX Settlement conducts its money settlements across the ESAs of Payment Providers at the Bank, via RITS (Key Consideration 1). ASX Settlement does not conduct settlements across its own books or in commercial bank money (Key Considerations 2, 3, 4, 5). Payment Providers that effect money settlements on behalf of participants must be prudentially regulated and meet ASX Settlement's application criteria. The roles and responsibilities of commercial bank Payment Providers are governed by legal agreements between those banks, ASX Settlement, ASX Clear and the Australian Payments Clearing Association (APCA). ASX is considering the introduction of a formal framework to engage Payment Providers on changes to settlement processes.

Principle 10. Physical deliveries

Rating: Not applicable

ASX Settlement does not settle obligations requiring physical delivery.

Summary Assessment by Principle

Principle 11. Central securities depositories

Rating: Observed

ASX Settlement operates a central securities depository that maintains a record of securities holdings and movements for ASX-listed securities, and securities listed by Approved Listing Market Operators (ALMOs), through the CHESS sub-register. Securities registries maintain a separate record of holdings on behalf of issuers, using information on securities movements provided by CHESS. ASX Settlement employs a range of controls to ensure the integrity of these securities. These controls are subject to annual audit. ASX Settlement's Operating Rules and Procedures identify participants' interests in each type of security held within ASX Settlement, identify how these interests can be transferred within the facility, and provide that participants' securities would not be subject to claims by creditors in the event that ASX Settlement entered external administration (Key Consideration 1).

ASX Settlement does not allow overdrafts or debit balances in securities accounts within its system, and all securities (or interests in securities) are held in a dematerialised form (Key Considerations 2, 3). ASX Settlement's Operating Rules set out its obligations in providing safekeeping of participant assets, and ASX Settlement employs operational controls and insurance to mitigate custody risk (Key Consideration 4). Participant assets are segregated from ASX Settlement's own assets, and ASX Settlement supports the segregation of participant and client assets through the use of identifiers for securities holders (Key Consideration 5). ASX Settlement does not provide any ancillary services that could pose a risk to its central securities depository function (Key Consideration 6).

Principle 12. Exchange-of-value settlement systems

Rating: Observed

ASX Settlement eliminates principal risk in settlements involving the transfer of a security in exchange for cash by ensuring that delivery occurs if and only if the associated payment is settled at the same time (Key Consideration 1). For the purchase of securities, ASX Settlement does this through the use of a DvP Model 3 settlement mechanism, which completes settlement via a multilateral net batch.

Principle 13. Participant-default rules and procedures

Rating: Observed

ASX Settlement has powers under its Operating Rules and Procedures to manage a participant default, and has documented procedures setting out how to manage a default. Powers available to ASX Settlement include powers to suspend or terminate the participant status of a defaulted participant (Key Considerations 1, 2). Participants are also required to report any default event or expected default to the SSF. ASX Settlement sets out its default management powers in its Operating Rules and Procedures (Key Consideration 3). Given that ASX Settlement is not exposed to financial loss in the event of a participant default, its handling of a default situation is largely procedural in nature (Key Consideration 4).

Principle 14. Segregation and portability

Rating: Not applicable

Principle 14 not relevant to securities settlement facilities.

Principle 15. General business risk

Rating: Broadly observed

ASX Settlement identifies, monitors and manages its general business risks in the context of its overall Enterprise Risk Management Policy (Key Consideration 1). It has access to sufficient funds held at group level to support continued operations as a going concern if it incurs general business losses. These funds are backed by equity and invested in liquid assets. The legal basis of ASX Settlement's access to funds held at group level has been enhanced through a clause in the ASX Group Support Agreement (Key Considerations 2, 3, 4). ASX Settlement has developed a basic recovery plan and has commenced work towards enhancing this plan in line with forthcoming CPSS-IOSCO guidance on recovery planning (Key Consideration 3). ASX maintains viable arrangements to raise additional equity for its CS facilities as required (Key Consideration 5).

Principle 16. Custody and investment risks

Rating: Not applicable

ASX Settlement does not have any financial investments, and its participants do not lodge collateral or other assets with the SSF. General business risk capital covering the needs of ASX Settlement is invested at the group level. Arrangements for the investment of those funds are discussed under Principle 15.

Summary Assessment by Principle

Principle 17. Operational risk

Rating: Observed

ASX Settlement's key operating system is CHESS.

ASX Settlement manages its operational risks in the context of its group-wide Enterprise Risk Management Framework. ASX Settlement considers that it has sufficient well-trained and competent personnel and other resources to operate CHESS, and has taken steps to ensure that business development work does not risk the availability of these resources for key systems (Key Consideration 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 individual departments. The management of each department is responsible for implementing operational risk controls in their respective areas (Key Consideration 2). ASX Settlement sets clear operational reliability objectives and pursues policies designed to achieve those objectives. Key objectives for CHESS, such as minimum availability of 99.8 per cent and peak capacity utilisation of 50 per cent, were met during 2013/14 (Key Considerations 3, 4). ASX Settlement maintains physical and information security policies based on relevant domestic and international standards (Key Consideration 5).

ASX Settlement 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. Participants are required to maintain appropriate operational and business continuity arrangements that complement ASX Settlement's own arrangements, and are appropriate to the nature and scale of their business. ASX Settlement monitors participants' compliance with these requirements, and broader operational performance, on an ongoing basis (Key Consideration 6).

ASX Settlement manages operational interdependencies with participants and ASX Clear through its participant monitoring processes and group-wide risk management framework. Its dependencies on service providers and utilities are subject to ongoing monitoring and contingency arrangements where appropriate. ASX Settlement has introduced clauses in its legal agreements with key outsourcing and critical service providers that impose requirements on those providers equivalent to those under the FSS (which align with the Principles). Additional clauses provide for access to information for the Bank, and notice to the Bank in the case of termination (Key Consideration 7).

Principle 18. Access and participation requirements

Rating: Observed

ASX Settlement has objective and transparent participation requirements set out in its Operating Rules and Procedures (Key Consideration 1). These include financial requirements, as well as the requirement that participants maintain operational arrangements tailored to the specific activities of ASX Settlement. ASX Settlement's participation requirements promote the efficient operation of the facility, and do not impose discriminatory or restrictive access constraints such as minimum turnover levels (Key Consideration 2). ASX Settlement 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 (Key Consideration 3).

Principle 19. Tiered participation arrangements

Rating: Observed

In managing the risks associated with tiered arrangements, ASX Settlement is able to gather basic information on indirect participation (Key Considerations 1, 2). ASX Settlement 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 (Key Consideration 3). The partially overlapping participation base between ASX Settlement and ASX Clear allows for tiered participation risks to be monitored and addressed jointly (Key Consideration 4).

Principle 20. FMI links

Rating: Observed

ASX Settlement maintains a link to one other FMI, ASX Clear, for the settlement of novated securities transactions. There are no direct financial risks associated with this link, but ASX Settlement is exposed to operational risks. These are managed in the context of ASX's group-wide framework for operational risk management (Key Consideration 1). The legal basis of the link is supported by finality legislation (Key Consideration 2). ASX Settlement does not maintain links with any other central securities depositories (Key Considerations 3, 4, 5, 6).

Summary Assessment by Principle

Principle 21. Efficiency and effectiveness

Rating: Observed

ASX Settlement offers a range of participation options and settlement services designed to meet the needs of its participants, the ASX and Chi-X markets, and the ALMOs that it serves. ASX's Code of Practice for cash equities clearing and settlement addresses transparency and accessibility in the provision of these services and formalises avenues for user governance, including via a user Forum (Key Consideration 1, see also Principle 2). ASX Settlement's goals and objectives are determined by the ASX Limited Board (for group-level strategic direction and business priorities) and the ASX Settlement Board (for goals and objectives specific to the cash market settlement service). ASX Settlement measures the effectiveness of its services via participant and user feedback. ASX Settlement performance reports are presented to ASX management on a monthly basis. Matters covered in these reports include operational performance, settlement and netting efficiency, incident management and participant complaints (Key Consideration 3).

Principle 22. Communication procedures and standards

Rating: Observed

While ASX Settlement uses a proprietary messaging standard, this is acceptable given the domestic orientation of its service. ASX Settlement is consulting with users, via a Technical Committee established under the Code of Practice, on a proposal to adopt the internationally accepted ISO 20022 SWIFT standard as part of a broader renewal of its CHESS system (Key Consideration 1).

Principle 23. Disclosure of rules, key procedures, and market data

Rating: Observed

ASX Settlement fully discloses its Operating Rules and Procedures to participants, and publicly discloses its rules, fees and a range of additional relevant information on its risk management procedures (Key Consideration 1). This includes information regarding the general descriptions of system design and the roles and obligations of ASX Settlement and its participants (Key Consideration 2). ASX Settlement 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 (Key Consideration 3). A full breakdown of the various fees ASX Settlement charges, including available discount and incentive schemes, is published on the ASX website (Key Consideration 4). ASX has published its response to the CPSS-IOSCO Disclosure Framework and plans to periodically update and enhance this document where appropriate (Key Consideration 5). During 2013/14, ASX redesigned its website, providing links to information that is subject to disclosure requirements from a central location.

Principle 24. Disclosure of market data by trade repositories

Rating: Not applicable

Principle 24 not relevant to securities settlement facilities.

Table 5: Austraclear Summary Assessment

Summary Assessment by Principle

Principle 1. Legal basis

Rating: Observed

Austraclear is a separate legal entity within the ASX Group that solely provides settlement and related depository services. Austraclear's legal basis is founded on clear and understandable rules that operate within the framework of relevant laws and regulations (Key Considerations 1, 2). The certainty of this legal basis in relevant jurisdictions is reinforced by supporting legislation, including Austraclear's protection as an RTGS system under the PSNA, and is subject to periodic review by ASX Legal (Key Considerations 1, 4). Austraclear has publicly outlined the key features of its legal basis on its website and, from time to time, for information, provides legal opinions to participants or other stakeholders in respect of the legal basis of significant new services (Key Consideration 3). ASX has not identified any material risks arising from potential conflicts of law relating to the operations of Austraclear (Key Consideration 5).

Principle 2. Governance

Rating: Observed

Austraclear pursues objectives that place a high priority on risk management, through compliance with relevant FSS and the broader Corporations Act requirement to do all other things necessary to reduce systemic risk. Austraclear must also comply with all its other obligations under Part 7.3 of the Corporations Act, including to operate in a fair and effective manner. Austraclear also acknowledges public policy objectives directed at financial market and payments system integrity, as well as the interests of customers and other stakeholders (Key Consideration 1). Austraclear's governance arrangements are documented and publicly disclosed. These arrangements give ultimate responsibility for the oversight of operations and risk management of Austraclear to the ASX Limited Board and the Austraclear Board. Board and committee charters document Board roles and lines of responsibility and accountability (Key Considerations 2, 3). 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. Changes to the composition of the CS Boards during 2013/14 further support these conflict handling procedures (Key Consideration 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 Austraclear Board includes directors appointed for their expertise in clearing and settlement matters (Key Consideration 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 (Key Consideration 5). Remuneration of senior management in risk management roles is structured to provide appropriate incentives for sound and effective risk management. ASX maintains a clear and documented risk management framework subject to regular internal and external review. Key processes and internal controls are subject to review by ASX's Internal Audit unit, which is itself subject to periodic external review (Key Consideration 6). ASX utilises formal and informal consultation processes to ensure that the design and decisions of Austraclear reflect the interests of participants and other stakeholders. Austraclear has also established an Advisory Committee that provides a standing forum for user feedback on the design and ongoing development of services (Key Consideration 7).

Principle 3. Framework for the comprehensive management of risks

Rating: Broadly 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 Austraclear. This high-level framework is supported by more granular policies (currently being refreshed) and a governance structure to oversee Austraclear's risk management activities (Key Consideration 1). Austraclear's risk management framework does not place financial obligations on participants, but provides incentives to participants, such as additional operational requirements for collateral managers, to control the risks that they bring to the SSF (Key Consideration 2). As part of its risk management framework, Austraclear 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 (Key Consideration 3). Austraclear has prepared a basic recovery plan on the basis of its existing powers and intends to enhance this plan in line with forthcoming CPSS-IOSCO guidance on recovery planning (Key Consideration 4).

Principle 4. Credit risk

Rating: Not applicable

Austraclear does not extend credit to participants or provide a settlement guarantee. Accordingly, Austraclear does not assume credit risk as principal. Austraclear's use of a DvP settlement mechanism ensures that participants do not face credit risks arising from Austraclear's settlement processes.

Summary Assessment by Principle

Principle 5. Collateral

Rating: Not applicable

Since Austraclear does not assume credit risk as principal (see Principle 4), it does not collect collateral from participants.

Principle 6. Margin

Rating: Not applicable

Principle 6 not relevant to securities settlement facilities.

Principle 7. Liquidity risk

Rating: Observed

Austraclear settlements are conducted in real time on a DvP Model 1 basis, allowing participants to manage their liquidity risk exposures to bilateral counterparties (Key Consideration 1). Austraclear does not assume liquidity risk as principal through its settlement process (Key Considerations 2, 3, 5, 6, 7, 8, 9, 10).

Principle 8. Settlement finality

Rating: Observed

Austraclear defines the point at which settlement is final in its Regulations, and finality is ensured by its approval under Part 2 of the PSNA. The finality of interbank obligations arising from its settlements is protected by the approval of RITS under the same legislation (Key Consideration 1). Final settlement occurs on a DvP (or equivalent simultaneous exchange of assets) Model 1 basis in real time (Key Consideration 2). Austraclear defines clear cut-off times for the cancellation of payment or transfer instructions (Key Consideration 3).

Principle 9. Money settlements

Rating: Observed

Austraclear conducts its AUD money settlements across the ESAs of Participating Banks at the Bank, via RITS (Key Consideration 1). Participating Banks that effect money settlements on their own behalf or on behalf of other participants must be prudentially regulated and meet Austraclear's participation requirements (Key Consideration 3). In July 2014 Austraclear began offering a foreign currency settlement service, initially supporting the settlement of payments in Chinese renminbi across the books of the Bank of China (Sydney branch) (Key Considerations 2, 3). Austraclear's Regulations and legal agreement with Bank of China state that payments through this service settle with finality in real time (Key Consideration 5).

Principle 10. Physical deliveries

Rating: Not applicable

Austraclear does not settle obligations requiring physical delivery.

Principle 11. Central securities depositories

Rating: Observed

Austraclear acts as central securities depository for the securities that it settles. Austraclear employs a range of controls to ensure the integrity of these securities. These controls are subject to annual audit. Austraclear's Regulations and Procedures identify the interests held by participants in each type of security held within Austraclear, identify how these interests can be transferred within the facility, and provide that participants' securities would not be subject to claims by creditors in the event that Austraclear entered external administration (Key Consideration 1).

Austraclear does not allow overdrafts or debit balances in securities accounts within its system, and maintains paper securities in immobilised form, with other securities dematerialised (Key Considerations 2, 3). Austraclear's Regulations set out its obligations in providing safe keeping of participant assets, and Austraclear employs operational controls and insurance to mitigate custody risk (Key Consideration 4). Participant assets are segregated from Austraclear's own assets, and Austraclear supports the segregation of participant and client assets through optional sub-accounts (Key Consideration 5). Austraclear's provision of ancillary services to issuers is subject to operational risk controls (Key Consideration 6).

Summary Assessment by Principle

Principle 12. Exchange-of-value settlement systems

Rating: Observed

Austraclear eliminates principal risk in settlements involving the transfer of a security in exchange for cash or another security by ensuring that delivery occurs if and only if the associated payment is settled at the same time (Key Consideration 1). For the purchase of securities, Austraclear does this through the use of a DvP Model 1 settlement mechanism, which simultaneously settles linked payment and securities obligations on an item-by-item basis in real time. Collateral substitutions arising from the ASX Collateral service are performed on a delivery-versus-delivery (DvD) basis, whereby linked securities transactions settle simultaneously, including where a chain of substitutions are being performed.

Principle 13. Participant-default rules and procedures

Rating: Observed

Austraclear has powers under its Operating Rules and Procedures to manage a participant default, and has documented procedures setting out how to manage a default, including in respect of special purpose participants that are collateral managers. Powers available to Austraclear include powers to suspend or terminate the participant status of a defaulting participant (Key Considerations 1, 2). Participants are also required to report any default event or expected default to the SSF. Austraclear sets out its default management powers in its Regulations and Procedures (Key Consideration 3). Since Austraclear is not exposed to financial loss in the event of a participant default, its handling of a default situation is largely procedural in nature (Key Consideration 4).

Principle 14. Segregation and portability

Rating: Not applicable

Principle 14 not relevant to securities settlement facilities.

Principle 15. General business risk

Rating: Broadly observed

Austraclear identifies, monitors and manages its general business risks in the context of its overall Enterprise Risk Management Policy (Key Consideration 1). It has access to sufficient funds held at group level to support continued operations as a going concern if it incurs general business losses. These funds are backed by equity and invested in liquid assets. The legal basis of Austraclear's access to funds held at group level has been enhanced through a clause in the ASX Group Support Agreement (Key Considerations 2, 3, 4). Austraclear has developed a basic recovery plan and has commenced work towards enhancing this plan in line with forthcoming CPSS-IOSCO guidance on recovery planning (Key Consideration 3). ASX maintains viable arrangements to raise additional equity for its CS facilities as required (Key Consideration 5).

Principle 16. Custody and investment risks

Rating: Observed

The assets of Austraclear are invested on its own behalf in cash or other high-quality liquid assets, which allow prompt access to its assets when required (Key Considerations 1, 2). Austraclear controls investment risk by limiting its approved counterparties to large Australian banks, and investing predominantly in cash (Key Consideration 4). Austraclear does not use custodian banks for its investments (Key Consideration 3).

Summary Assessment by Principle

Principle 17. Operational risk

Rating: Observed

Austraclear's key operating system is EXIGO.

Austraclear manages its operational risks in the context of its group-wide Enterprise Risk Management Framework. Austraclear considers that it has sufficient well-trained and competent personnel and other resources to operate EXIGO, and has taken steps to ensure that business development work does not risk the availability of these resources for key systems (Key Consideration 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 individual departments. The management of each department is responsible for implementing operational risk controls in their respective areas (Key Consideration 2). Austraclear sets clear operational reliability objectives and pursues policies designed to achieve those objectives. Key objectives for EXIGO, such as minimum availability of 99.9 per cent and peak capacity utilisation of 50 per cent, were met during 2013/14 (Key Consideration 3, 4). Austraclear maintains physical and information security policies based on relevant domestic and international standards (Key Consideration 5).

Austraclear 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. Participants are required to maintain appropriate operational and business continuity arrangements that complement Austraclear's own arrangements, and are appropriate to the nature and scale of their business. Austraclear monitors participants' compliance with these requirements, and broader operational performance, on an ongoing basis (Key Consideration 6).

Austraclear manages operational interdependencies with participants, and ASX Clear and ASX Clear (Futures) through its participant monitoring processes and group-wide risk management framework respectively. Its dependencies on service providers and utilities are subject to ongoing monitoring and contingency arrangements where appropriate. Austraclear has introduced clauses in its legal agreements with key outsourcing and critical service providers that impose requirements on those providers equivalent to those under the FSS (which align with the Principles). Additional clauses provide for access to information for the Bank, and notice to the Bank in the case of termination (Key Consideration 7).

Principle 18. Access and participation requirements

Rating: Observed

Austraclear has objective and transparent participation requirements set out in its Regulations and Procedures (Key Consideration 1). These include minimum capital and other financial requirements, as well as the requirement that participants maintain operational arrangements tailored to the specific activities of Austraclear, including additional requirements for special purpose participants that are collateral managers. Austraclear's participation requirements promote the efficient operation of the facility, and do not impose discriminatory or restrictive access constraints such as minimum turnover levels (Key Consideration 2). Austraclear 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 (Key Consideration 3).

Principle 19. Tiered participation arrangements

Rating: Observed

In managing the risks associated with tiered arrangements, Austraclear is able to gather basic information on indirect participation (Key Considerations 1, 2). Austraclear 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 (Key Consideration 3). Austraclear is not directly exposed to financial risks arising from tiered participation (Key Consideration 4).

Summary Assessment by Principle

Principle 20. FMI links

Rating: Observed

Austraclear maintains three links to other FMIs:

- ASX Clear, for funds transfers in relation to margin payments
- ASX Clear (Futures), for AUD funds transfers in relation to margin payments, lodgement of AUD-denominated non-cash collateral, and settlement of 90-day bank bill futures
- Clearstream, in relation to Euroentitlements managed in Austraclear.

There are no direct financial risks associated with these links but Austraclear is exposed to operational risks. These are managed in the context of the operational risk management practices of each FMI (Key Consideration 1). The legal basis of each link is supported by finality legislation (Key Consideration 2). Austraclear's link with Clearstream does not involve the extension of credit, provisional transfers of securities or the use of custodians (Key Considerations 3, 4, 6).

Principle 21. Efficiency and effectiveness

Rating: Observed

Austraclear meets the needs of its participants and the markets it serves by: providing an appropriate range of registry, central securities depository and settlement services; maintaining a flexible participation structure; and by establishing the Austraclear Advisory Committee, comprised of user representatives, to provide input on the design, operation and future development of Austraclear (Key Consideration 1, see also Principle 2). Austraclear's goals and objectives are determined by the ASX Limited Board (for group-level strategic direction and business priorities) and the Austraclear Board (for goals and objectives specific to the settlement service). Austraclear measures the effectiveness of its services via participant and user feedback. Austraclear performance reports are presented to ASX management on a monthly basis. Matters covered in these reports include operational performance, settlement failures, incident management and participant complaints.

Principle 22. Communication procedures and standards

Rating: Observed

The Austraclear System supports the internationally accepted SWIFT Message Protocol. Participants can also access Austraclear via the internet or a secure private network (Key Consideration 1).

Principle 23. Disclosure of rules, key procedures, and market data

Rating: Observed

Austraclear fully discloses its Regulations and Procedures to participants, and publicly discloses its rules, fees and a range of additional relevant information on its risk management procedures (Key Consideration 1). This includes information regarding the general descriptions of system design and the roles and obligations of Austraclear and its participants (Key Consideration 2). Austraclear 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 (Key Consideration 3). A full breakdown of the various fees ASX Clear charges, including available discount and incentive schemes, is published on the ASX website (Key Consideration 4). ASX has published its response to the CPSS-IOSCO Disclosure Framework and plans to periodically update and enhance this document where appropriate (Key Consideration 5). During 2013/14, ASX redesigned its website, providing links to information that is subject to disclosure requirements from a central location.

Principle 24. Disclosure of market data by trade repositories

Rating: Not applicable

Principle 24 not relevant to securities settlement facilities.

3.2 Recommendations

Where a CS facility has been assessed to observe a Principle, ASIC and the Bank nevertheless expect ASX to work towards continual strengthening of its observance of the Principle. ASX recognises this and has governance arrangements in place to motivate and encourage continuous improvement. Tables 6 to 9 include some recommendations encouraging such improvement in some specific areas. These are not exhaustive, and ASX is encouraged to continue to seek further improvements to its observance of the Principles.

Where a facility has been assessed to broadly observe a Principle, ASIC and the Bank will have sought evidence that a plan is in place to address the identified issue of concern within a clear, defined and reasonable timeframe, and that it would not be reasonably practicable for the facility to take such actions immediately in order to fully observe the Principle. Tables 6 to 9 also include recommendations that identify the steps required by ASX to address the relevant issues of concern and fully observe the applicable Principle.

Table 6: ASX Clear Recommendations

Principle	Rating	Recommendations
3. Framework for the comprehensive management of risks	Broadly observed	In order to fully observe Principle 3, ASX Clear should implement plans to enhance its recovery plan consistent with forthcoming CPSS-IOSCO guidance on recovery planning.
4. Credit risk	Broadly observed	In order to fully observe Principle 4, ASX Clear should implement mechanisms consistent with forthcoming CPSS-IOSCO guidance on recovery planning that would fully address any uncovered credit losses and replenish financial resources following a participant default. ASX Clear should also complete the full validation of its capital stress test model by external experts and consider further enhancements to its reverse stress testing approach that take into account the impact of systematic shocks across multiple products. ASX Clear is encouraged to continually refine and enhance its reverse stress testing methodology and its integration into existing risk management processes.
6. Margin	Broadly observed	In order to fully observe Principle 6, ASX Clear should complete the full validation of its SPAN margin model and Derivatives Pricing System by external experts, and carry out plans for these external experts to perform a full validation of the Cash Market Margining model within the next two years. ASX Clear is encouraged to continually refine and enhance its margin backtesting and sensitivity analysis methodologies and their integration into existing risk management processes.
7. Liquidity risk	Broadly observed	In order to fully observe Principle 7, ASX Clear should implement mechanisms consistent with forthcoming CPSS-IOSCO guidance on recovery planning that would fully address any uncovered liquidity shortfall related to derivatives transactions following a participant default. ASX Clear should also complete the full validation of its liquidity stress test model by external experts, and enhance its sensitivity analysis approach to allow it to systematically examine the effect of underlying assumptions. This should include assumptions on the porting of client derivatives positions and the degree to which timely settlement can be achieved without the use of offsetting transaction arrangements.
9. Money settlements	Observed	ASX Clear is encouraged to work with ASX Settlement to introduce a framework to formally engage Payment Providers on changes to settlement processes in response to regulatory or market-driven change.
14. Segregation and portability	Broadly observed	In order to fully observe Principle 14, ASX Clear should complete implementation of enhanced client protection arrangements for cash equities that provide materially equivalent protection to house/client omnibus account segregation.

Principle	Rating	Recommendations
15. General business risk	Broadly observed	In order to fully observe Principle 15, ASX Clear should carry out plans to enhance its recovery plan in line with forthcoming CPSS-IOSCO guidance, and ensure that the capital it holds under Key Consideration 2 continues to be sufficient to fund the enhanced plan. As ASX Clear further develops its recovery plan, it should also review and integrate its recapitalisation processes with its broader recovery planning arrangements.
16. Custody and investment risks	Broadly observed	In order to fully observe Principle 16, ASX Clear should implement plans to further reduce the concentration of unsecured exposures to the large domestic banks under the ASXCC treasury investment policy. The Bank has opened a dialogue with ASX on the detail of its expectations for the credit and liquidity risk profile of ASXCC's investment portfolio, as well as the time frame over which these expectations should be met.
17. Operational risk	Observed	In order to continue to observe Principle 17, ASX Clear will need to review its operational arrangements in light of the proposed establishment of a special resolution regime for FMIs in Australia. In particular, ASX Clear will need to ensure that its operations are organised in such a way as to facilitate effective crisis management actions under that regime once finalised.
22. Communication procedures and standards	Observed	ASX Clear is encouraged to implement proposals to move to internationally accepted messaging standards as part of a future renewal of the CHESS system.

Table 7: ASX Clear (Futures) Recommendations

Principle	Rating	Recommendations
3. Framework for the comprehensive management of risks	Broadly observed	In order to fully observe Principle 3, ASX Clear (Futures) should implement plans to enhance its recovery plan consistent with forthcoming CPSS-IOSCO guidance on recovery planning.
4. Credit risk	Broadly observed	In order to fully observe Principle 4, ASX Clear (Futures) should implement mechanisms consistent with forthcoming CPSS-IOSCO guidance on recovery planning that would fully address any uncovered credit losses and replenish financial resources following a participant default. ASX Clear (Futures) should also complete the full validation of its capital stress test model by external experts. ASX Clear (Futures) is encouraged to continually refine and enhance its reverse stress testing methodology and its integration into existing risk management processes.
6. Margin	Broadly observed	In order to fully observe Principle 6, ASX Clear (Futures) should complete the full validation of its SPAN and OTC IRS Historic VaR margin models by external experts. ASX Clear (Futures) is encouraged to carry out plans to further enhance its margin backtesting and sensitivity analysis to test coverage of actual static participant portfolios on a daily and periodic basis. ASX Clear (Futures) is also encouraged to continually refine and enhance its margin backtesting and sensitivity analysis methodologies and their integration into existing risk management processes.
7. Liquidity risk	Broadly observed	In order to fully observe Principle 7, ASX Clear (Futures) should implement mechanisms consistent with forthcoming CPSS-IOSCO guidance on recovery planning that would fully address any uncovered liquidity shortfall following a participant default. ASX Clear (Futures) should also complete the full validation of its liquidity stress test model by external experts. ASX Clear (Futures) is encouraged to continually refine and enhance its liquidity reverse stress testing methodology and its integration into existing risk management processes.
14. Segregation and portability	Observed[16]	ASX Clear (Futures) should carry out plans to implement enhanced client segregation arrangements that support the lodgement of excess client collateral in order to meet requirements of the corresponding CCP Standard 13.
15. General business risk	Broadly observed	In order to fully observe Principle 15, ASX Clear (Futures) should carry out plans to enhance its recovery plan in line with forthcoming CPSS-IOSCO guidance, and ensure that the capital it holds under Key Consideration 2 continues to be sufficient to fund the enhanced plan. As ASX Clear (Futures) further develops its recovery plan, it should also review and integrate its recapitalisation processes with its broader recovery planning arrangements.
16. Custody and investment risks	Broadly observed	In order to fully observe Principle 16, ASX Clear (Futures) should implement plans to further reduce the concentration of unsecured exposures to the large domestic banks under the ASXCC treasury investment policy. The Bank has opened a dialogue with ASX on the detail of its expectations for the credit and liquidity risk profile of ASXCC's investment portfolio, as well as the time frame over which these expectations should be met.
17. Operational risk	Observed	In order to continue to observe Principle 17, ASX Clear (Futures) will need to review its operational arrangements in light of the proposed establishment of a special resolution regime for FMIs in Australia. In particular, ASX Clear (Futures) will need to ensure that its operations are organised in such a way as to facilitate effective crisis management actions under that regime once finalised.

[16] As noted in Table 3, the Bank has assessed that ASX Clear (Futures) broadly observes the corresponding CCP Standard 13.

Table 8: ASX Settlement Recommendations

Principle	Rating	Recommendations
3. Framework for the comprehensive management of risks	Broadly observed	In order to fully observe Principle 3, ASX Settlement should implement plans to enhance its recovery plan consistent with forthcoming CPSS-IOSCO guidance on recovery planning.
9. Money settlements	Observed	ASX Settlement is encouraged to work with ASX Clear to introduce a framework to formally engage Payment Providers on changes to settlement processes in response to regulatory or market-driven change.
15. General business risk	Broadly observed	In order to fully observe Principle 15, ASX Settlement should carry out plans to enhance its recovery plan in line with forthcoming CPSS-IOSCO guidance, and ensure that the capital it holds under Key Consideration 2 continues to be sufficient to fund the enhanced plan. As ASX Settlement further develops its recovery plan, it should also review and integrate its recapitalisation processes with its broader recovery planning arrangements.
17. Operational risk	Observed	In order to continue to observe Principle 17, ASX Settlement will need to review its operational arrangements in light of the proposed establishment of a special resolution regime for FMIs in Australia. In particular, ASX Settlement will need to ensure that its operations are organised in such a way as to facilitate effective crisis management actions under that regime once finalised.
22. Communication procedures and standards	Observed	ASX Settlement is encouraged to implement proposals to move to internationally accepted messaging standards as part of a future renewal of the CHESS system.

Table 9: Austraclear Recommendations

Principle	Rating	Recommendations
3. Framework for the comprehensive management of risks	Broadly observed	In order to fully observe Principle 3, Austraclear should implement plans to enhance its recovery plan consistent with forthcoming CPSS-IOSCO guidance on recovery planning.
15. General business risk	Broadly observed	In order to fully observe Principle 15, Austraclear should carry out plans to enhance its recovery plan in line with forthcoming CPSS-IOSCO guidance, and ensure that the capital it holds under Key Consideration 2 continues to be sufficient to fund the enhanced plan. As Austraclear further develops its recovery plan, it should also review and integrate its recapitalisation processes with its broader recovery planning arrangements.
17. Operational risk	Observed	In order to continue to observe Principle 17, Austraclear will need to review its operational arrangements in light of the proposed establishment of a special resolution regime for FMIs in Australia. In particular, Austraclear will need to ensure that its operations are organised in such a way as to facilitate effective crisis management actions under that regime once finalised.

Appendix A: Details Supporting Assessment of Clearing and Settlement Facilities

This Appendix sets out detailed evidence relevant to each Key Consideration supporting ASIC's and the Bank's assessment of how well the four licensed CS facilities in the ASX Group – the two CCPs, ASX Clear and ASX Clear (Futures); and the two SSFs, ASX Settlement and Austraclear – observed the requirements of the Principles as at 30 June 2014. In their assessment, ASIC and the Bank have applied the rating system described in Section 3.

Part 7.3 of the Corporations Act divides responsibility for the oversight of CS facilities between ASIC and the Bank. Consistent with this division of responsibilities, ASIC and the Bank have agreed on the appropriate division of oversight responsibilities for each of the Principles between the two regulators, as set out in Table A1. This allocation of responsibilities was reflected in the process of completing the Assessment.

Table A1: Allocation of Responsibilities for Principles

Principle	Responsible authority
1. Legal basis 2. Governance 11. Central securities depositories 13. Participant default rules and procedures 14. Segregation and portability 15. General business risk 16. Custody and investment risks 17. Operational risk 18. Access and participation requirements 19. Tiered participation arrangements 20. Financial market infrastructure links 23. Disclosure of rules, key procedures and market data	Joint responsibility of ASIC and the Reserve Bank

3. Framework for the comprehensive management of risks 4. Credit risk 5. Collateral 6. Margin 7. Liquidity risk 8. Settlement finality 9. Money settlements 10. Physical deliveries 12. Exchange-of-value settlement systems	Reserve Bank
21. Efficiency and effectiveness 22. Communication procedures and standards	ASIC
24. Disclosure of market data by trade repositories	Not applicable to CCPs or SSFs

A1. Details Supporting Assessment of Central Counterparties

The following provides detailed evidence relevant to the Australian Securities and Investments Commission's (ASIC's) and the Reserve Bank's (the Bank's) assessment of how the central counterparties (CCPs) ASX Clear Pty Limited (ASX Clear) and ASX Clear (Futures) Pty Limited (ASX Clear (Futures)) observe each of the relevant Principles and underlying Key Considerations of the *Principles for Financial Market Infrastructures* (the PFMIs) developed by the Committee on Payment and Settlement Systems (CPSS, now the Committee on Payments and Market Infrastructure (CPMI)) and the Technical Committee of the International Organization of Securities Commissions (IOSCO). It includes ASIC's and the Bank's ratings of how well ASX Clear and ASX Clear (Futures) comply with each of the Principles at 30 June 2014.[1]

A1.1 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 Section 2.3.1). 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. 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).

Principle 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

ASIC's and the Bank's assessment is that ASX Clear observes the requirements of Principle 1. The legal basis of ASX Clear is described in further detail under the following Key Considerations.

1.1 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 clearing and settlement (CS) facility licence, under Part 7.3 of the *Corporations Act 2001*. This licence is administered by 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

1 For an explanation of ASIC's and the Bank's Assessment approach and the ratings scale used, see Section 3.1.

between: ASX Clear and each of its participants; each participant and each other participant; and each participant and each issuer.

- ASX Clear is protected as a 'netting market' under Part 5 of the PSNA (see also Key Consideration 1.4).

The legal basis of ASX Clear's activities is reviewed by ASX Legal whenever there are material amendments to the Operating Rules or Procedures. Three such reviews occurred for ASX Clear during 2013/14.

Legal entity

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 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.

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.

1.2 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 in the Operating Rules and those that may instead be considered under the Procedures. Rule changes are subject to a Ministerial disallowance process.

The ASX Clear Operating Rules and Procedures are supplemented with explanatory material, published on the ASX public website and the ASX restricted participant website, to support participants' (and prospective participants') understanding 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 Standard Portfolio Analysis of Risk (SPAN) and Cash Market Margining (CMM) margining methodologies, business continuity arrangements and the Default Management Framework (DMF). Participants have access to additional manuals, reports and explanatory notes covering such topics as the application process for new participants, compliance, technical and 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. In consultation with the Bank, ASIC will consider the changes and advise ASX of any regulatory concerns. Once such concerns are satisfactorily addressed, ASIC will invite formal submission of the proposed changes to ASIC, which triggers a 28-day 'disallowance' period, during which the Minister may choose to disallow the 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. If changes to the Operating Rules are not disallowed by the Minister, they are notified to participants via the ASX website.

1.3 A central counterparty should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.

The legal basis for the activities of ASX (Clear) and the facility's protection as an approved netting market under the PSNA – see also Key Consideration 1.4 – are described on the ASX public website in its Disclosure Framework document, which sets out in detail how each CS facility meets the requirements of each Principle within the *Principles for Financial Market Infrastructures* (PFMIs) developed by the Committee on Payment and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO) (see Key Consideration 23.2).[2]

ASX, on behalf of ASX Clear, submits an Annual Group Licence Report to ASIC and the Bank. This report sets out the legal basis for the CS facilities' activities under their licence obligations, and is used by ASIC in the preparation of ASIC's Market Assessment Report for the ASX Group.

ASX Clear may seek independent legal opinions on relevant legal matters relating to significant new services, including 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 that new Operating Rules will have the intended legal effect.

1.4 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.

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, including those related to margin obligations, arising from clearing are settled in Austraclear. The point at which settlement of these obligations 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 protects the effectiveness of market netting contracts, including contracts entered into in accordance with the rules of a netting market. ASX Clear is an approved netting market. This protection from the application of any other law, including insolvency provisions, is relevant to the function of a CCP. In particular, it provides protection for:

[2] Available at <http://www.asx.com.au/documents/regulation/pfmi_disclosure_framework.pdf>.

- 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 arising between ASX Clear and its participants are settled in Austraclear and securities-related obligations are settled in ASX Settlement. The legal certainty of settlement finality is supported by Austraclear's approval as a real-time gross settlement (RTGS) system under Part 2 of the PSNA and by ASX Settlement's approval as a netting arrangement under Part 3 of the PSNA. Approval under Part 2 provides protection against application 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. Approval under Part 3 provides protection of 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 for itself or 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. For cash market transactions, ASX Clear's Operating Rules specify that a transaction on the ASX or Chi-X markets is novated with effect from the matching of a bid and offer, while for exchange-traded and 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. During the 2013/14 Assessment period ASX Clear introduced rules giving participants the right to terminate novated contracts in the event that ASX Clear defaulted on its obligations, with calculation of a net obligation to or from each participant on termination ('close-out netting'). Close-out netting rights are a prerequisite for participants that are authorised deposit-taking institutions (ADIs) to apply capital requirements to their net (rather than gross) trade exposures to CCPs, and similarly to report these exposures as net in their financial accounts. The rules do not interfere with ASX Clear's existing liquidity management arrangements, and ASX will review the continued appropriateness of close-out netting rights in light of future developments in FMI recovery and resolution.

1.5 A central counterparty conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.

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 non-exclusive jurisdiction of New South Wales courts. ASX Legal's analysis of potential conflicts of law across jurisdictions has identified no material legal risks.

Principle 2: Governance

A central counterparty should have governance arrangements that are clear and transparent, promote the safety and efficiency 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

ASIC's and the Bank's assessment is that ASX Clear observes the requirements of Principle 2. ASX Clear's governance arrangements are described in further detail under the following Key Considerations.

2.1 A central counterparty should have objectives that place a high priority on the safety and efficiency of the central counterparty and explicitly support financial stability 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 the ASX public website. The objectives prioritise the Boards' responsibilities in the area of risk management and in particular, ASX Clear's responsibility for complying with the Bank's Financial Stability Standards (FSS), which are aligned with stability-related requirements of the Principles.

ASX Clear's objectives recognise the public interest. These objectives are reflected in the ASX Limited Board Charter, which provides that the Board has a responsibility to oversee the conduct of the 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 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 Key Consideration 2.7). Consultations and responses to consultations are made available on the ASX 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 (the Forum) met for the first time in October 2013. The Forum provides user feedback in relation to the ongoing development of cash market clearing and settlement infrastructure and services.[3] 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 Key Consideration 2.7).[4]

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, relevant authorities, participants and, at a more general level, the public.

The governance arrangements of ASX Clear are documented on the ASX public website. This documentation includes the Charters of the ASX Limited Board, the CS 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 CPSS-IOSCO Principles; group and business structure, including an organisational chart showing senior group executives; and risk management policies (in summary form).

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

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

4 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>.

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. The ASX Clear Board meets regularly (seven times in 2013/14) and receives detailed reports on ASX Clear's business and operations, risk management and financial performance.

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 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. If there is a real possibility of a material conflict of interest and duty on a matter being voted on at a meeting of the CS Boards, the director must not be present for the discussion or vote related to that matter.

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

At the end of June 2014, the ASX Limited Board had eight members, comprising the ASX CEO and seven 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 five non-executive directors. During 2013/14, one non-executive director resigned and two new directors were appointed. Two of the non-executive directors are also members of the ASX Limited Board, while the remaining three, including the Chair, are external directors appointed for their expertise in clearing and settlement operational and risk management matters. This ensures that directors have the capacity to conduct informed independent review of relevant issues. During 2013/14, ASX made changes to the composition of the CS Boards. Previously, all four CS Boards shared common directors; now, the ASX Clear and ASX Settlement Boards share common directors, but one of these directors does not serve on the ASX Clear (Futures) or Austraclear Boards. This change was made primarily for business reasons, but also supports ASX's conflict handling arrangements (see below under 'Group structure').

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 the ASX website.[5] The independence of directors is assessed according to this

5 Available at
<http://www.asx.com.au/documents/regulation/ASXL_guidelines_affecting_independent_status.PDF>.

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 the ASX website.[6]

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 on the recommendation of the Remuneration Committee at regular 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 may take advice from an external remuneration consultant. The process involves benchmarking against a group of peer companies. The last fee review took place at the end of 2013 following changes to relevant governance and regulatory arrangements. The revised fees took effect on 1 January 2014.

Group structure

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 and the Principles. ASX considers that there is limited potential for shared directorships to create conflicts between ASX's group-wide commercial interests and the risk management function of the CS facilities. More broadly, it considers that conflicts between directors' roles on the CS Boards and the ASX Limited Board are unlikely given the distinct roles the separate entities perform, and in view of group-wide arrangements to manage matters such as operations and compliance. If a conflict were to arise, a director sitting on multiple CS Boards would be expected to make decisions in the best interests of each facility.

The restructuring of the CS Boards to reduce the number of common directors between each of the CS facilities and ASX Limited further limits the potential for conflict. Two directors will

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

now be able to form a quorum of the ASX Clear Board, allowing matters that raise potential conflicts of interest to be considered and voted on without the involvement of directors that are also on the ASX Limited Board.

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 discharge their responsibilities for the operation and risk management of the central counterparty.

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 Group Executive, Operations (GE, 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 GE, Operations. The CS Boards provide input on the setting of Key Performance Indicators and may review the performance outcomes for the CRO and the GE, Operations.

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 Human Resources to identify and manage the development of high potential staff according to individual and business needs. Succession and contingency planning is conducted for Group Executives, General Managers and other key staff.

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

ASX has a documented risk management framework, which is described under Key Consideration 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. The Boards consider these policies and standards at a concurrent meeting; where the policy or standard is relevant to more than one facility, the Boards of those facilities would simultaneously determine whether to approve the policy or standard. If the policy requirements under consideration differ across facilities, the Boards of each relevant facility would separately determine whether to approve the policy or standard (during the concurrent meeting). 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, such as margin policy, stress-testing standards and investment mandates, are reviewed by the CS Boards on an annual basis. Detailed reporting to the CS Boards occurs quarterly on the operation of the CCPs and their compliance 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 departments comply with Board-approved policies and standards, where necessary using external specialists to assist with reviews. The CS Boards may also request external reviews. Clearing and settlement risk management policies and standards were reviewed during 2013/14. The review, along with the development of new policies and standards, will be continued during 2014/15.
- 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 departments, 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 departments.
- Individual departments 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 department 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 departments 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 departments within the CRO’s portfolio have a primary revenue or profit objective. There are four functional departments with at least some responsibility for CCP financial risk management: the Clearing Risk Strategy and Policy department; the Clearing Risk Quantification (CRQ) department; the Clearing Risk Management department; and the Portfolio Risk Manager. The CRQ department was created specifically to maintain and validate risk and pricing models, allowing Clearing Risk Strategy and Policy to focus on higher level risk policies and longer term initiatives. 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. ASX has determined that establishing a separate participant risk committee at ASX Clear is not currently necessary, given the availability of alternative means of seeking participant feedback on risk matters. ASX Clear obtains participant feedback on risk management matters through multiple channels, including the Forum, the Business Committee, and an ETO Advisory Committee.

Model validation

The Boards of ASX Clear and ASX Clear (Futures) (the 'Clearing Boards') regularly review and discuss with management matters of risk policy, including changes to margin and stress-testing methodologies.

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 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, the assessment approach and whether the validation should be carried out by an internal or external expert. ASX assigns each of its risk models a weighted risk score between one and five to determine how critical it is, based on factors such as the internal and external impact of the model, frequency of use and complexity. ASX uses the risk score to determine the frequency of comprehensive independent model validations and whether models are to be validated internally or externally. 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 reviews are coordinated by Internal Audit, including the use of external experts as required under the framework or where this is deemed necessary by the RQG or Internal Audit. ASX Clear's approach to model validation is discussed in more detail under Key Considerations 4.5, 6.7 and 7.9.

Internal audit

ASX maintains an internal audit plan that provides for a three-to-five year review cycle of key operational and risk management processes, and internal control mechanisms that are governed by ASX's Enterprise Risk 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 the ASX public website.

The Internal Audit department is a separate department within ASX that reports to the CRO for administrative purposes, and the Audit and Risk Committee and Managing Director and CEO for audit purposes. The Internal Audit department's reporting structure also includes reports to the CS Boards and ASX Compliance Board. Internal Audit's 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 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 department 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 such audit was carried out in 2011, with the next assessment scheduled for October/November 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.

2.7 The board 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. 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. 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. Participants' views may also be gathered through the induction program for new participants, as well as ongoing participant liaison and compliance checks.

Under the Code of Practice, ASX has established the Forum, an advisory body that allows users of ASX's cash market clearing and settlement services, and other industry stakeholders,

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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.

to provide input to the Boards of ASX Clear and ASX Settlement on those services. The Forum provides a mechanism for ASX to engage with users in relation to the ongoing development of cash market clearing and settlement infrastructure 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, operation 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. Members are appointed for a term of two years. It is chaired by a non-executive member of the CS Boards and also includes a non-executive director representing ASX Limited. The Forum meets at least three times each year, with the first meeting held in October 2013. Upcoming meeting dates, agendas and minutes are all published on a dedicated website, together with a summary of key issues discussed and the Forum's recommendations for the CS Boards. 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 provides business and operational input on the Forum's forward work program. Business Committee meetings are held four to six weeks prior to Forum meetings.

The Forum and Business Committee have progressed three main work streams during 2013/14:

- a proposed move to a shortened two-day settlement cycle for equities
- replacement of the CHESS clearing and settlement system, including review of messaging standards (see Principle 22)
- international benchmarking of cash market clearing and settlement prices.

ASX Clear seeks participant feedback on matters relating to ETOs through an ETO Advisory Committee, as well as regular engagement with the ETO subcommittee of the Stockbrokers Association of Australia. The ETO Advisory Committee, representing participants and clients, was established to advise ASX in its response to declining volumes in the ETO market, but it also provides a forum for broader user feedback, including on risk management matters.

Given the availability of alternative means of seeking participant feedback on risk matters, ASX determined that establishing a separate participant risk committee at ASX Clear, similar to the Risk Committee established in ASX Clear (Futures) was not necessary (see Appendix A1.2, Key Consideration 2.7). However, ASX would review the case for establishing a separate risk committee for ASX Clear if there were significant changes to the regulatory or market environment.

Principle 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: Broadly observed

The Bank's assessment is that ASX Clear broadly observes the requirements of Principle 3. In order to fully observe Principle 3, ASX Clear should:

- implement plans to enhance its recovery plan consistent with forthcoming CPSS-IOSCO guidance on recovery planning.

ASX Clear's risk management framework is described in further detail under the following Key Considerations.

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. Risk-management frameworks should be subject to periodic review.

Identification of risk

ASX's high-level framework for risk management is described in its Enterprise Risk Management Policy. This policy divides risks identified by ASX into two broad categories: 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 Key Consideration 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.

[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.

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 departments. Managers of each department are responsible for identifying and monitoring risks relevant to their department's activities, as well as for designing and implementing risk management policies and controls to manage identified risks. Department 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 requirements of the Principles embedded in the 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 CCPs, including ASX Clear. These policies govern more granular internal 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. During 2013/14, ASX has developed or updated standards covering most relevant aspects of the FSS. The Bank will continue to monitor the maintenance of existing policies and standards, and the finalisation of remaining policies and standards by ASX over 2014/15.

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

- *The CS Boards*. Each CS facility has a board (see Key Consideration 2.3 and 'ASX Group Structure' in Section 2.3.1), 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 GE, 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 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 GE, 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*. ASX established the RQG in early 2013 to strengthen the technical oversight of risk management policy. The RQG is chaired by either the CRO, the

General Manager, CRQ, or the General Manager, Clearing Risk Strategy and Policy, and is made up of key staff from ASX's CRQ, Clearing Risk Strategy and Policy and Clearing Risk Management departments 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 and the Model Validation Framework, including oversight of model governance and regular reviews of margining and stress test models. The group meets at least on a monthly basis or more frequently as required.

- *Default Management Steering Group (DMSG).* ASX formed the DMSG in 2010/11 to provide oversight of the CCPs' 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 that provide timely and accurate information relevant to its risk policies, procedures and controls. This includes information on risk exposures to individual participants, as well as aggregated information on risk exposures across the central counterparty. Key information systems include:

- *Margining*. ASX Clear uses the CME SPAN system for margining of derivatives and uses CMM for the daily margining of cash equity transactions using a mixture of Historical Simulation of Value at Risk (HSVaR) and flat rates for less liquid securities.

- *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. 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.

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 departments 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 PricewaterhouseCoopers in 2011 and the next review is scheduled for the second half of 2015.

Previously, the Enterprise Risk Management Policy was reviewed by the Audit and Risk Committee approximately every three years, with the Committee informed of material changes in the interim. Following the most recent review in August 2013, future reviews will be conducted on a two year cycle.

3.2 **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 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 Key Consideration 4.2).

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.

3.3 **A central counterparty should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, and service providers) as a result of interdependencies, and develop appropriate risk-management tools to address these risks.**

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 department risk profiles, see Key Consideration 3.1), and its processes for identifying risks associated with new activities. In the case of new products and services, ASX undertakes risk assessments when undertaking an expansion of its activities or in the event of material changes to its business. Risk assessments are built into ASX's project management framework (see Key Considerations 15.1, 17.4).

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 Key Consideration 17.4.

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 (see Principle 20).

3.4 **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.**

ASX Clear has developed a basic recovery plan that identifies scenarios that could threaten its ongoing provision of critical clearing services and sets out how it would respond to such scenarios on the basis of its existing powers under its Operating Rules and Procedures. The recovery plan sets out the likely sequence of actions that ASX would take under each identified recovery scenario, and analyses the advantages and disadvantages of tools available to ASX Clear to respond to such scenarios. In particular, ASX's analysis has identified that ASX Clear's existing Operating Rules do not provide it with sufficient tools to be able to fully address uncovered credit losses and liquidity shortfalls, and replenish financial resources following a participant default or a non default-related financial loss (see also Key Considerations 4.7 and 7.9).

ASX has commenced work to develop a more comprehensive recovery plan supported by tools to fully address uncovered credit losses and liquidity shortfalls, and replenish financial resources. It intends to base these tools on forthcoming CPSS-IOSCO guidance on recovery planning, expected to be published in late 2014. ASX intends to consult on its proposed recovery approach in the second half of 2014.

Principle 4: Credit risk

A central counterparty should effectively measure, monitor and manage its credit exposures to participants and those arising from its payment, clearing and settlement processes. A central counterparty should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. 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 sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the 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 to the central counterparty in extreme but plausible market conditions.

Rating: Broadly observed

The Bank's assessment is that ASX Clear broadly observes the requirements of Principle 4. In order to fully observe Principle 4, ASX Clear should:

- 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
- complete the full validation of its capital stress-test model by external experts and consider further enhancements to its reverse stress testing approach that take into account the impact of systematic shocks across multiple products.

ASX Clear's approach to managing its credit risk is described in further detail under the following Key Considerations.

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 payment, clearing, and settlement

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. This framework comprises: a stress-testing regime (see Key Consideration 4.5); the use of variation margin to mark positions to market (see Principle 6); and the maintenance of prefunded financial resources. These financial resources comprise initial margin (see Principle 6), other collateral calls based on participants' positions, and fully prefunded pooled financial resources of $250 million (see Key Consideration 4.4). Financial resources received in cash are invested in high-quality assets in accordance with ASXCC's treasury investment policy (see Principle 16). ASX Clear also has access to $300 million of promissory resources from participants if required (Key Consideration 4.7).

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.

ASX Clear's Clearing Risk Management (CRM) department 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 portfolios (see Key Consideration 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, Additional Initial Margin (AIM) is called (see Key Consideration 4.4).

Within CRM, the Counterparty Risk Assessment (CRA) team is responsible for ongoing monitoring, assessment and investigation of matters relating to financial requirements (including participants' monthly financial statements). CRA 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 as appropriate. Other metrics monitored by CRA, including factors used in determining the CROCC watch list (see below), can be used as an alternative or supplementary means for ICR determination where these indicate an assessment of credit risk that differs from external credit ratings. In other cases, the ICR 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).

CRA 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 CRA, 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. During 2013/14, there were no ASX Clear participants on the watch list.

Participants on ASX’s watch list may be subject to trading restrictions, or additional credit risk controls. For instance, they may be subject to calls for additional margin, higher capital requirements, additional capital reporting requirements, or a reduced STEL (such that additional margin would be called at a lower level of capital stress-test exposure (see Key Consideration 4.5)). CRM typically also carries out a detailed credit review of participants on the watch list.

ASX Clear will also call capital-based position limit (CBPL) AIM from a participant with a large portfolio (measured by initial margin requirements) relative to its net tangible assets, or may make an additional cover call where it has other counterparty credit risk concerns.

During 2013/14, ASX undertook a broad review of concentration risk. As a result of this review, ASX developed a formal Concentration Risk Standard, setting out a risk-based approach to monitoring concentration risks in three areas:

- Concentrations in participants’ exposures to their clients (discussed under Principle 19).
- Concentrations of individual participants’ positions in particular products. Evidence of such concentration indicates individual participant exposure to large price movements in a particular product that could challenge its capacity to meet obligations to the CCP. CRM monitors the concentration of participants’ ETO positions in single products, by number of contracts or value of underlyings. Further review would be triggered should exposure to a particular product exceed a specified share of a participant’s total portfolio, subject to a materiality threshold.
- Concentration of positions in a market in a single participant. Evidence of a single participant accounting for a large share of positions in a particular market segment could indicate the potential for complications in closing out or transferring these positions if the participant were to default. CRM monitors the market shares of participants in each ETO product. Further review would be triggered if a single participant held more than 25 per cent of the contracts in the market for that product and the size of the position (relative to average market turnover for that period) suggested that it could take more than two days to close out that participant’s position.

If a trigger were met under its Concentration Risk Standard, ASX would not automatically take action. In determining whether further investigation or action was warranted, ASX would take into account a number of factors, including the materiality of the breach, and the credit standing and activity profile of the relevant participant.

Under its risk-based approach to monitoring concentration risk, ASX Clear has prioritised formal concentration monitoring for derivatives products over cash market products. This reflects the currently relatively low exposures generated by cash market transactions. ASX Clear nevertheless monitors concentration risks in the cash market via its ongoing monitoring of participant credit exposures, investigating whether identified issues are related to concentrated holdings in particular securities.

For details of ASX Clear’s other participation requirements and participant monitoring arrangements, see Principle 18.

4.3 **A payment system or securities settlement facility should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a deferred net settlement payment system or deferred net settlement securities settlement facility in which there is no settlement guarantee, but where its participants face credit exposures arising from its payment, clearing and settlement processes such an FMI should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.**

Not relevant to central counterparties.

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 Principle 5 on collateral and Principle 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. This capital raising permitted a change in the composition of ASX Clear's prefunded pooled financial resources. In particular, $100 million was used to replace with equity a subordinated loan to ASX Clear from ASXCC, which had in turn been funded by a principal-reducing subordinated from a commercial bank. ASX Clear's $250 million of prefunded financial resources currently consist of (in order of application): funds held in a restricted capital reserve ($71.5 million); own equity ($3.5 million); fully drawn subordinated loans from ASXCC (totalling $75 million), which are ultimately funded by a subordinated loan from ASX Limited ($75 million); and a second tranche of own equity ($100 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 Key Considerations 4.5, 4.6). 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 but may be used to address uncovered losses in the event that prefunded financial resources were exhausted (Key Consideration 4.7). 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 during 2013/14 did not require recognition in other jurisdictions, the Bank's assessment is that ASX Clear was not systemically important in multiple jurisdictions at the date of this Assessment.

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 Key Consideration 4.5). 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 prefunded pooled financial 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 Key Consideration 4.5).

4.5 A central counterparty should, determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A 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 total financial resources. 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 counterparties 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 Key Consideration 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. On a daily basis, ASX reviews the scenarios which underpin the capital stress testing regime for ASX Clear, and on a monthly basis carries out a review of market conditions to determine whether there is any evidence of stress that would support a change to scenarios. Any observed changes in price, volatility or interest rate curves in excess of the stress-test scenarios would constitute an event beyond what was previously considered to be extreme but plausible. Accordingly, it is likely that a revision to the relevant stress test scenario would be presented for consideration by the Clearing Boards. In addition, ASX conducts monthly reverse stress tests to confirm the sufficiency of pooled financial resources and to cross-validate the capital stress-test scenarios (see Key Consideration 4.6).

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 Key Consideration 2.6). Under this framework the capital stress test model must be externally validated annually. ASX has engaged external experts to conduct a validation of the capital stress test model during the third quarter of 2014. The Bank will monitor the outcome of this validation.

Reporting and use of stress test results

Capital stress test exposures are routinely reported to ASX management, the Clearing 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 CRO and CALCO. The CS Boards and ASX Limited Board are responsible for approving any increase to prefunded pooled financial resources where this is considered necessary (see below).

Each participant in ASX Clear is allocated a STEL based on its ICR. Where a group of participants are affiliated (i.e. part of the same corporate group), and the sum of affiliated participants' STELs that would apply if based solely on ICRs exceeds ASX Clear's prefunded financial resources, and adjustment is applied to the STELs of the affiliated participants. The adjustment ensures that ASX Clear's combined exposure to affiliated participants cannot therefore increase above the assigned group-wide STEL (which in turn cannot exceed ASX Clear's prefunded financial resources) without triggering an AIM call (see below). Since 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 input from these groups as to how the required reduction in STELs is distributed across the group.

Where a participant's projected stress-test losses exceed its STEL, ASX will call for STEL AIM. Typically AIM calls are made on participants by 9.30 am and must be settled within two hours via the transfer of cash in Austraclear. ASX Clear's internal standards and procedures provide for highly rated (i.e. A-rated and B-rated) participants to receive discounts on their STEL AIM calls. However, these discounts have not applied since April 2010. Initially this was due to ASX considering market conditions to be abnormal. However, ASX has since determined that it would no longer apply these discounts even in apparently normal market conditions, and will remove provisions for such discounts from internal standards and procedures over 2014/15.

In deciding whether ASX Clear has sufficient prefunded pooled financial resources, ASX considers the size, frequency, duration and distribution of AIM calls across participants. ASX Clear would consider increasing these resources if stress-test results in excess of prefunded pooled resources were persistent, significant and widespread. In other cases, ASX Clear would generally rely on additional collateral collected under the AIM regime.

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.

ASX Clear uses its capital stress test to establish the overall adequacy of prefunded financial resources and to determine whether a participant is required to post AIM (see Key Considerations 4.4, 4.5).

The stress-testing regime is based on 102 scenarios, each calibrated to a once in 30 year event. 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. The sample distribution used by ASX Clear reflects the period in which ASX has judged historical data as consistent and relevant to current market structures. These scenarios have to date been reviewed annually, with the most recent changes to scenarios taking effect in February 2014. Review of these scenarios against observed market movements also occurs on a daily basis and against overall market conditions on a monthly basis (see Key Consideration 4.5).

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 150 per cent increase in volatility. Finally, stress-test scenarios are included for 25 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.

In practice, 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 more concentrated positions in a single stock.

ASX Clear introduced reverse stress testing of its capital stress test model in June 2014. Currently, the ASX Clear reverse stress test assumes a uniform movement in equity prices and does not consider scenarios in which the prices of different securities or contracts change in different directions or at different rates. This is, in part, because ASX judges that in stressed circumstances the price of individual securities would be mostly driven by market-wide rather than idiosyncratic factors.

In order to test the sensitivity of the stress test models to other model assumptions, the reverse stress test is repeated for a wide range of scenarios. These include assuming the default of multiple participants, and varying assumptions on the size, concentration or directionality of participants' portfolios. To test these assumptions, reverse stress tests are applied to participant portfolios that exhibit certain characteristics, such as concentrated exposure to a particular contract or a highly directional equities exposure. ASX also conducts tests of extreme hypothetical portfolios that would generate losses sufficient to exhaust pooled financial resources under plausible market scenarios.

In interpreting the results of reverse stress testing, ASX considers the plausibility of any scenarios that could exhaust pooled financial resources. Any recommended changes to stress test scenarios or pooled financial resources would first be considered by the RQG and then escalated to the Clearing Boards for approval. A summary of reverse stress testing outcomes is reported alongside the monthly margin backtesting and capital stress test review reports and included in quarterly risk management reports to the Clearing Boards.

4.7 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.

In March 2014, ASX finalised a basic recovery plan that relies on existing tools and powers within the CS facilities' Operating Rules. Currently, if ASX Clear's prefunded pooled financial resources were 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 acknowledges, however, that this may not be sufficient to fully address any uncovered credit losses that ASX Clear might face. While ASX's recovery plan identifies measures that could be used to mitigate this in part (such as adjustments to STELs and the collection of additional margin), additional measures will be required to comprehensively allocate uncovered losses.

ASX also acknowledges additional tools and powers may be necessary to adequately and reliably replenish financial resources following a participant default (see Key Consideration 3.5). 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 would depend on the specific circumstances, including the severity of the loss and the market environment (see Key Consideration 13.1). 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.

ASX has therefore commenced work to develop a more comprehensive recovery plan supported by tools to fully address uncovered credit losses and replenish financial resources. It intends to base these tools on forthcoming CPSS-IOSCO guidance on recovery planning, expected to be published in late 2014. ASX intends to consult on its proposed recovery approach in the second half of 2014.

Principle 5: Collateral

A central counterparty that requires collateral to manage its or its participants' credit exposure 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

The Bank's assessment is that ASX Clear observes the requirements of Principle 5. ASX Clear's collateral acceptance policies are described in further detail under the following Key Considerations.

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.[9] Non-cash collateral is subject to a haircut. Variation and intraday margin obligations must be met by cash collateral (see Principle 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 by participants of stock issued by related entities except when it is used as specific cover for a transaction in that stock. ASX Clear also 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 ('wrong-way risk'). Collateral must be unencumbered.

During 2013/14, ASX formally documented its approach to collateral in a Collateral Policy and a Collateral Standard. These documents set out ASX's collateral eligibility criteria, procedures for review of eligibility, the basis for calibrating haircuts and arrangements for the review of collateral settings.

In normal circumstances, ASX Clear does not accept bank guarantees as collateral. However, in limited circumstances and at the discretion of ASX, it may accept 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 securities in June 2013, ASX Clear permits participants to meet cash market margin) obligations with bank guarantees, but only in exceptional circumstances and at the discretion of ASX. ASX Clear made changes to its collateral procedures in April 2014 to ensure that the use of bank guarantees to meet ETO margin obligations is also at the discretion of ASX. ASX intends to use this discretion sparingly to avoid growth in the use of bank guarantees, which is currently low. 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 Legal.

ASX Clear takes into account market liquidity in determining the eligibility of collateral. ASX Clear considers the equity securities that it will accept as collateral – stocks in the S&P/ASX 200 index and the SPDR S&P/ASX 200 Fund – to be sufficiently liquid that the eligibility of these assets as collateral will not have any material impact on market liquidity or price. In light of the depth of liquidity in these assets, ASX Clear would also expect to be able to liquidate such collateral in a timely fashion as required. These assets are also well known and understood to participants in the Australian market.

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

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

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), 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 Key Consideration 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 reviewed at least annually to take into account any changes to historically observed volatility trends. Collateral haircuts were most recently reviewed in January 2014. In addition, since collateral haircuts are calibrated to the same stress scenarios as those used in the stress testing regime, the ongoing review of capital stress test scenarios also verifies the appropriateness of haircut rates (see Key Consideration 4.4).

5.3 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.

5.4 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. During 2013/14, the maximum holding of non-cash collateral was $4.6 billion; this was used to meet less than $750 million of collateral requirements, after haircuts, with the remaining amount representing excess collateral lodged by participants or their clients. Around 43 per cent of margin requirements were met using cash collateral.

During 2013/14, ASX developed a risk-based policy for managing concentration risks in its CCPs (see Key Considerations 4.2 and 19.4). While, this policy does not address concentrations in collateral holdings, ASX limits and mitigates the risk of such concentrations by restricting non-cash collateral (other than specific cover) to ASX 200 securities and applying a conservative haircut of 30 per cent. The Bank will continue to discuss with ASX its approach to monitoring collateral concentration risks.

5.5 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.

5.6 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. These systems accurately monitor initial and variation margin levels and flows on an intraday basis (although intraday margin is not calculated or called for cash securities). 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.

Principle 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

The Bank's assessment is that ASX Clear broadly observes the requirements of Principle 6. In order to fully observe Principle 6, ASX Clear should:

- complete the full validation of its SPAN and Derivatives Pricing System (DPS) models by external experts, and carry out plans for these external experts to perform a full validation of the CMM model within the next two years.

ASX Clear's margin system is described in further detail under the following Key Considerations.

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. Initial (risk) margin provides protection to a CCP in the event that a participant defaults and an adverse price change occurs before the CCP can close out the defaulted participant's positions (potential future exposure). Variation margin is levied on cash market positions, long and short low exercise price options, and all futures positions to reflect observed price movements (current exposure); it is collected from the participant with a mark-to-market loss and, depending on the product, either passed through in cash to the participant with a mark-to-market gain, or recognised as a credit (see Key Consideration 6.4). 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.

2013/14 was the first full year of CMM, which involves the collection of initial margin and mark-to-market margin in respect of unsettled cash securities transactions. The selected methodology for initial margin calculation is primarily based on the historical simulation of value at risk. 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 Key Consideration 6.3). For less liquid stocks, or securities with an insufficient price history to apply HSVaR, ASX Clear applies flat rate margins. Currently 43 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 39 per cent of initial margins collected through the CMM system. Around 70 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 are margined according to the flat rate applied to fixed interest products.

ASX Clear uses a variant of the internationally accepted SPAN methodology for the margining of derivatives positions (see Key Consideration 6.3). 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 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.

Over the course of 2013, ASX introduced several enhancements to the DPS to improve the calculation of prices for less liquid stocks. These include new limits on implied volatilities, cross-checks of calculated prices against trades in similar options, and the application of smoothing to and imposition of restrictions on the slope and convexity of deemed volatility curves. The pricing period was also extended from a portion of a trading day to the whole day to increase the contribution of traded prices. The DPS is considered a key risk model and accordingly will be subject to annual external validation under ASX's Model Validation Standard; the first such validation is scheduled to take place by the end of 2014.

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, this requirement must be met for the corresponding distributions of future exposure. The model should (a) use a conservative estimate of the time horizons for the effective hedging or close out of the particular types of products cleared by the central counterparty (including in stressed market conditions), (b) have an appropriate method for**

measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products, and (c) to the extent practicable and prudent, limit the need for destabilising, procyclical changes.

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 an HSVaR-based model, which is calibrated and adjusted to meet a single-tailed confidence interval of 99.7 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 Key Consideration 6.5). While ASX targets 99.7 per cent coverage of the distribution of future exposures from CMM, as a first step ASX identifies the 99th percentile of the sample distribution. Since HSVaR requires reliable and uninterrupted price data, it is only applied to transactions in sufficiently liquid securities, namely those in the ASX 500 All Ordinaries. Even so, the small number of observations of price movements beyond the 99th percentile makes it difficult to construct reliable estimates of the desired 99.7 per cent margin coverage. ASX therefore applies a Portfolio Add-on Factor (currently 30 per cent) to the HSVaR estimate of potential future exposure at a 99 per cent confidence level to achieve the desired 99.7 per cent level of cover.

For securities that do not have the required price history to apply HSVaR, ASX applies, consistent with its overall CMM approach, flat rate margins intended to cover 1-day price moves with a 99.7 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. The lower confidence intervals for the latter two groups reflect the difficulty of constructing reliable estimates of the extremities of the distributions of price movements for securities with limited price history and/or liquidity. However, longer close-out periods of 2 days for next 300 All Ordinaries shares or 3 days for other securities are assumed. Backtesting seeks to verify that the flat rates for less liquid securities provide cover both to the target confidence interval and close-out period at an individual security level, and to at least a 99.7 per cent confidence interval at the portfolio level (see Key Consideration 6.6).[10]

Derivatives

For derivatives transactions, ASX Clear calculates initial margin requirements using the SPAN methodology. The 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 SPAN methodology are the 'price scanning range' (PSR) and 'volatility scanning range' (VSR). These scanning ranges are individually

[10] Flat rates effectively assume independence of price movements between securities subject to flat rates. Unless a portfolio is highly concentrated in a small number of flat rate securities, it is likely that this assumption would lead to coverage at the portfolio level that exceeds the targeted confidence interval for individual securities.

calibrated to the distribution of price and volatility movements for a set of related contracts under normal market conditions. The scanning ranges inform a set of 16 hypothetical risk scenarios used to measure the loss from a portfolio under alternative combinations of changes in price and volatility. For example, in one risk scenario, price increases by one-third of the PSR and volatility falls by the full VSR, while in another scenario price falls by the full PSR and volatility rises by the full VSR. The margin rate is then based on the highest estimated loss across the 16 scenarios.

ASX Clear bases the scanning ranges on key volatility statistics; namely, the higher of three standard deviations (a confidence interval of 99.7 per cent) of a 60-day or 252-day sample distribution, 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 (1 day, 1 week, 120 business days and 12 months).

ASX Clear also applies a series of adjustments within SPAN to account for correlations and specific risks.

- *Intra-commodity spread charge*. This is an adjustment to the margin requirement for a given set of related contracts, to account for less-than-perfect correlation between contracts with different expiries. This adjustment is based on a participant's actual net position at each expiry month multiplied by an 'intra-commodity charge rate', which is itself based on observed price correlations between the different expiries. The default setting is to apply a single charge rate. However, for some contracts ASX utilises SPAN's charge-rate tiering functionality. This allows charge rates to vary depending on the temporal difference in the pair's expiries.

- *Inter-commodity spread concession*. ASX Clear also applies offsets designed to account for reliable and economically robust correlations across different contract types (see Key Consideration 6.5). These offsets reflect that, while the scanning risk for each related contract – a 'combined commodity' in SPAN terminology – is set based on the worst-case risk scenario for that combined commodity, it may be highly unlikely that the set of worst-case scenarios occurs simultaneously. This is particularly the case if a participant holds net long and net short positions in different related contracts that have a robust positive correlation. The inter-commodity spread concession is calculated by applying (in a defined order) a spread ratio and concession rate to a participant's actual net positions in pairs of related contracts. The spread ratio determines the number of net positions in one related contract required to offset a position in another related contract. The concession rate is specified as a percentage of the scanning risk for both contracts in the pair. ASX calculates these parameters in the same manner as the price movement for the intra-commodity spread charge.

- *Other adjustments.* 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 ASX's internal Margin Standard, the Manager of Exposure Risk Management (part of CRM) can approve adjustments to margin rate settings jointly with the CRO, or with the General Manager of either CRM, Clearing Risk Strategy and Policy or CRQ. Such adjustments may be made if application of the standard statistical analysis would result in inappropriate outcomes; for example, 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 Standard also allows exceptions to the normal margin rate setting process based on a broader risk assessment – such exceptions require the approval of the General Manager of Clearing Risk Strategy and Policy and the General Manager of CRQ.

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. These are notified to participants the next morning. For cash market transactions, mark-to-market margin is calculated in respect of securities in the All Ordinaries and added to initial margin if prices have moved against the participant. If prices have moved in favour of the participant then an offset may be applied to the participant's initial margin requirement, but this is capped by the level of initial margin. Mark-to-market margin is not called on flat rate-margined securities that are not within the All Ordinaries as up-to-date price data may not be available for all of these securities. However, adjustments are made to the overall margin called for these securities to ensure that ASX Clear is adequately covered in the case of adverse market movements.

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 calls intraday margin. This must be met by participants within two hours of notification.

Under ASX Clear's AIM methodology (discussed above in relation to Principle 4), a participant is also required to post additional collateral should stress-test outcomes reveal potential losses that exceed a predetermined STEL, or if participants have large portfolios relative to their capital (see Key Consideration 4.5).

If a margin payment is not made by the required time, ASX contacts the participant to determine the reasons for the delayed payment. Delayed payments are not common. When they do occur, they are typically the result of communication or technical issues involving the participant and/or its payment provider. Early communication by ASX aims to ensure that, in such cases, payment can still be made within a short period of the required time. In the event that the matter was more serious, ASX would investigate to decide whether a default event should be declared and, if so, how the default should be managed (see Principle 13).

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 two or more central counterparties are authorised to offer cross-margining, they must have appropriate safeguards and harmonised overall risk management systems.**

ASX Clear applies margin at a portfolio (clearing participant) level for its cash market securities 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 has identified that the direction of participant portfolios is a more significant contributor to the events captured in HSVaR margin settings than implicit price correlations, while flat rate margins do not assume any price correlations between securities. The reliability and significance of the correlations underlying the implicit offsets in HSVaR, which do not represent a significant proportion of ASX Clear's overall risk exposure, are subject to regular verification through backtesting (see Key Consideration 6.6).

In applying the SPAN methodology to derivatives transactions, ASX allows offsets in the form of 'inter-commodity spread concessions' (see Key Consideration 6.3). These offsets reduce margin requirements to account for reliable and economically robust correlations observed across related contracts. Inter-commodity spread concessions are applied the correlation is significant and based on economic fundamentals. ASX uses sensitivity analysis to verify the reliability of assumed correlations between products used in calculating inter-commodity spread concessions (e.g., analysis of the effect of retaining stressed data from 2008 in the historical simulation period (see Key Consideration 6.6)). Changes to inter-commodity spread concessions must be approved by the RQG, which considers whether changes identified by SPAN appropriately reflect underlying economic relationships, including in periods of market stress.

ASX Clear does not currently have any cross-margining arrangements with any other CCPs.

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.**

During 2013/14, ASX made significant enhancements to its backtesting and sensitivity analysis of margin models, introducing improvements to daily backtesting procedures supplemented by more comprehensive periodic backtesting and sensitivity analysis of its margin models.

Under ASX's Model Validation Standard, daily backtesting of both the SPAN and CMM margin models is used to test, on an ongoing basis, whether the margin models reliably cover price movements to a 99.7 per cent confidence interval. Daily backtesting is performed against both dynamic and static actual portfolios. Backtesting against actual dynamic portfolios involves the comparison of actual initial margin collected from each participant against actual variation margin calculated over the following one or two days, depending on which is the larger amount. One limitation of using variation margin on dynamic portfolios to model changes in the value of a portfolio over the close-out period is that it is influenced not only by market movements but also by changes in the composition of the portfolio. To address the limitations of dynamic portfolio analysis, static portfolio backtests are also used to hold the portfolio composition constant over time. For actual static portfolios, ASX calculates hypothetical variation margin obligations for each day of the validation period based on historical price movements, and compares these to initial margin calculated on the actual portfolio on the day of the backtest. Under both types of backtest, when 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 99.7 per cent confidence interval.

A report summarising the results of backtesting is automatically generated and circulated to relevant staff in the Risk division. Further analysis is undertaken when an exception is recorded, both to investigate model performance and to investigate the potential financial implications of the exception given the particular participant and portfolio affected. Where an exception is recorded against an individual client account, this investigation will proceed only if the dollar value of the exception breaches a materiality threshold. Further investigation also takes place if the actual number of exceptions exceeds the expected number. By investigating further, ASX determines whether any follow-up actions are required, such as the calling of additional initial margin or the managing down of positions.

Daily backtesting reports are aggregated into a monthly backtesting report which compares the number of observed exceptions to expected exceptions for the previous month, quarter and year. This report, which also includes the results of sensitivity analysis (see below) is reviewed by the RQG and used to identify the need for further investigation of margin model performance. RQG will take into account the frequency and magnitude of any breaches in determining whether to commission additional analysis from CRQ.

On a periodic basis, approximately every four months, ASX performs a more comprehensive backtesting analysis of each of its margin models. The periodic reviews allow ASX to examine the model in more detail and provide a basis for recommending changes to the model or further analysis. Hypothetical portfolios extend the analysis, allowing ASX to test the performance of margin models when applied to portfolios with certain characteristics (e.g. mix of contracts, concentrations, directionality) that may be particularly adversely affected by market conditions during the validation period.

ASX applies sensitivity analysis to its margin models as part of its quarterly margin rate reviews for SPAN and CMM. Although margin rate reviews for CMM are conducted only for flat rates, sensitivity analysis for the HSVaR component of CMM is carried out at the same time as the flat rate margin review and sensitivity analysis. Sensitivity analysis allows ASX to test the performance of a model beyond the boundaries of its existing assumptions, potentially also examining the implications of assumptions that would not reasonably be expected to hold. ASX has developed internal guidance setting out its approach to sensitivity analysis for margin models, which highlights three main assumptions that it varies when conducting sensitivity analysis: the confidence interval, close-out period and look-back period. In addition, ASX investigates the impact of varying the historical simulation period for CMM and the application of floors to model parameters in SPAN. If varying particular inputs reveals weaknesses in the model, ASX considers how plausible these varied assumptions are when considering whether to make adjustments to the model. Where sensitivity analysis identifies potential weaknesses in margin models, the RQG will consider recommended changes to address these.

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

ASX Clear's margin methodologies are also subject to a comprehensive annual validation and ongoing review under ASX's Model Validation Standard (see Key Consideration 4.5). The RQG is responsible for performing the regular reviews of models, while Internal Audit coordinates the independent validation process with CRQ input. 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 Key Consideration 2.6). Under this framework the SPAN and DPS models must be externally validated annually, while CMM must be externally validated once every two years. ASX has engaged external experts for a three-year period to conduct annual validations of ASX's key risk models, including both the SPAN and DPS models. The first validations of these models will occur during the second half of 2014. A full external validation of CMM is scheduled for the following year. The Bank will monitor the outcome of these validations.

At ASX, the margining process is governed by an internal Margin Standard, which is reviewed annually, with material changes approved by the Clearing 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. These files allow 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.

Principle 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: Broadly observed

The Bank's assessment is that ASX Clear broadly observes the requirements of Principle 7. In order to fully observe Principle 7, ASX Clear should:

- implement mechanisms consistent with forthcoming CPSS-IOSCO guidance on recovery planning that would fully address any uncovered liquidity shortfall related to derivatives transactions following a participant default
- complete the full validation of its liquidity stress test model by external experts, and enhance its sensitivity analysis approach to allow it to systematically examine the effect of underlying

assumptions. This should include assumptions on the porting of client derivatives positions and the degree to which timely settlement can be achieved without the use of offsetting transaction arrangements.

The Bank will monitor planned enhancements to ASX Clear's liquidity stress test to provide additional information to management and the Bank on the degree of contingent reliance on offsetting transaction arrangements with participants to meet settlement-related payment obligations in a participant default. The Bank will discuss further with ASX how such information might best be disseminated to participants to support their liquidity management and planning.

ASX Clear's arrangements to measure, monitor and manage its liquidity risk are described in further detail under the following Key Considerations.

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. To the extent that the CCP relies on such incoming payment flows to meet its obligations to other participants, it could face a liquidity shortfall. 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 rely on commercial bank money settlement agents, nostro agents, custodians or liquidity providers (other than participants providing liquidity via offsetting transaction arrangements – see Key Consideration 7.4) 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 Key Consideration 7.9) and the maintenance of sufficient liquid resources to be able to meet payment obligations in the event of a participant default (see Key Consideration 7.4).

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 SPAN and CMM margin parameter file that allows participants to estimate payment obligations associated with margin requirements for actual or hypothetical portfolios. Advance warnings and communications in respect of calls for additional margin, and margin rate changes also assist participants in their liquidity planning. 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. The Bank will discuss ASX Clear's approach to analysing and disclosing the liquidity impact of offsetting transaction arrangements on participants in the context of planned enhancements to liquidity stress testing arrangements (see Key Consideration 7.9).

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 department reviews a daily report of key risk indicators, related to liquidity demands. Any issues are 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 SPAN-calculated margin flows originating from DCS, which feed into ASX's Treasury Management System. Portfolio Risk Management enters trades required to manage daily cash-flows into ASX's Treasury Management System. Clearing and Settlement Operations uses daily settlement reports produced by the Treasury Management System to generate settlement instructions in Austraclear. Resulting cash flow movements are monitored in RITS. Margin payments from participants must be made by 10.30 am, while outward payments to participants are manually managed in the RITS queue, and are only released once all incoming 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 invested in liquid assets (see Principles 4 and 16). 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 Section 2.3.1). 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 Key Consideration 7.5).

7.3 A payment system or securities settlement facility, including one employing a deferred net settlement mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate intraday or multiday settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.

Key Consideration 7.3 is not relevant to central counterparties.

7.4 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.

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 Key Consideration 7.9). The AFR for ASX Clear (Futures) is currently $650 million (see Appendix A1.2, Key Consideration 7.4).
- *An 'ordinary liquidity requirement'.* This 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.
- *Cash margin requirement*. This is 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 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 defaulted 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.

With this in mind, ASX Clear introduced offsetting transaction arrangements in April 2014 to ensure access to sufficient liquidity to settle cash market transactions when due, while avoiding the costs of maintaining a significantly increased quantum of outright liquid resources. If a participant were to default due to a shortfall of funds, the ASX Default Management Committee would first determine whether ASX Clear could inject sufficient liquidity, from the existing $300 million of available financial resources, to ensure that settlement of payment obligations occurred as expected.

It is expected that available resources would first be injected. However, if it was not possible or prudent to rely solely on prefunded liquidity, ASX Clear would settle transactions by entering into 'offsetting transaction arrangements' with participants that were due to deliver securities to the defaulted participant. In these circumstances, ASX Settlement's back-out algorithm would identify transactions in the batch that, if removed, would reduce ASX Clear's payment obligations on behalf of the defaulted participant to zero, while avoiding an increase in net payment obligations for other participants (see Appendix A2.1, Key Consideration 12.1). ASX Clear would then settle the novated trades that have been identified by the back-out algorithm by entering into 'offsetting transaction arrangements' with participants due to deliver securities under these trades. Offsetting transaction arrangements enable the CCP to settle its payment obligations with these participants on the intended settlement date through an arrangement to offset the underlying settlement obligations to and from those participants.

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 second and 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 had taken place.

7.5 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 Key Consideration 7.8). 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 specified by the Bank that is held 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 either a restricted set of highly liquid securities or 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. At 30 June 2014, term deposits accounted for 36.4 per cent of the ASXCC investment portfolio, at-call deposits 16.4 per cent, with holdings of other approved securities making up the balance. Offsetting transaction arrangements with participants (see Key Consideration 7.4) also meet the definition of qualifying liquid resources for the purpose of this standard, since they are prearranged, committed and reliable (given that they effectively utilise funds otherwise due to participants). Eligible investment counterparties are discussed under Principle 16.

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.

7.6 A central counterparty may supplement its qualifying liquid resources with other forms of liquid resources. If the central counterparty does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if 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 a part of its liquidity plan.

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

7.7 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 DMF (see Key Consideration 13.1) 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 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.

7.8 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.

ASXCC holds an ESA. Accordingly, ASX Clear may, via ASXCC, access Australian dollar liquidity under the Bank's overnight and intraday liquidity facilities (against eligible collateral specified by the Bank). ASXCC's Investment Mandate clarifies its 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 (see Principle 16).

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

7.9 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 settlement banks, nostro agents, custodian banks, 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 Principle 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 option premium payments, if owed by the defaulter.

ASX Clear's liquidity stress tests currently apply different assumptions depending on the size and credit standing of the defaulted 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 offsetting transaction arrangements entered into with non-defaulting participants (see Key Consideration 7.4). For other participants, the liquidity stress testing 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, liquidity stress tests 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, three market change scenarios are applied: an increase of 7 per cent, 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 defaulted 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 Key Consideration 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. Given that liquidity resources are maintained on an aggregate basis (in ASXCC), in order to test the sufficiency of ASX's overall liquid resources the results of liquidity stress testing for each CCP are aggregated to calculate the total DLR.

The results of liquidity stress testing are regularly reported to ASX senior management, the Clearing Boards and the Bank. All liquidity stress-test breaches are reported to the CRO, the General Manager of Clearing Risk Strategy and Policy, and the Portfolio Risk Manager. A sustained or widely distributed breach may lead to a review of the adequacy of the AFR. Over 2013/14, there were a number of occasions on which liquidity stress-test results exceeded the AFR due to ASX Clear's exposures to C-rated participants. Since none of these occasions constituted a breach, ASX concluded that an increase in the AFR was not required. This decision was supported by the narrow base of participants affected, the ability to call additional margin under the AIM regime (see Key Consideration 4.5), and the availability of offsetting transaction arrangements to provide additional liquidity to settle cash market transactions (see Key Consideration 7.4).

Review and validation

ASX Clear plans to review its liquidity stress testing approach in light of the introduction of offsetting transaction arrangements. In particular, ASX Clear will implement planned enhancements to ensure that its liquidity stress testing can routinely provide more information on the degree to which prefunded liquid resources can be relied on to meet payment obligations on a participant default, without the need to utilise offsetting transaction arrangements.

ASX is also considering its approach to reverse stress testing of liquid resources in ASX Clear. While the scenarios used in liquidity stress testing are currently subject to regular analysis in reverse stress testing of the capital stress test model (see Key Consideration 4.6), an extension to this approach is required to take into account assumptions unique to liquidity stress testing. These assumptions relate to the timing of settlement for cash market positions and the porting of derivatives positions. The finalisation of a liquidity reverse stress test for

ASX Clear will depend on ongoing enhancements to the capital stress test (including any that may result from the external validation described under Key Consideration 4.5), as well as planned enhancements to liquidity stress tests to take into account the availability liquidity from offsetting transaction arrangements with participants.

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 Key Consideration 2.6). Under this framework the liquidity stress test model must be externally validated annually. ASX has engaged external experts to conduct a validation of the liquidity stress test model by the end of 2014. The Bank will monitor the outcome of this validation.

7.10 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.

The introduction of offsetting transaction arrangements in April 2014 ensures that ASX Clear would, in all circumstances, be able to fully address any liquidity obligations related to the settlement of securities transactions (see Key Consideration 7.4). Although offsetting transaction arrangements cannot be directly used to address liquidity shortfalls related to derivatives transactions or the return of cash market margin, offsetting transaction arrangements used to meet payment obligations for settlements may allow for greater use of prefunded liquid resources for these other obligations.

In March 2014, ASX finalised a basic recovery plan that relies on existing tools and powers within the CS facilities' Operating Rules. In preparing the plan for ASX Clear, ASX identified that the existing Operating Rules do not provide the CCP with sufficient tools to be able to fully address any uncovered liquidity shortfalls relating to derivatives transactions following a participant default (see Key Consideration 3.4). While ASX's recovery plan identifies measures that could be used to mitigate this in part (such as the collection of additional margin or seeking to realise non-liquid assets such as term deposits), additional measures will be required to comprehensively address a liquidity shortfall for derivatives transactions.

ASX has commenced work to develop a more comprehensive recovery plan supported by tools to fully address uncovered liquidity shortfalls generated by derivatives transactions. It intends to base these tools on forthcoming CPSS-IOSCO guidance on recovery planning, expected to be published in late 2014. ASX intends to consult on its proposed recovery approach in the second half of 2014.

Principle 8: Settlement finality

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

Rating: Observed

The Bank's assessment is that ASX Clear observes the requirements of Principle 8. ASX Clear's arrangements for ensuring finality of its settlements are described in further detail under the following Key Considerations.

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 A2.2, Key Consideration 8.1). 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. With this approval, a payment executed in RITS at any time on the day on which a RITS participant enters external administration has the same standing as if the participant had gone into external administration on the next day. Accordingly, in the event of insolvency all transactions settled on the day of the insolvency are irrevocable and cannot be unwound.

8.2 A central counterparty should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. A large-value payment system or securities settlement facility should consider adopting real-time gross settlement or multiple-batch processing during the settlement day.

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 ASX Clear is 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. 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 Key Consideration 6.4) and must be settled within the notified time frame, which is generally 2 hours. Participants may also meet margin obligations via securities that have been lodged in CHESS for this purpose.

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 Key Consideration 12.1). 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 settlement 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 Principle 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 as long as the participant is not in default (see Appendix A2.1, Principle 13). In the case of a failed settlement caused by a funds shortfall, ASX Clear will inject funds into the settlement batch or enter into an offsetting transaction arrangement with sellers of affected securities to ensure timely settlement (see Key Consideration 7.4).

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 revoke a payment or transfer instruction once it has been submitted to ASX Clear.

Principle 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

The Bank's assessment is that ASX Clear observes the requirements of Principle 9. While existing arrangements meet the minimum standard, the Bank encourages ASX Clear to work with ASX Settlement to introduce a framework to formally engage Payment Providers on changes to settlement processes in response to regulatory or market-driven change.

ASX Clear's money settlement arrangements are described in further detail under the following Key Considerations.

The description of money settlement arrangements in this Principle draws a distinction between 'money settlement agents' – the entities whose assets are used to settle the ultimate payment obligation – and 'settlement banks', which maintain accounts with the money settlement agent to settle their own obligations or those of other participants.

9.1 A central counterparty should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.

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 Key Consideration 8.2) also occurs 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, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, a central counterparty should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. A central counterparty should also monitor and manage the concentration of credit and liquidity exposures to its commercial 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 that act as commercial settlement banks for participants. Changes to the deed may be required to support the introduction of planned enhancements to settlement processes for client securities holdings (see Principle 14). The process of updating the deed involves negotiation with APCA and Payment Providers, which can create delays in implementing changes to authorisation deadlines or other operational requirements required to support changes to the settlement process.

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 settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as

soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the central counterparty and its participants to manage credit and liquidity risks.

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

Principle 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

ASX Clear does not clear any contracts with physical delivery obligations.

The Bank has concluded that Principle 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.

Principle 11: Central securities depositories

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

Rating: Not applicable

Principle 11 is not relevant to central counterparties.

Principle 12: Exchange-of-value settlement systems

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

Rating: Observed

The Bank's assessment is that ASX Clear observes the requirements of Principle 12. ASX Clear's arrangements for DvP settlement of linked obligations are described in further detail under the following Key Considerations.

12.1 A central counterparty that is an exchange-of-value settlement system should eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs, regardless of whether the central counterparty 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. Under this arrangement, settlement of novated and non-novated transactions takes place in a daily batch process run in 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 A2.1, Key Consideration 12.1 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 2013/14, the average value of individual gross settlement instructions in ASX Settlement for novated transactions cleared by ASX Clear was around $4 500. This compares with an average of $29.5 million for an individual DvP settlement instruction for debt securities in Austraclear. In particular, the value of CGS transactions cleared by ASX Clear and settled within the CHESS batch remains relatively low compared with values settled within Austraclear (see Appendix A2.1, Key Consideration 12.1).

DvP Model 1 settlement (real time exchange of individual obligations) has certain risk management advantages over DvP Model 3 settlement, since the latter framework may only settle on an all or nothing basis. However, DvP Model 3 may be advantageous for a settlement system servicing a CCP that manages its risk on a net portfolio basis. Partial settlement (due to a clearing participant default) under DvP Model 1 would alter net exposures upon which the CCP's risk controls are based. This issue may be addressed within a DvP Model 1 framework by managing the order in which obligations are settled. However, achieving this may be complex and introduce inefficient from a liquidity viewpoint. Accordingly, 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, taking into account these complexities, neither ASX nor market participants are persuaded of the need to move to a new settlement model. Furthermore, ASX has taken actions since the 2008 review to further strengthen the resilience of the batch settlement process.

Principle 13: 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

ASIC's and the Bank's assessment is that ASX Clear observes the requirements of Principle 13. ASX Clear's default management arrangements are described in further detail under the following Key Considerations.

13.1 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.

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 also able to enter into an offsetting transaction in respect of any settlements involving the failed participant, or those affected by its failure (see Key Consideration 7.4). 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 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 would suspend the defaulted participant's authority to clear. Suspension, rather than termination, ensures that the participant remains bound by the central counterparty's rules. There would be no further payments or collateral movements to the clearing participant following declaration of a default. This enables the central counterparty to 'crystallise' the defaulted 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 defaulted 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 Key Consideration 5.1). In the event that the defaulted participant's contributions were insufficient, ASX Clear could draw upon pooled financial resources (see Principle 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 whether to replenish financial resources and how this might best be achieved ultimately lies with the ASX Limited Board. The decision would be taken 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 would depend on the specific circumstances, including the severity of the loss and the market environment (see also Key Consideration 4.7). 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. ASX plans to consult on enhancements to its replenishment arrangements as part of its broader consultation on enhancements to its recovery plans (see Key Considerations 3.4 and 4.7).

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 defaulted 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 Key Consideration 13.2 for more information on close-out arrangements).

13.2 A central counterparty should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.

To facilitate early identification of a default event, the ASX Clear 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 would never be automatic. Instead, ASX Clear maintains the right to investigate a potential default fully, taking into account any extenuating circumstances. This was the approach taken by ASX in relation to events of default relating to a participant that had taken on a particularly large position and was unable to meet margin requirements. The process of investigating, and the subsequent handling of, a potential default would depend 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 defaulted participant. These include hedging, transfer, on- or off-market liquidation, expiry, exercise and compulsory settlement (generally considered to be a last-resort method of closing out). There are advantages and disadvantages to each close-out method and therefore the specific method used in practice would 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 would be a relevant factor in determining whether client positions could be transferred following a default event. The individually segregated client account structure for derivative positions at ASX Clear makes it more likely that transfer of these positions could be achieved than in the case of cash securities for which client positions and house positions are commingled. In practice, 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 Principle 14).

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

ASX Clear's Operating Rules are available on the ASX public website. These rules outline when ASX Clear may 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.

13.4 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 or 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 in early 2014 and will continue to observe future fire drills. In recent years, the DMF has been updated on several occasions: during 2011/12 to incorporate lessons learned from the default of MF Global; in 2012/13 in anticipation of the launch of the OTC derivatives clearing service; and then in May 2014 to account for the use of offsetting transaction arrangements.

Currently, participants are not directly involved in default management fire drills for ASX Clear. 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. Nevertheless, 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 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 that governs 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 FMI resolution once international work on FMI resolution and the proposed domestic framework for FMI resolution have been finalised.

Principle 14: Segregation and portability

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

Rating: Broadly observed

ASIC's and the Bank's assessment is that ASX Clear broadly observes the requirements of Principle 14. In order to fully observe Principle 14, ASX Clear should:

- complete implementation of enhanced client protection arrangements for cash equities that provide materially equivalent protection to omnibus account segregation.

ASX Clear's segregation and portability arrangements are described in further detail under the following Key Considerations.

14.1 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.

ASX Clear maintains a segregated account structure for its options and futures products which separates client positions from the participant's proprietary (house) positions. For these products, clients are able to access individually segregated accounts that offer protection against the concurrent default of the participant and a fellow client (see Key Consideration 14.2).

ASX Clear utilises a single account for each participant's house and client cash market transactions. It has introduced arrangements to offer clients enhanced protections that, with the implementation of a second stage expected in May 2015, will be materially equivalent to the protections afforded by segregated house/client omnibus accounts (see Key Consideration 14.2). These alternative arrangements were introduced in response to concerns raised in a July 2013 stakeholder consultation that omnibus segregation for the cash market would be costly and deliver minimal benefits in terms of protection for clients of participants.

In addition to these arrangements, ASX Clear already has the capacity to transfer (port) participants' clients' positions and collateral under its Operating Rules (see Key Consideration 14.3). Part 5 of the PSNA allows a CCP to transfer client collateral of a defaulted participant as provided for by its Operating Rules without the need to seek approval from the participant's external administrator.

14.2 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.

ASX Clear offers individual client segregation for options and a choice of individual client segregation or omnibus segregation for futures transactions. For these products, client collateral cannot be used to offset losses arising from a participant's proprietary (house) account. Non-cash collateral (including excess collateral) lodged with ASX Clear in respect of options transactions remains under the beneficial ownership of clients.

While ASX Clear employs a commingled house/client account structure for cash market transactions, it has commenced implementation of arrangements that provide materially equivalent protection to house/client omnibus segregation. ASX Clear introduced Stage 1 of its enhancements to client protections for the cash market in April 2014. These enhancements ensure that participants employ best practice in processing client trades during the pre-settlement period, namely: that client securities due for delivery that are held in the participant's accumulation account remain the beneficial property of the client until they are placed into the participant's settlement account (see Appendix A2.1, Key Consideration 12.1); and that client monies to fund a purchase must remain in trust accounts until the purchased stock is registered in the client's name.[11] The ASX Clear Operating Rules also require daily reconciliation by participants of unsettled stock held beneficially for the client.

A second stage of enhanced protections is scheduled to come into effect during the first half of 2015. It will require participants to pre-schedule movements of beneficially held client stock to their settlement account, allowing this to take place at the commencement of the CHESS settlement batch process. Participants will also be required to fund any movements of beneficially-held client stock to the settlement account on the day that the movement occurs, generally by placing the required amount into trust for the client. The changes to messaging in support of this process will also allow automated post-settlement allocation. As part of the CHESS settlement batch process, Payment Providers will be provided with a net amount to be transferred between participants' general account and client trust accounts. Once both stages are in place, client assets and funds will remain in the beneficial ownership of clients throughout the pre-settlement period.

These arrangements will protect clients from principal losses in the event of a participant default but will not protect clients against the cost of replacing trades in such an event. Even if omnibus segregation was adopted, however, clients could not be effectively protected against replacement cost losses in the event of a participant default. This reflects that Australian law currently prevents a clearing participant from passing through to a CCP margin posted by a client in respect of cash equities.

[11] Participants maintain 'accumulation' and 'settlement' accounts to manage the processing of securities for settlement. Client securities due for delivery are typically initially placed in accumulation accounts prior to transfer to the participant's settlement account, at which point the participant takes effective control over the use of securities. Securities are delivered to and from settlement accounts as part of ASX Settlement's batch settlement process.

14.3 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.

ASX Clear has the power under its Operating Rules to transfer client positions and collateral following a participant default. The availability of individually segregated client accounts for both options and futures supports the transfer of client positions and collateral to another participant in the event of a clearing participant default. Under individual client segregation, margin requirements are calculated on a gross basis for the positions held by each client. Accordingly, there should be sufficient collateral available to support the transfer of each client's positions to another clearing participant. Portability is further supported by Part 5 of the PSNA (see Key Consideration 14.1). However, portability cannot be guaranteed since it relies on the willingness, and capacity, of another participant to take on the affected clients within a short period of time. The time window available for porting will also depend on market conditions, since ASX Clear would remain exposed to market risk until such time as a defaulted participant's client positions were ported or closed out (see Principle 13).

The commingled account structure used for cash market transactions creates practical difficulties for 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.

14.4 A central counterparty should disclose its rules, policies, and procedures relating to the segregation and portability of a participant's customers' positions and related collateral. In particular, the central counterparty should disclose whether customer collateral is protected 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, during 2013 and 2014 ASX has publicly consulted stakeholders on segregation and portability arrangements for both derivatives and cash market transactions cleared in ASX Clear. These consultations have identified operational constraints to portability and the implications of different account structures used by ASX Clear.

Principle 15: General business risk

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

Rating: Broadly observed

ASIC's and the Bank's assessment is that ASX Clear broadly observes the requirements of Principle 15. In order to fully observe Principle 15, ASX Clear should:

- carry out plans to enhance its recovery plan in line with forthcoming CPSS-IOSCO guidance, and ensure that the capital it holds under Key Consideration 15.2 continues to be sufficient to fund the enhanced plan. As ASX Clear further develops its recovery plan, it should also review and integrate its recapitalisation processes with its broader recovery planning arrangements.

ASX Clear's management of general business risk is described in further detail under the following Key Considerations.

15.1 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 Principle 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 exchange 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 the Group's general business activities arises in the collection of receivables, which principally comprise fees from market participants, issuers, users of market data and other customers. Mitigants include active collection procedures on trade receivables and 'ageing' of receivable amounts.
- Liquidity risk is mitigated by prudent liquidity management, with forward planning and forecasting of liquidity requirements.
- ASX may be exposed to capital risk if equity in group entities falls below prudent or regulatory minimum levels. 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 this process, ASX identifies new strategic business initiatives, such as the projects that delivered the ASX Collateral and OTC derivatives clearing services. These 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 any expansion of its activities or in the event of material changes to its business. Risk assessments are built into ASX's project management framework (see Key Consideration 17.4). Under this framework, an initial high-level risk indication is defined at the project concept stage. This is followed by a formal project risk assessment undertaken across both project delivery risks and impacts to business activities at the project definition stage. ASX typically conducts a series of workshops involving project staff to discuss risks associated with any planned new service. Prior to the approval of a project for launch/production, ASX prepares an operational readiness summary and conducts a final workshop to discuss possible risks associated with initial launch. This includes consideration of potential failure scenarios and workarounds, procedures for escalation of issues, and help desk and key staff availability.

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

15.2 A central counterparty should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity a central counterparty should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.

ASX has set aside $232 million for operational and business risk across the four ASX Group CS facilities, $15 million of which 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. Each CS facility has a separate allocation for business risk capital that is explicitly recognised within group-wide capital holdings. These holdings include an additional buffer against potential losses sustained elsewhere in the group. During 2013/14, ASX made amendments to the ASX Group Support Agreement, placing an obligation on ASX to maintain sufficient capital to support ASX Clear’s continued operations in the event of general business losses. These amendments support the legal certainty of ASX Clear’s access to business risk capital as required.

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 Key Consideration 15.3). 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.

15.3 A central counterparty should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, a central counterparty should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.

ASX Clear has developed a plan setting out options for its recovery or wind-down based on its existing Operating Rules, and has commenced work towards enhancing this plan in line with forthcoming CPSS-IOSCO guidance on recovery planning (see Key Consideration 3.4). In calculating the quantum of business risk capital described under Key Consideration 15.2, ASX has sought to ensure access to sufficient liquid net assets to fund operations during the execution of ASX Clear's recovery plan, or to cover a minimum of six months of current operating expenses.

15.4 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.

15.5 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 by way of a $553 million share entitlement offer, with the bulk of the funds being used to increase the business risk capital of the CS facilities and their pooled financial resources to deal with participant default. Recapitalisation processes will be reviewed and integrated with broader recovery planning arrangements as ASX Clear further develops its recovery plan in line with forthcoming CPSS-IOSCO guidance.

Principle 16: 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

ASIC's and the Bank's assessment is that ASX Clear broadly observes the requirements of Principle 16. In order to fully observe Principle 16, ASX Clear should:

- implement plans to further reduce the concentration of unsecured exposures to the large domestic banks under its treasury investment policy. The Bank has opened a dialogue with ASX on the detail of its expectations for the credit and liquidity risk profile of ASXCC's investment portfolio, as well as the time frame over which these expectations should be met.

Based on this information, the ASX Clear's management of custody and investment risks is described in further detail under the following Key Considerations.

16.1 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 entities such as Austraclear (for safekeeping of AUD-denominated debt securities). 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 Key Consideration 2.6).

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 Section 2.3.1). 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 Key Consideration 16.4).

16.2 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 for cash within two hours are treated as 'liquid' products (see also Key Consideration 7.5).

16.3 A central counterparty should evaluate and understand its exposures to its custodian banks, 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.

16.4 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 Clearing Boards and itself governed by the ASX Enterprise Risk Management Policy. 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 investment-related credit, market and liquidity risks (Principle 7). The performance of the investment portfolio within the parameters of 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 and percentage of total liquid assets held in non-AUD denominated securities.

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), APRA-approved ADIs that are licensed banks in Australia under the *Banking Act 1959*, or (from July 2014) supranational agencies that issue in the Australian bond market. ADIs must also have a Standard & Poor's short-term credit rating of A1 or above, while supranational agencies must have a rating of AAA. 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*. 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 both the proportion of the portfolio and the absolute amount that can be invested with a single counterparty.

The Investment Mandate aims for quick liquidation of investments with little, if any, price effect. Only investments in instruments that can be liquidated or repurchased for cash within two hours are treated as 'liquid' products. These are defined based on the depth of market liquidity and the terms of investment, including whether the instruments are eligible for repurchase transactions with the Bank (see Key Consideration 7.5). Such liquid assets include CGS, bank bills and certificates of deposits. The policy also sets a 'value-at-risk' limit.

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 with input from the Risk Committee. The broad approach to investment and investment holdings is disclosed publicly in the ASX Annual Report.

Consistent with the revisions to its Investment Mandate, during 2013/14 ASX reduced the limits applicable to the large domestic banks in recognition of their participation in the new OTC derivatives clearing service, and applied a further reduction in limits as part of the annual review of the ASXCC Investment Mandate. In addition, ASX has taken steps to diversify its unsecured exposures to a broader range of highly rated investment counterparties and has introduced arrangements allowing it to invest cash with selected counterparties on a secured basis. ASX plans to review concentration limits to investment counterparties again in 2015 and is working to further strengthen its capacity to invest on a secured basis. The Bank has opened a dialogue with ASX on the detail of its expectations for the credit and liquidity risk profile of ASXCC's investment portfolio, as well as the time frame over which these expectations should be met.

Principle 17: 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

ASIC's and the Bank's assessment is that ASX Clear observes the requirements of Principle 17. ASX Clear's arrangements for managing operational risks are described in further detail under the following Key Considerations.

17.1 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 Key Consideration 3.1). Under this framework, the ASX Limited Board is responsible for reviewing and overseeing the group's risk management systems (see Key Consideration 2.6). 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 departments, 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 departments. Under the Enterprise Risk Management Framework, individual departments 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. A dedicated security team has responsibility for assessing both physical and cyber security risks, and is overseen by a Security Steering Committee comprising the Chief Information Officer, head of Internal Audit and other senior executives.

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 and broader skills matrices, with training provided for identified areas of weakness. ASX Clear has a formal succession planning and management process in place for key staff. ASX has sought to automate routine operational processes and reporting over recent years, freeing up additional staff resources that would otherwise be devoted to these tasks.

To facilitate rapid recovery in the event of an operational disruption, ASX intends to increase the proportion of operational staff based at its secondary operations site, to around 30 per cent from the current 20 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.[12]

[12] 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.

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 Section 2.3.1), under a contractual Support Agreement. In the event that ASX Operations Limited became subject to external administration, to the extent permissible by law, provisions within the Support Agreement provide for ASX Clear and the other clearing and settlement corporate entities to retain the use of operational resources.

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 that 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.

Over recent years, ASX has undertaken work on close to 60 projects, including major projects such as the OTC derivatives clearing service and enhanced client clearing arrangements in ASX Clear (Futures), and the ASX Collateral service. 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. Targeted deadlines for key projects have nevertheless 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.

17.2 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 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 departments.

Policies and procedures are the subject of internal and external review. ASX's Internal Audit department 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 considered by external auditors annually.

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

- ISO 31000 – Risk Management Principles and Guidelines is used to benchmark ASX's overarching framework for operational risk management.
- The business continuity framework is benchmarked against the Business Continuity Institute's Good Practice Guidelines 2013, 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. Cyber security strategies are further benchmarked against the Australian Signals Directorate's Strategies to Mitigate Targeted Cyber Intrusions.
- The compliance framework is benchmarked to the AS 3806-2006: Compliance Programs.
- The ASX Fraud Control Policy is benchmarked against AS 8001-2008: Fraud and Corruption Control.

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 details of technology upgrade releases, which include regular notices to participants of upcoming changes.

17.3 A central counterparty should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.

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; during 2013/14, 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 capacity 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 during 2013/14 was 13 per cent and 14 per cent respectively, while peak utilisation was 30 per cent for DCS and 20 per cent for CHESS. ASX Clear considers that it has sufficient technical and human resources to operate DCS and CHESS during peak periods, including in the event of operational incidents or system failure.

17.4 A central counterparty should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.

ASX Clear's approach to ensuring scalable capacity adequate to handle increasing stress volumes and to achieve its service level objectives is described under Key Consideration 17.3. As noted above, average capacity utilisation of DCS and CHESS during 2013/14 was 13 per cent and 14 per cent respectively, peak utilisation was 30 per cent for DCS and 20 per cent for CHESS, while both core systems were available 100 per cent of the time over this period.

17.5 A central counterparty should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.

Information security policy is implemented using a risk-based decision process, based on ISO 31000, 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, the cost of controls, and the richness and flexibility of services. ASX's 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 March 2014.

Information security policy is tested at a number of levels. 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 and detect cyber attacks 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 departmental 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.

17.6 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 (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the central counterparty to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The central counterparty should regularly test these arrangements.

Business continuity 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. Plans for recovery of key systems apply to both physical and cyber threats to business continuity.

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 broadly equivalent 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 problems with the telecommunications provider. All core systems employ multiple servers with spare capacity. Front-end servers handling communications with participants are configured to provide automatic failover across sites. Failover of the more critical data servers is targeted to take place within two hours, but would generally be expected to occur within an hour, under the control of management.

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

ASX 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. Since May 2014 these include the use of Twitter to advise stakeholders of market-wide operational or technical incidents. 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

[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.

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 clearing 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.

Participant continuity arrangements

Recognising that effective continuity of operations may depend on the capacity of participants to recover from an operational disruption, business continuity requirements for participants are set out in the ASX Clear Operating Rules and Procedures, supplemented by additional guidance issued by ASX on 1 July 2014. These 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 (set out in guidance) that this would be within two hours, and no more than four hours, following a contingency event for large participants. The targeted recovery time for smaller participants is four hours (and no more than six). These arrangements are reviewed as part of the participant admissions process. If a participant fails to maintain business continuity arrangements consistent with these recovery targets, it may become subject to sanctions or restrictions on its activities. 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. These spot checks examine the participant's governance and processes for resilience and business continuity. If a participant fails to implement any recommendations arising from a check, ASX may impose sanctions.

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 dealing with operational issues is to work collaboratively with the participant to educate them on their obligations. If the matter is serious, ASX may require that the participant address the weakness as a matter of priority. ASX may also impose conditions on participation, or require that the participant appoint an independent expert to assist with the remediation task.

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.

17.7 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. In addition, a central counterparty should identify, monitor, and manage the risks its operations might pose to other FMIs.

Interdependencies with 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 Key Consideration 3.1); as part of its assessments of project-related risks (see Key Consideration 15.1); and through its general monitoring of risks under its risk management framework (see Key Consideration 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. This risk is managed in part through technical and business continuity requirements placed on participants, but there are limitations to this approach. As a result, and notwithstanding that there are no contractual relationships between ASX and vendors, ASX has implemented 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 SPAN in late 2012. The program supports vendors' knowledge of ASX technical updates through early engagement before system changes are rolled out, 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 in some cases a lack of familiarity with local market practices and conventions. Such factors, if inadequately mitigated, could increase operational risk. ASX is examining options to mitigate these risks. As part of this, ASX Compliance has carried out a spot review on participants' outsourcing arrangements, benchmarking participants against a number of standards, including APRA's outsourcing prudential standard CPS 231. As a follow-up to the review, ASX is developing new guidance on participant outsourcing and has conducted site visits to selected overseas outsourcing providers.

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 (Principle 20). 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 and utility 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. ASX also provides 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.[14] 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), as well as incident escalation procedures and contacts.

ASX has developed a set of standard clauses for inclusion in contracts with third-party service providers 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 (which align

[14] 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.

with the Principles). ASX applies 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.

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. 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. The clauses 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 special 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 once finalised.

CPSS and IOSCO have developed a draft Assessment Methodology for the oversight expectations applicable to critical service providers.[15] Once finalised, this Assessment Methodology will provide a framework for considering how to apply the oversight expectations for critical service providers set out in Annex F of the PFMIs.

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 the ASX participant website; more general information available on the ASX public website; and in one-on-one meetings with participants, both during the induction process for new participants and on an ongoing basis.

Operational Support

ASX Clear provides telephone and email support to participants via a helpdesk, which operates from 8 am to 7:30 pm.

Principle 18: 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

ASIC's and the Bank's assessment is that ASX Clear observes the requirements of Principle 18. ASX Clear's access and participation requirements are described in further detail under the following Key Considerations.

[15] The draft Assessment Methodology is available at <http://www.bis.org/publ/cpss115.htm>.

18.1 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. During 2013/14, ASX developed an internal policy and supporting standards that summarise the financial and operational requirements placed on participants under the Operating Rules and Procedures, and document the responsibilities of the CS Boards, CRPC, CRO and relevant departments for ensuring these requirements are met and periodically reviewed. 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 2014, ASX Clear had 36 participants (excluding inactive participants) – nine of these were participants that offer clearing services to related entities or third parties.

18.2 A central counterparty's participation requirements should be justified in terms of the safety and efficiency 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; requirements related to legal structure, governance and regulatory status; business and managerial requirements; operational resources and capabilities; business continuity arrangements; and risk and liquidity management arrangements. ASX Clear's participation requirements promote the efficient operation of the facility and do not impose discriminatory or restrictive access constraints such as minimum turnover levels.

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'.[16] Calculation of the total risk requirement considers counterparty risk, large-exposure risk, position risk and operational risk. Brokers that have insufficient capital, or that do not wish to undertake their own clearing, may use the services of a General Participant (see Principle 19). A General Participant is a participant that may offer clearing services to third-party trading participants.

Direct Participants, who do not clear for other brokers, must maintain a minimum of $5 million in 'core capital'.[17] ASX management has discretion to impose a higher requirement. Following consultation with participants in late 2013, ASX decided that a previously proposed increase in the minimum core capital requirement to $10 million was no longer appropriate due to recent enhancements to ASX's broader risk controls, including the introduction of cash market margining.

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

[17] '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.

In the same consultation, ASX sought participant feedback on a proposal to introduce tiered core capital requirements for General Participants. The proposal was implemented in July 2014 and requires that General Participants hold $5 million in core capital for each trading participant for which it clears, up to a maximum of $20 million. That is:

- a General Participant that clears only for itself or for one other trading participant is required to hold $5 million in core capital
- a General Participant that clears for itself and one other participant, or on behalf of two third-party trading participants, is required to hold $10 million in core capital
- a General Participant is required to hold an additional $5 million in core capital for each additional trading participant that it clears for, to a maximum of $20 million.

Participants that clear only futures may elect to be covered by an alternative capital regime, which may be either a net tangible asset (NTA) requirement or a regime that recognises compliance with the requirements of a prudential supervisor. Since August 2013, the alternative of compliance with the requirements of a prudential supervisor has been made available to General and Direct Participants that clear any product in ASX Clear. This change was intended to encourage domestic ADIs to become active participants for the full range of products cleared by ASX Clear. At the end of June 2014, all but two of ASX Clear's 38 participants were subject to the risk-based regime, with one participant subject to each of the alternative regimes.[18]

In the second half of 2013, ASX reviewed the continued need to calculate a risk-based formula for capital requirements, in light of the increase in the core capital requirement in recent years. ASX also reconsidered how well the formula quantified the risks generated by participants – particularly those of larger participants. A decision on removing or altering this risk-based capital requirement was ultimately deferred.

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 be able 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.

18.3 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 department, which covers both CCPs and reports to the CRO, is responsible for risk management of exposures to 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.

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[18] The number of participants includes two inactive participants excluded for the purpose of Key Consideration 18.1, since these remain subject to capital requirements.

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. Participants are required to inform ASX if at any stage their capital falls below the minimum requirement. 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 Key Consideration 4.1). In addition Operations and ASX Compliance perform regular and ad hoc compliance monitoring activities.

ASX Clear has wide-ranging powers to sanction its participants. 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 ASX Compliance for formal disciplinary action. For example, during 2013/14 a participant in ASX Clear cleared a large concentrated cash market transaction that caused it to breach its CBPL. Although the participant was able to meet its ordinary margin requirements on the trade, it did not have sufficient funds available to meet an additional CBPL-related margin call. ASX imposed restrictions on the participant's admission as an ASX Clear participant and it continues to engage with the participant on the adequacy of its governance framework and risk control systems. The apparent misconduct is subject to ongoing investigation.

Principle 19: 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

ASIC's and the Bank's assessment is that ASX Clear observes the requirements of Principle 19. ASX Clear's approach to tiered participation arrangements is described in further detail under the following Key Considerations.

19.1 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 operates an individually segregated account structure for equity derivatives products (see Key Consideration 14.2). This facilitates the gathering of information on indirect clearing of these products, since the positions, collateral and margin requirements of clients are recorded in individual accounts.

There are, however, practical limitations in the analysis of indirect participation in cash securities clearing. In particular, with a commingled house/client account structure (see Key Consideration 14.2), ASX is unable to separately identify client positions, neither at an aggregate nor an individual level. However, ASX Clear has identified that tiered participation risks arising from cash market transactions are less material than those arising from derivatives transactions (see Key Consideration 19.4). In addition, ASX Clear is able to monitor significant changes to indirect participation arrangements in both cash and derivatives markets 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 over recent years have identified situations in which clients of a trading participant clearing via a third-party clearer have taken 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 may request more detailed information on any indirect client from that client's clearing participant. This information may include further details about the indirect participant's profile or activities including, but not limited to, its intentions as to 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. These could potentially examine 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.

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

As noted under Key Consideration 19.1, ASX Clear monitors dependencies arising from tiered participation indirectly through a variety of means. These include 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, including the daily monitoring of client-level data on derivatives-related exposures. Based on this information, ASX Clear has not identified any material dependencies between direct and indirect participants. As discussed under Key Consideration 19.4, ASX Clear monitors the proportion of a participant's derivatives business attributable to a particular client and sets triggers for further action based on the proportion of initial margin attributable to that client.

19.3 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. There are a small number of participants offering third-party clearing services in the derivatives market, while in the cash market, much of the activity in third-party clearing is concentrated in a single participant. Although there is a greater dispersion of third-party clearing activity for derivatives, the largest third-party clearer in the cash market represented a relatively small proportion of total positions held at ASX Clear during 2013/14. 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. However, in light of the greater exposures in the derivatives market, ASX monitors concentration in this market on a daily basis (see Key Consideration 18.4).

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. ASX's general approach to managing risks associated with participants' business activities is based on a framework that can flexibly detect and respond 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 years. During 2013/14, ASX Clear's participant enforcement was important in managing the clearing of a client cash equities position that resulted in a CBPL-related AIM call that the participant could not meet in a timely manner (see Key Consideration 18.3).

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

During 2013/14, ASX conducted a review of its concentration risk policy. This included further consideration of its approach to the risks arising from tiered participation. As a result of this review, ASX developed a formal Concentration Risk Standard, setting out a risk-based approach to monitoring tiered participation risks.

On the basis of the relatively low exposures generated by cash market transactions, ASX concluded that the risks to ASX Clear from tiered participation arrangements in the cash market were low. ASX Clear therefore monitors tiering risks for the cash market as part of its ongoing monitoring of participant credit exposures, investigating whether identified issues are due to client positions (see Key Consideration 4.2).

ASX has, however, identified two main sources of tiering risk in the clearing of derivatives products in ASX Clear.

- For low exercise price options, the potential for large mark-to-market margin requirements when in delivery may be a particular issue where there is a concentration of positions in individual client accounts.
- For ETOs more generally, clients of participants may execute strategies, such as selling deep-out-of-the-money put options for premium income, that have the potential to trigger significant margin obligations in the event of large price movements.

ASX Clear therefore monitors indirect participation in the derivatives market on a daily basis, using concentration indicators based on initial margin. If a client's ETO initial margin accounts for over 25 per cent of the clearing participant's total ETO initial margin, further investigation is triggered. The Concentration Risk Standard notes that indicators may return a number of false positives and escalation of any breaches of triggers will be based on a number of factors, including the materiality of the breach and the credit standing and activity profile of the participant involved.

Principle 20: FMI links

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

Rating: Observed

ASIC's and the Bank's assessment is that ASX Clear observes the requirements of Principle 20. ASX Clear's management of link-related risks is described in further detail under the following Key Considerations.

20.1 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 each FMI is able to observe the other principles in this report.

Identifying link-related risks

ASX Clear maintains two links with other FMIs, both of which are in the ASX Group. A link for the purposes of this principle is any connection that is made to another FMI according to a set of contractual and operational arrangements, irrespective 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. This link supports AUD 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 for 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. This addresses operational risks associated with software, infrastructure or network failures and manual processing errors. An incident report is required for any significant technical or operational incident, including an assessment of mitigating actions to reduce the risk of reoccurrence. In addition, six-monthly risk profile assessments are prepared and presented to the Audit and Risk Committee, and an independent system-controls audit is conducted annually. Austraclear operations are also covered by the Austraclear System Business Operations Plan, which includes a 'Step-in and Service' agreement with the Bank (see Appendix A2.2, Principle 17).

Managing financial risk

ASX Clear does not assume any direct financial risks from its links to other FMIs.

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

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 via these links is supported, respectively, by approvals of Austraclear under Part 2 of the PSNA, and ASX Settlement under Part 3 of the PSNA (see Key Consideration 1.4).

20.3 **Linked central securities depositories should measure, monitor, and manage the credit and liquidity risks arising from each other. Any credit extensions between central securities depositories should be covered fully with high-quality collateral and be subject to limits.**

Key Consideration 20.3 is not relevant to central counterparties.

20.4 **Provisional transfers of securities between linked central securities depositories should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.**

Key Consideration 20.4 is not relevant to central counterparties.

20.5 **An investor central securities depository should only establish a link with an issuer central securities depository if the arrangement provides a high level of protection for the rights of the investor central securities depository's participants.**

Key Consideration 20.5 is not relevant to central counterparties.

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

Key Consideration 20.6 is not relevant to central counterparties.

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

ASX Clear does not have links with other CCPs.

20.8 **Each 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 does not have links with other CCPs.

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

Key Consideration 20.9 is not relevant to central counterparties.

Principle 21: Efficiency and effectiveness

A central counterparty should be efficient and effective in meeting the requirements of its participants and the markets it serves.

Rating: Observed

ASIC's assessment is that ASX Clear observes the requirements of Principle 21. ASX Clear's arrangements for ensuring its efficiency and effectiveness are described in further detail under the following Key Considerations.

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

ASX Clear offers a range of participation options designed to suit market demand, and tailors its participation application process and governance framework to the products, client structure and markets being cleared. An ASX Clear participant may either be a Direct Participant or a General Participant (Principle 18). A Direct Participant can only clear cash market products or derivatives for itself, its own clients and wholly owned group entities and their clients; a General Participant may also clear for third-party participants and their clients. The recent introduction of tiered core capital requirements for General Participants is intended to stimulate competition and may result in new third-party clearers entering the market to provide clearing services to retail brokers.

ASX's Code of Practice for cash equities clearing and settlement is intended to address transparency and accessibility in the provision of these services and to formalise avenues for user engagement (Key Consideration 2.7). The Forum established under the Code is also intended to ensure that the ongoing development of cash market clearing and settlement infrastructure and services meets the needs of users and is consistent with global standards.

ASX has also established a Business Committee and a Technical Committee to support the Forum. The Business Committee is comprised of representatives from ASX, clearing and settlement participants, and market platform operators. These representatives have a deep understanding of the clearing and settlement business, for example, at the Chief Operating Officer level. The Business Committee has provided business and operational input on the forward work program of the Forum and has progressed issues of interest to the industry, such as the design of technology solutions (via the Technical Committee) and more flexible participant structures.

The Technical Committee is comprised of relevant technical experts from organisations represented on the Business Committee and back-office system vendors. These key groups help determine the needs of ASX Clear stakeholders and the technical requirements of service providers and software vendors. This information is then provided to the ASX Clear Board to inform possible service enhancements.

ASX Clear undertakes regular customer engagement to supplement its formal user governance arrangements via the Forum. For example, ASX Clear engages customers on matters related to exchange-traded options via its ETO Advisory Committee and the ETO subcommittee of the Stockbrokers Association of Australia. Participant feedback provides an important input for ASX Clear to assess its performance against efficiency and effectiveness standards, particularly in relation to proposed new services and products, and changes to Operating Rules and Procedures (see Key Consideration 21.2).

ASX Clear maintains a comprehensive governance and reporting framework that includes:

- transparent processes to operate ASX Clear, with well-defined controls, underpinned by written policies and procedures
- the maintenance of sufficient resources (financial, technological and human resources) to operate the facility properly and to meet its obligations under its CS facility licence.

ASIC concluded that these resources were adequate when preparing its 2013 ASX Group Assessment Report[19]

- conflict handling arrangements that are reviewed and adapted to changing circumstances
- processes to monitor and enforce participants' compliance with the Operating Rules (see Key Consideration 18.3)
- liaison processes with ASIC and the Bank
- a continuous improvement program.

ASX's TAS provides a mechanism for AMOs, such as Chi-X Australia Pty Ltd, to submit trades to ASX Clear and ASX Settlement, respectively, for clearing and settlement via CHESS in relation to ASX quoted securities.

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

The ASX Limited Board sets group-level strategic direction and business priorities, including via a three-year strategic plan, which is reviewed on a continuous basis. The ASX Clear Board sets goals and objectives specific to its clearing service, and reviews and provides governance of ASX Clear's risk management processes, internal controls and compliance systems. The ASX Clear Board is also responsible for overseeing the production of the management accounts of ASX Clear, which are prepared on a quarterly and half-yearly basis, as well as audited full year financial reports and statements. The ASX Clear Board is also responsible for the management of clearing risks (see Principles 2, 3).

Under the Code, ASX has committed to publishing audited management accounts for the clearing and settlement of cash equities at least annually. ASX published the first such set of accounts for the 2012/13 financial year in August 2013, along with its internal cost allocation and transfer pricing policy. Unaudited half-yearly ASX Clear management accounts for cash equities clearing are also released publicly.

ASX Clear measures its progress against goals and objectives in a number of ways.

- ASX Clear measures the effectiveness of its services via participant and user feedback. ASX Clear uses customer engagement and consultative processes described under Key Consideration 21.1 to ensure that it achieves its goals in relation to meeting the requirements of participants.
- ASX Clear has set availability targets for critical systems such as CHESS, DCS and the TAS, which are monitored and reported to relevant governance committees, including the ASX Audit and Risk Committee and the ASX Clear Board, on a regular basis (see Key Consideration 17.3).
- Senior management report to each meeting of the ASX Clear Board, and periodically to the Enterprise Risk Management Committee and the Audit and Risk Committee, on the

19 ASIC's 2013 *Market Assessment Report: ASX Group*, released 28 July 2014, is available at <https://www.asic.gov.au/asic/asic.nsf/byheadline/Reports?openDocument>.

status of ASX Clear's risk management goals and objectives. Reporting and measurement mechanisms include risk model reviews, international benchmarking, risk profiling and analysis, internal audit reviews, regulatory assurance reviews, and periodic analysis and reporting of key system service availability and capacity utilisation metrics (see Principles 3, 15, 17).

- Operating Rules and Procedures, together with other participant communications such as market notices, provide transparency to participants and other stakeholders regarding the operation of the ASX Clear facility (see Principle 23).

The Audit and Risk Committee has responsibility for considering management reports regarding the effectiveness of ASX Clear's risk management framework and processes. The Committee is assisted in this area by Internal Audit, Enterprise Risk and Regulatory Assurance. The Audit and Risk Committee considers reports from these departments on the appropriateness and effectiveness of internal controls, and action taken or proposed in response to assessments conducted by ASIC or the Bank.

21.3 A central counterparty should have established mechanisms for the regular review of its efficiency and effectiveness.

In addition to periodic reporting to the CS Boards and relevant committees under ASX Group's corporate governance framework (see Principle 2 and Key Consideration 21.2), relevant Group Executives also report to the CEO on a monthly basis. Metrics contained within these reports include key measures of system availability and capacity utilisation, key clearing and settlement statistics (such as netting efficiency and settlement efficiency), technical incident reporting, new issues/admissions/listings and option expiry data. Other issues recorded and measured include the cause and resolution of settlement failures, problems or delays related to the payment and receipt of cash settlements and margin calls, operational incidents and participant complaints.

The business service availability target for both CHESS and the TAS is 99.80 per cent. Capacity utilisation is continually monitored to maintain capacity headroom of 50 per cent above peak utilisation. The average monthly availability of the TAS between November 2011 and June 2014 was 99.99 per cent; average availability of the TAS was also 99.99 per cent over 2013/14. CHESS has had 100 per cent availability since June 2012. The availability performance and capacity utilisation of CHESS is discussed under Key Consideration 17.3.

In June 2014, ASX released the results of a study comparing the cost of ASX Clear's cash equities clearing services against an international peer group. The study, undertaken by an independent consultant under the Code, concluded that the fees charged by ASX Clear for post-trading services were within the range charged by comparable international CCPs.

Responsibility for the regular review of ASX Clear's efficiency and effectiveness is shared between a number of committees and departments within the ASX Group.

- CROCC oversees matters relating to ASX Clear's fair and effective obligations under its Australian CS facilities licence. Section 821E of the Corporations Act requires ASX Clear to provide a report to ASIC within three months of the end of its financial year on the extent to which the licensee has complied with the conditions of its licence.

- CALCO oversees the structural integrity and efficient use of liquidity, on-and-off-balance sheet assets, liabilities and the capital resources of the ASX Group, including ASX Clear.

- As part of its commitment to continuous improvement, the ASX Operations and Risk divisions have adopted a comprehensive suite of policies and procedures to support the governance and internal review of ASX Clear. These policies and procedures are reviewed on a regular basis (see Principles 2, 3).
- ASX Compliance monitors and enforces participants' compliance with the ASX Clear Operating Rules. Other departments within ASX Group assist ASX Compliance in monitoring ASX Clear's performance of its licence obligations.

Principle 22: Communication procedures and standards

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

Rating: Observed

ASIC's assessment is that ASX Clear observes the requirements of Principle 22. ASX Clear's approach to communication procedures and standards is described in further detail under the following Key Consideration.

22.1 A central counterparty should use, or at a minimum accommodate, internationally accepted communication procedures and standards.

ASX Clear has procedures in place to determine the impact of and actions required to accommodate changes in internationally accepted communications protocols. ASX Clear also has processes and procedures for the notification of changes to users and other relevant stakeholders, including system vendors. Notification may take the form of consultation papers, software vendor workshops, notices to clearing participants and settlement participants, and bilateral contact with software developers. Each new business requirement is analysed in order to identify the most appropriate means of integrating changes to communication protocols, with a particular focus on standardisation and open connectivity.

ASX Clear supports the CHESS messaging standard and the DCS open interface specification, both of which are ASX proprietary communication protocols. The use of ASX proprietary messaging systems for CHESS and DCS reflects the primarily domestic orientation of the cash equities and exchange traded options clearing services that these systems support.

CHESS operates as a computer-to-computer system which relies on an electronic message exchange over publicly available communications networks using proprietary encryption software. CHESS's proprietary software is utilised both at ASX Clear and within the back-office systems of participants, payment providers and registries.

Although the CHESS messaging format is proprietary and does not follow any particular standard, it was originally developed following a review of communications standards in the finance industry. Elements of those standards were used in the design of the CHESS messaging format (for example, the use of a bitmap structure). Relevant communication standards have evolved significantly since CHESS was first introduced over fifteen years ago; for example, one of the standards on which the original CHESS messaging format was based, ISO 7775, has since been replaced (by ISO 15022 which in turn was recently replaced by ISO

20022).[20] Nevertheless, ASX considers that the CHESS messaging format has continued to achieve its key objectives in the areas of system/messaging capacity, ease of validation, adaptability and functionality.

CHESS is able to accommodate the use of relevant, internationally accepted communications standards via third-party software 'adapters/translators'. These have been developed to convert CHESS proprietary messages into internationally accepted SWIFT message protocols and vice versa. However, this approach is expensive for participants and other market stakeholders and involves contracting third-party software vendors to develop the required translators. Irrespective of preferred messaging standards, many participants also rely on third-party vendors for the back-office systems used to connect to CHESS (see Key Consideration 17.7).

At its August 2013 meeting, the Business Committee expressed support for the introduction of a global messaging standard on the basis that it reduces costs for participants that operate in multiple markets, and which are currently required to either operate a separate back-office system in Australia or use a translator. The Business Committee recommended a move to the ISO 20022 SWIFT messaging protocol, particularly as this would align with the standard used for ASX's ReferencePoint product.[21]

In February 2014, the Business Committee recommended that a move to the new ISO 20022 SWIFT communications protocol be linked to a proposed CHESS replacement initiative. The Technical Committee has provided ASX Clear with initial feedback on a transition to an ISO 20022-based CHESS replacement with an indicative project timeline of up to three years. The Committee set out a range of options for the replacement of CHESS, options for the deployment of ISO 20022 standard messaging (either independently or in conjunction with the replacement of CHESS) and a potential go-live strategy.

Although ASX Clear meets the minimum requirements of Principle 22 as they apply to a domestically oriented CCP, a move to ISO 20022 standard messaging has the potential to reduce operating costs and increase efficiency for participants once the initial cost of changing standards has been absorbed. Globally active participants could potentially save costs from straight through processing and the removal of redundant local back-office systems. In addition, potential cost savings may also arise from greater competition among back-office system vendors able to utilise standardised connectivity. In the spirit of continuous improvement, ASX Clear is therefore encouraged to migrate to the ISO 20022 SWIFT messaging standard over the medium term (approximately within the next three years).

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

A central counterparty should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks,

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[20] ISO 20022 is the International Organization for Standardization's standard for financial services messaging. It defines a methodology for the development of financial message standards for financial business processes and transactions. Further information on ISO 20022 can be found at: <http://www.iso20022.org/about_iso20022.page>.

[21] ReferencePoint is an ASX data service providing subscribers with information on a broad range of corporate actions, prices and reference data across the ASX market. Further details are available at: <https://www.asxonline.com/marketinfo/Doco/referencepoint_brochure.pdf>.

fees, and other material costs they incur by participating in the central counterparty. All relevant rules and key procedures should be publicly disclosed.

Rating: Observed

ASIC's and the Bank's assessment is that ASX Clear observes the requirements of Principle 23. ASX Clear's disclosure of rules, key policies and procedures, and market data is described in further detail under the following Key Considerations.

23.1 A central counterparty should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.

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 the ASX public website.[22] The Operating Rules and Procedures are also made available on the ASX 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 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. During 2013/14, ASX redesigned its website, one element of which involved centralising links to information required to be disclosed under the Principles.

Specific disclosure requirements are dealt with under Key Considerations 1.3, 2.2, 13.3, 14.4, 16.4, 18.2 and 18.3.

23.2 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.

General descriptions of ASX Clear's system design and operations are available on the ASX public website, including as part of ASX's response to the CPSS-IOSCO Disclosure Framework (see Key Consideration 23.5).[23] The Disclosure Framework document describes the ASX group structure, provides a general description of the CS facilities and their roles, system design and operations, outlines the legal and regulatory framework for clearing and settlement, and provides a description of steps taken by ASX to ensure compliance with the Principles and the corresponding FSS. The ASX public website provides additional information on system design and operations, including descriptions of the cash market clearing and settlement process, and margining approaches for both securities and derivatives products.

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22 Available at <http://www.asx.com.au/regulation/rules/asx-clear-operating-rules.htm>.

23 Available at <http://www.asx.com.au/documents/regulation/pfmi_disclosure_framework.pdf>.

ASX maintains 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.[24] 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 Key Consideration 1.4).

23.3 A central counterparty should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the central counterparty's rules 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 departments to discuss key areas of importance for participants.

As part of the formal admission process, the applicant must provide supporting evidence of 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 details of participants' arrangements to ensure compliance with the Operating Rules and Procedures.

Where ASX becomes aware or suspects that a participant lacks a satisfactory 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 routine 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 arising from delays in the intraday allocation of client positions. Steps available to ASX to address serious matters may include: ASX Clear calling for AIM or additional cover from the 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 Key Consideration 17.7).

23.4 A central counterparty should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The central counterparty should provide clear descriptions of priced services for comparability purposes.

A full breakdown of the various fees ASX Clear charges for the individual services it offers, including available discount and incentive schemes, is published on the ASX website. Fee

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[24] Available at <http://www.asx.com.au/documents/clearing/131001_Default_Management_-_Public_Information_Document_v1.pdf>.

schedules are available for each CS facility ASX operates.[25] Separate fees are charged for clearing, settlement and ancillary services related to cash market products (e.g. equities, warrants and structured products). Fees charged on exchange-traded derivatives (e.g. futures and exchange traded options) are generally bundled as a single registration fee, although separate fees are charged for futures cash settlements, and options exercise and assignments.

ASX Clear publishes a description of its priced services and how its fee structure has been calculated in a variety of ways, including on the ASX website, via participant notices, via Guidance Notes and in information brochures.

As a general rule, ASX Clear publicly notifies changes to its fee structure in a timely manner, sometimes with as much as three months' notice. However, the ASX Clear Operating Rules allow ASX Clear to make changes to its fee structure at any time, provided the changes are notified in advance to participants.

The Code (see Key Consideration 2.7) requires ASX Clear to publish fee schedules, in a clear and accessible form, for all clearing and settlement services covered under the Code. The published schedules include a brief description of each service and the applicable terms, conditions and eligibility criteria of any rebates, revenue-sharing arrangements and discounts applicable to each service.

ASX Clear also makes available worked examples, tools and other information as appropriate to assist users to anticipate:

- the expected cost impacts of any pricing changes
- the expected cost impacts associated with new products and initiatives
- the impact of discounts, rebates and revenue-sharing arrangements for different user groups and different activity profiles.

In accordance with the Code, ASX Clear publishes its audited management accounts for clearing of cash equities on an annual basis, together with ASX's full year financial results (see Key Consideration 21.2). ASX Clear has also committed under the Code to provide non-discriminatory pricing to all customers and potential users. ASX Clear's fees, including rebates, revenue-sharing arrangements and discounts applicable to the use of these services, do not discriminate between ASX-affiliated and other customers or potential third-party users of its services.

ASX Clear has distributed a report containing the results of the independent cost benchmarking exercise carried out under the Code (see Key Consideration 21.2) to its customers, stakeholders and the Council of Financial Regulators, and has published the report on the ASX website.

23.5 A central counterparty should complete regularly and disclose publicly responses to the CPSS-IOSCO *Disclosure framework for financial market infrastructures*. A central

[25] The ASX Clear fee schedule is available at <https://www.asxonline.com/intradoc-cgi/groups/participant_services/documents/information/asx_015359.pdf>.

counterparty also should, at a minimum, disclose basic data on transaction volumes and values.

ASX has published its response to the CPSS-IOSCO Disclosure Framework, including information describing how its CS facilities observe the applicable Principles. This document was revised during 2013/14, expanding on a previous version that summarised ASX's approach to observance of the Principles with greater detail as to how the CS facilities meet the Principles. ASX plans to update this document quarterly and further enhance its disclosure as necessary from time to time.

ASX currently reports basic risk and activity data for the CS facilities via a monthly activity report, as well as through additional data published on both its main website and dedicated website on clearing and settlement of cash equities. In December 2013, CPSS and IOSCO published a draft set of quantitative disclosure standards for CCPs that are intended to complement descriptive disclosures under the Disclosure Framework. Once a finalised version of these standards comes into effect, ASX Clear will be expected to expand the range of quantitative risk and activity data that it publicly discloses.

Principle 24: Disclosure of market data by trade repositories

A trade repository should provide timely and accurate data to relevant authorities and the public in line with their respective needs.

Rating: Not applicable

Principle 24 is not relevant to central counterparties.

A1.2 ASX Clear (Futures)

ASX Clear (Futures) is a wholly owned subsidiary of ASX Clearing Corporation Limited (ASXCC), itself a wholly owned subsidiary of ASX Limited (see 'ASX Group Structure' in Section 2.3.1). ASX Clear (Futures) acts as the central counterparty (CCP) for all futures and options products that are traded on the ASX 24 market. In July 2013 ASX Clear (Futures) began offering a clearing service for over-the-counter (OTC) interest rate derivatives.

Principle 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

ASIC's and the Bank's assessment is that ASX Clear (Futures) observes the requirements of Principle 1. The legal basis of ASX Clear (Futures) is described in further detail under the following Key Considerations.

1.1 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 (Futures) 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 (Futures) holds a clearing and settlement (CS) facility licence, under Part 7.3 of the *Corporations Act 2001*. This licence is administered by ASIC in consultation with the Bank, with the Minister acting as ultimate decision-maker on licensing matters.
- ASX Clear (Futures) 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 (Futures) and each of its participants; each participant and each other participant.
- ASX Clear (Futures) is protected as a 'netting market' under Part 5 of the PSNA (see also Key Consideration 1.4).

The legal basis of ASX Clear (Futures)' activities is reviewed by ASX Legal whenever there are material amendments to the Operating Rules or Procedures. Two such reviews occurred for ASX Clear (Futures) during 2013/14.

Legal entity

ASX Clear (Futures) 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 (Futures)' central clearing activities are separate from the activities conducted by ASX's other CS facilities and the rest of the ASX Group, notwithstanding the sharing of operational resources across multiple entities within the group.

ASX Clear (Futures)' services are limited to CCP clearing of futures and options products that are traded on the ASX 24 market and certain OTC derivatives in accordance with the ASX Clear (Futures) Operating Rules and Procedures, the OTC Rules and the OTC Handbook. Accordingly, ASX Clear (Futures) does not provide any services that have a distinct profile from, or pose additional risks to, its activity of operating a CCP.

Rights and interests

The rights and interests of ASX Clear (Futures), its participants and, where relevant, its participants' customers in cleared positions and collateral are defined in ASX Clear (Futures)' Operating Rules and Procedures, OTC Rules and OTC Handbook. The OTC Handbook sets out the procedures, timings, contract terms and other details of the OTC derivatives clearing service. Changes to the Operating Rules were made during 2013/14 to support client clearing arrangements. These changes give the customers of participants a contractual right to deal directly with ASX Clear (Futures) in the event of the default of the direct participant that acts as their clearing agent (see Key Consideration 14.3). ASX Clear (Futures) has obtained legal advice confirming the enforceability of these arrangements and establishing that the arrangements do not interfere with protections for close-out netting arrangements between participants and their customers under the PSNA.

1.2 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 in the Operating Rules and those that may instead be considered under the Procedures. Rule changes are subject to a Ministerial disallowance process. The Corporations Act also establishes how any inconsistency between the licensed facility's rules and applicable laws and regulations (in particular, derivative transaction rules and derivative trade repository rules) would be resolved.

The ASX Clear (Futures) Operating Rules and Procedures are supplemented with explanatory material, published on the ASX public website and the ASX restricted participant website, to support participants' (and prospective participants') understanding of the risks they face through participation in the system. Publicly available material includes high-level descriptions of ASX Clear (Futures)' risk management framework, the Standard Portfolio Analysis of Risk (SPAN) margining methodology, business continuity arrangements and the Default Management Framework (DMF). Participants have access to additional manuals, reports and explanatory notes covering such topics as the application process for new participants, compliance, technical and operational details, counterparty risk assessment and fees.

There is a clear process for changing ASX Clear (Futures)' Operating Rules and Procedures. Proposed rule changes may be submitted informally to ASIC. In consultation with the Bank, ASIC will consider the changes and advise ASX of any regulatory concerns. Once such concerns are satisfactorily addressed, ASIC will invite formal submission of the proposed changes, which triggers a 28-day 'disallowance' period, during which the Minister may choose to disallow the 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. If changes to the Operating Rules are not disallowed by the Minister, they are notified to participants via the ASX website.

1.3 A central counterparty should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.

The legal basis for the activities of ASX Clear (Futures) and the facility's protection as an approved netting market under the PSNA – see also Key Consideration 1.4 – are described on the ASX public website in its Disclosure Framework document, which sets out in detail how each CS facility meets the requirements of each Principle within the *Principles for Financial Market Infrastructures* (PFMIs) developed by the Committee on Payment and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO) (see Key Consideration 23.2).[1]

ASX, on behalf of ASX Clear (Futures), submits an Annual Group Licence Report to ASIC and the Bank. This report sets out the legal basis for the CS facilities' activities under their licence obligations, and is used by ASIC in the preparation of ASIC's Market Assessment Report for the ASX Group.

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

1.4 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.

ASX 24's Operating Rules state that trades executed on the trading platform are extinguished and replaced by contracts with ASX Clear (Futures) upon registration of the trades with ASX Clear (Futures), and the ASX Clear (Futures) Operating Rules set out the risk controls that apply against clearing exposures. Such risk controls are calibrated to participants' net obligations to the CCP. Payment obligations arising from clearing, including those related to margin obligations, are settled in Austraclear. The point at which settlement of these obligations is final and irrevocable is established in Austraclear's Regulations.

Novation and netting

Part 5 of the PSNA protects the effectiveness of market netting contracts, including contracts entered into in accordance with the rules of a netting market. ASX Clear (Futures) is an approved netting market. This protection from the application of any other law, including insolvency provisions, is relevant to the function of a CCP. 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)

1 Available at <http://www.asx.com.au/documents/regulation/pfmi_disclosure_framework.pdf>.

- 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 obligations arising between ASX Clear (Futures) and its participants are settled in Austraclear. The legal certainty of settlement finality is supported by Austraclear's approval as a real-time gross settlement system under Part 2 of the PSNA. This approval provides protection against application of the so-called 'zero-hour rule' in insolvency law, whereby transactions settled after the point at which an insolvency is legally deemed to have started could potentially otherwise be reversed. 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 (Futures) are to each participant as principal – although new client clearing arrangements also establish a legal relationship between clients and the CCP (see Principle 14). Equally, participants' obligations are to ASX Clear (Futures) for all transactions that have been novated (i.e. both proprietary and client transactions).

Importantly for the legal protections provided under the PSNA, the point of novation is established by ASX Clear (Futures)' Operating Rules. For exchange-traded transactions, ASX Clear (Futures)' Operating Rules specify that a transaction on the ASX 24 market is novated upon the registration of a matched trade by the market, which occurs in ASX 24's SYCOM system. Non-market trades are novated once their details have been approved and registered by ASX Clear (Futures). Acceptance rules for registration of OTC derivatives trades are set out in the OTC Rules. Requirements include, for example, that the OTC transaction has been submitted in accordance with procedures and eligibility criteria in the OTC Handbook, that participants are authorised and not in default, and that the transaction passes limit checks. If an OTC transaction satisfies the requirements and is accepted by ASX Clear (Futures) for registration, the transaction is novated with effect from the time at which the transaction details were received by ASX Clear (Futures).

Enforceability of ASX rules while under external administration

ASX Legal has analysed the legal enforceability of ASX Clear (Futures)' Operating Rules upon the CCP's entry into external administration. ASX Clear (Futures) has also obtained legal advice to confirm the enforceability under Australian law of Operating Rules under which novated contracts may be closed out in the event that ASX Clear (Futures) was subject to an insolvency event. No material legal risks to enforceability have been identified. During 2013/14, ASX Clear (Futures) introduced rules giving participants the right to terminate novated contracts in the event that ASX Clear (Futures) defaulted on its obligations, with calculation of a net obligation to or from each participant on termination ('close-out netting'). Close-out netting rights are a prerequisite for participants that are authorised deposit-taking institutions (ADIs) to apply capital requirements to their net (rather than gross) trade exposures to CCPs, and similarly to report these exposures as net in their financial accounts. The rules do not interfere with ASX Clear's existing liquidity management arrangements, and

ASX will review the continued appropriateness of close-out netting rights in light of future developments in FMI recovery and resolution.

1.5 **A central counterparty conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.**

Although participants of ASX Clear (Futures) include subsidiaries and branches of entities that are based in foreign countries (including France, Germany, Hong Kong, Switzerland, United Kingdom and United States), the Operating Rules are governed by Australian law and require that all participants submit to the exclusive jurisdiction of New South Wales courts. ASX has obtained an external legal opinion in relation to foreign participation that has identified no material legal risks.

Principle 2: Governance

A central counterparty should have governance arrangements that are clear and transparent, promote the safety and efficiency 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

ASIC's and the Bank's assessment is that ASX Clear (Futures) observes the requirements of Principle 2. ASX Clear (Futures)' governance arrangements are described in further detail under the following Key Considerations.

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

The high-level objectives of ASX Clear (Futures) are set out in the CS Boards' Charter, which is available on the ASX public website. The objectives prioritise the Boards' responsibilities in the area of risk management and, in particular, ASX Clear (Futures)' responsibility for complying with the Bank's Financial Stability Standards (FSS), which are aligned with stability-related requirements of the Principles.

ASX Clear (Futures)' objectives recognise the public interest. These objectives are reflected in the ASX Limited Board Charter, which provides that the Board has a responsibility to oversee the conduct of the 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 (Futures), to the extent 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 do all things necessary to ensure 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 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 (Futures)' 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 Key Consideration 2.7). Consultations and responses to consultations are made available on the ASX website. In addition, the ASX Group has disclosure obligations under the Corporations Act and Listing Rules which it manages in accordance with those laws and rules.

2.2 A central counterparty should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, relevant authorities, participants and, at a more general level, the public.

The governance arrangements of ASX Clear (Futures) are documented on the ASX public website. This documentation includes the Charters of the ASX Limited Board, the CS Boards (including that of ASX Clear (Futures)), 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 all 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 the CPSS-IOSCO Principles; group and business structure, including an organisational chart showing senior group executives; and risk management policies (in summary form).

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 (Futures), 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 review both its overall performance and the performance of its individual board members regularly.

Ultimate responsibility for oversight of the risks faced by ASX Clear (Futures) lies with the ASX Limited Board and the ASX Clear (Futures) Board. The ASX Limited Board Charter delegates certain responsibilities to the ASX Clear (Futures) Board, including the review and oversight of the management of ASX Clear (Futures)' 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 (Futures) 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. The ASX Clear (Futures) Board meets regularly (seven times in 2013/14) and receives detailed reports on ASX Clear (Futures)' business and operations, risk management and financial performance.

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 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 at the time of their appointment. If there is a change in a director's material personal interests, the director must notify that change at the next meeting. If there is a real possibility of a material conflict of interest and duty on a matter subject to vote 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 contain suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board member(s).

At the end of June 2014, the ASX Limited Board had eight members, comprising the ASX CEO and seven 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 (Futures) Board comprises one executive director (the ASX CEO) and six non-executive directors. During 2013/14, one non-executive director resigned and two new directors were appointed. Three of the non-executive directors, including the Chair, 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. During 2013/14, ASX made changes to the composition of the CS Boards. Previously, all four CS Boards shared common directors; now, the ASX Clear (Futures) and Austraclear Boards share common directors, but two of these directors do not serve on the ASX Clear or ASX Settlement Boards. This change was made primarily for business reasons, but also supports ASX's conflict handling arrangements (see below under 'Group structure').

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 the ASX 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 the ASX website.[2]

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 (Futures) 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 on the recommendation of the Remuneration Committee at regular intervals. The ASX Limited Board reviews its fees regularly to ensure 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 may take advice from an external remuneration consultant. The process involves benchmarking against a group of peer companies. The last fee review took place at the end of 2013 following changes to relevant governance and regulatory arrangements. The revised fees took effect on 1 January 2014.

Group structure

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 and the Principles. ASX considers that there is limited potential for shared directorships to create conflicts between ASX's group-wide commercial interests and the risk management function of the CS facilities. More broadly, it considers that conflicts between directors' roles on the CS Boards and the ASX Limited Board are unlikely given the distinct roles the separate entities perform, and in view of group-wide arrangements to manage matters such as operations and compliance. If a conflict were to arise, a director sitting on multiple CS Boards would be expected to make decisions in the best interests of each facility.

The restructuring of the CS Boards to reduce the number of common directors between each of the CS facilities and ASX Limited further limits the potential for conflict. Two directors will now be able to form a quorum of the ASX Clear (Futures) Board, allowing matters that raise potential conflicts of interest to be considered and voted on without the involvement of directors that are also on the ASX Limited Board.

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

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

integrity necessary to discharge their responsibilities for the operation and risk management of the central counterparty.

ASX has clear and direct reporting lines between management and the CS Boards. These are set out in the CS Boards' Charter, along with the roles and responsibilities of the Managing Director and CEO, the Chief Risk Officer (CRO), and the Group Executive, Operations (GE, 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 certain 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 GE, Operations. The CS Boards provide input on the setting of Key Performance Indicators and may review the performance outcomes for the CRO and the GE, Operations

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 Human Resources to identify and manage the development of high potential staff according to individual and business needs. Succession and contingency planning is conducted for Group Executives, General Managers and other key staff.

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

ASX has a documented risk management framework, which is described under Key Consideration 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 policies and standards. The Boards consider these policies and standards at a concurrent meeting; where the policy or standard is relevant to more than one facility, the Boards of those facilities would simultaneously determine whether to approve the policy or standard. If the policy requirements under consideration differ across facilities, the Boards of each relevant facility would separately determine whether to approve the policy or standard (during the concurrent meeting). 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, such as margin policy, stress-testing standards and investment mandates, are reviewed by the CS Boards on an annual basis. Detailed reporting to the CS Boards occurs quarterly on the operation of the CCPs and their compliance 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. Clearing and settlement risk management policies and standards were reviewed during 2013/14. The reviews, along with the development of new policies and standards, will be continued during 2014/15.
- 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 departments, 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 departments.
- Individual departments 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 department 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 departments 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 departments within the CRO's portfolio have a primary revenue or profit objective. There are four functional departments with at least some responsibility for CCP financial risk management: the Clearing Risk Strategy and Policy department; the Clearing Risk Quantification (CRQ) department; the Clearing Risk Management department; and the Portfolio Risk Manager. The CRQ department was created specifically to maintain and validate risk and pricing models, allowing Clearing Risk Strategy and Policy to focus on higher level risk policies and longer term initiatives. 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. The new participant Risk Committee (see Key Consideration 2.7) also provides advice to the ASX Clear (Futures) Board on risk management matters.

Model validation

The Boards of ASX Clear and ASX Clear (Futures) (the 'Clearing Boards') regularly review and discuss with management matters of risk policy, including changes to margin and stress-testing methodologies.

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 (Futures) include SPAN margining for exchange-traded derivatives, the OTC IRS Historic VaR model for OTC derivatives, 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, the assessment approach and whether the validation should be carried out by an internal or external expert. ASX assigns each of its risk models a weighted risk score between one and five to determine how critical it is, based on factors such as the internal and external impact of the model, frequency of use and complexity. ASX uses the risk score to determine the frequency of comprehensive independent model validations and whether models are to be validated internally or externally. 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 reviews are coordinated by Internal Audit, including the use of external experts as required under the framework or where this is deemed necessary by the RQG or Internal Audit. ASX Clear (Futures)' approach to model validation is discussed in more detail under Key Considerations 4.5, 6.7 and 7.9.

Internal audit

ASX maintains an internal audit plan that provides for a three-to-five year review cycle of key operational and risk management processes, and internal control mechanisms that are governed by ASX's Enterprise Risk 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 department is a separate department within ASX that reports to the CRO for administrative purposes, and the Audit and Risk Committee and Managing Director and CEO for audit purposes. The Internal Audit department's reporting structure also includes reports to the CS Boards and ASX Compliance Board. Internal Audit's 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 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 department 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 such audit was carried out in 2011, with the next assessment scheduled for October/November 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.[3] 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.

2.7. The board 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. 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. ASX Clear (Futures) routinely conducts public consultations when considering major changes to existing services or new service offerings. These consultations allow for written submissions and discussion in both bilateral and open forums. Participants' views may also be gathered through the induction program for new participants, as well as ongoing participant liaison and compliance checks. ASX Clear (Futures) has formalised in its Operating Rules a requirement that it consult participants on proposed rule amendments, except those requested by its regulators or required to enable ASX Clear (Futures) to comply with its CS facility licence or other regulatory obligations.

During 2013/14, ASX Clear (Futures) implemented additional formal structures for participant consultation. The first meeting of the ASX Clear (Futures) Risk Committee, comprising representatives from 18 futures and OTC participants, was held in April. It is a self-governing body chaired by an elected member. The Risk Committee is consulted on material changes to the margin methodology, the default fund, position or liquidity limits, participation criteria, new products, and other changes affecting either the risk model or the rules. The Risk Committee's proposals and recommendations are presented to the ASX Clear (Futures) Board, which is not obliged to accept the Risk Committee's advice but is required to provide

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3 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.

reasons for any decision not to follow such advice. ASX established an OTC Product Committee that advises ASX Clear (Futures) on the types of OTC derivatives transactions that are eligible for clearing and material changes to the terms of OTC derivatives contracts, new product timelines and service releases. ASX intends to establish an ASX Clear (Futures) Product Committee in the December Quarter 2014, which will have a wider remit than the OTC Product Committee and will cover similar matters relating to the product scope of exchange-traded futures.

ASX Clear (Futures) has also established a Default Management Group (DMG), comprised of experts from OTC participants selected on a rotational basis, each for an annual term. The DMG met twice in June 2014. The DMG will be consulted on aspects of the default management process as set out in the Operating Rules, and while the ASX Clear (Futures) Board is not obliged to accept the DMG's advice, it is required to provide reasons for any decision not to follow such advice.

Principle 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: Broadly observed

The Bank's assessment is that ASX Clear (Futures) broadly observes the requirements of Principle 3. In order to fully observe Principle 3, ASX Clear (Futures) should:

- implement plans to enhance its recovery plan consistent with forthcoming CPSS-IOSCO guidance on recovery planning.

ASX Clear (Futures)' risk management framework is described in further detail under the following Key Considerations.

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. Risk-management frameworks should be subject to periodic review.

Identification of risk

ASX's high-level framework for risk management is described in its Enterprise Risk Management Policy. This policy divides risks identified by ASX into two broad categories: 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 Key

Consideration 2.6).[4] 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 requirements of the Principles embedded in the 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 CCPs, including ASX Clear (Futures). These policies govern more granular internal 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. During 2013/14, ASX has developed or updated standards covering most relevant aspects of the FSS. The Bank will continue to monitor the maintenance of existing policies and standards, and the finalisation of remaining policies and standards by ASX over 2014/15.

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

- *The CS Boards*. Each CS facility has a board (see Key Consideration 2.3 and 'ASX Group Structure' in Section 2.3.1), 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 GE, 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,

[4] 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.

liabilities and capital resources of the ASX Group. CALCO advises on changes to the 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 GE, 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 risk, operational or compliance risk, and manage clearing risk. The CROCC currently meets on a monthly basis.

- *Risk Quantification Group*. ASX established the RQG in early 2013 to strengthen the technical oversight of risk management policy. The RQG is chaired by either the CRO, the General Manager, CRQ, or the General Manager, Clearing Risk Strategy and Policy, and is made up of key staff from ASX's CRQ, Clearing Risk Strategy and Policy and Clearing Risk Management departments 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 and the Model Validation Framework, including oversight of model governance and regular reviews of margining and stress test models. The group meets at least on a monthly basis or more frequently as required.

- *Default Management Steering Group (DMSG).* ASX formed the DMSG in 2010/11 to provide oversight of the CCPs' 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 (Futures) employs information systems that provide timely and accurate information relevant to its risk policies, procedures and controls. This includes information on risk exposures to individual participants, as well as aggregated information on risk exposures across the central counterparty. Key information systems include:

- *Margining*. ASX Clear (Futures) uses the CME SPAN system for margining of exchange-traded derivatives and the Historical Simulation of Value at Risk (HSVaR) based Calypso margin system for OTC derivatives.

- *Capital and liquidity stress testing*. Stress testing is carried out daily to gauge the adequacy of ASX Clear (Futures)' 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 (Futures) monitors daily risk management reports produced by its information management systems to identify changes in positions that may require mitigating action. ASX Clear (Futures)' 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, third-party vendors use this information to provide margin estimation software to participants. ASX has also developed a web portal to estimate margin requirements for OTC derivatives portfolios.

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 PricewaterhouseCoopers in 2011 and the next review is scheduled for the second half of 2015.

Previously, the Enterprise Risk Management Policy was reviewed by the Audit and Risk Committee approximately every three years, with the committee informed of material changes in the interim. Following the most recent review in August 2013, future reviews will be conducted on a two year cycle.

3.2 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 (Futures) creates an incentive for participants to manage the exposures that they bring to the CCP, as does the requirement to contribute to pooled financial resources in proportion to initial margin obligations. 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 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 Key Consideration 4.2).

ASX Clear (Futures) 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.

3.3 A central counterparty should regularly review the material risks it bears from and poses to other entities (such as other financial market infrastructures, settlement banks, liquidity providers, and service providers) as a result of interdependencies, and develop appropriate risk-management tools to address these risks.

ASX Clear (Futures) 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 Key Consideration 3.1), and its processes for identifying risks associated with new activities. In the case of new products and services, ASX undertakes risk assessments when undertaking an expansion of its activities or in the event of material changes to its business. Risk assessments are built into ASX's Project Management Framework (see Key Considerations 15.1, 17.4).

For instance, ASX Clear (Futures) 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 (Futures) has also identified interdependencies with service providers. ASX Clear (Futures)' response to these interdependencies is outlined in Key Consideration 17.4.

Interdependencies with Austraclear for the settlement of margin and other payment obligations are managed within the context of ASX Group's broader risk management framework (see Principle 20).

3.4 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.

ASX Clear (Futures) has developed a basic recovery plan that identifies scenarios that could threaten its ongoing provision of critical clearing services and sets out how it would respond to such scenarios on the basis of its existing powers under its Operating Rules and Procedures. The recovery plan sets out the likely sequence of actions that ASX would take under each identified recovery scenario, and analyses the advantages and disadvantages of tools available to ASX Clear (Futures) to respond to such scenarios. In particular, ASX's analysis has identified that ASX Clear (Futures)' existing Operating Rules do not provide it with sufficient tools to be able to fully address uncovered credit losses and liquidity shortfalls, and replenish financial resources following a participant default or a non default-related financial loss (see also Key Considerations 4.7 and 7.9).

ASX has commenced work to develop a more comprehensive recovery plan supported by tools to fully address uncovered credit losses and liquidity shortfalls, and replenish financial resources. It intends to base these tools on forthcoming CPSS-IOSCO guidance on recovery planning, expected to be published in late 2014. ASX intends to consult on its proposed recovery approach in the second half of 2014.

Principle 4: Credit risk

A central counterparty should effectively measure, monitor and manage its credit exposures to participants and those arising from its payment, clearing and settlement processes. A central counterparty should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. 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 sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the 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 to the central counterparty in extreme but plausible market conditions.

Rating: Broadly observed

The Bank's assessment is that ASX Clear (Futures) broadly observes the requirements of Principle 4. In order to fully observe Principle 4, ASX Clear (Futures) should:

- 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
- complete the full validation of its capital stress-test model by external experts.

ASX Clear (Futures)' approach to managing its credit risk is described in further detail under the following Key Considerations.

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 payment, clearing, and settlement processes. Credit exposures may arise from current exposures, potential future exposures, or both.

ASX Clear (Futures) maintains a comprehensive framework for managing credit exposures to its participants. This framework comprises: a stress-testing regime (see Key Consideration 4.5); the use of variation margin to mark positions to market (see Principle 6); and the maintenance of pre-funded financial resources. These financial resources comprise initial margin (see Principle 6), other collateral calls based on participants' positions, and fully prefunded pooled financial resources of $650 million (see Key Consideration 4.4). Financial resources received in cash are invested in high-quality assets in accordance with ASXCC's treasury investment policy (see Principle 16).

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.

ASX'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, market price moves, open positions and settlement obligations to the CCPs. Participants' positions are marked to market and ASX Clear (Futures) calculates initial and variation margin requirements at the end of each business day. ASX Clear (Futures) also has in place intraday margining processes to ensure that it calculates and manages credit risk exposures on a timely basis.

For exchange-traded products, ASX Clear (Futures) performs automated intraday margin calculations at 8.30 am and 11.30 am each business day, and may also perform ad hoc calculations if there is significant movement in the prices of individual contracts. Based on these calculations, intraday margin calls are made if margin coverage is eroded by 25 per cent or more (decreased from 40 per cent during 2013/14), and if intraday margin calculations exceed $100 000 for a portfolio (see Key Consideration 6.4). ASX is considering whether to modify the timing of intraday calls to better align with overnight margin calls, and take into account price movements and changes in position later in the day.

For OTC derivatives positions, including cross-margined futures, ASX Clear (Futures) recalculates its exposures to participants on approximately an hourly basis. To manage the additional credit risk exposure arising from offering real-time novation of OTC products, ASX Clear (Futures) places a limit on the interest rate sensitivity of new transactions (currently set to $500 000), conducts frequent portfolio exposure checks and may prevent further novation until an intraday margin call is met. By imposing pre-novation limits on the interest-rate sensitivity of each trade (set using the maximum present value of a basis point shift in interest rates), ASX Clear (Futures) minimises the possibility that novating a single large trade results in a significant increase in credit exposure. The approximately hourly portfolio exposure checks by CRM reveal circumstances in which the sum of initial and variation margin owed (beyond excess collateral held by ASX Clear (Futures)) exceeds $1 million, at which point ASX Clear (Futures) would call for intraday margin (see Key Consideration 6.4). The threshold is based on the most recent collateral data and is reviewed at least daily by CRM. From July 2014, margin erosion thresholds for intraday margin calls have been set at 10 per cent for OTC derivatives only portfolios, or 20 per cent for cross-margined OTC and exchange-traded derivatives portfolios.

ASX Clear (Futures) 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, Additional Initial Margin (AIM) is called (see Key Consideration 4.4).

Within CRM, the Counterparty Risk Assessment (CRA) team is responsible for ongoing monitoring, assessment and investigation of matters relating to financial requirements (including participants' monthly financial statements). CRA 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 as appropriate. Other metrics monitored by CRA, including factors used in determining the CROCC watch list (see below), can be used as an alternative or supplementary means for ICR determination where these indicate an assessment of credit risk that differs from external credit ratings. In other cases, the ICR 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 CRA, ASX Compliance and the Operations Division is coordinated by the CROCC. Based on such an assessment, ASX Clear (Futures) may decide to place restrictions on a participant's trading, clearing and settlement activities. During 2013/14, there were no ASX Clear (Futures) participants on the watch list.

Participants on ASX's watch list may be subject to trading restrictions, or additional credit risk controls. For instance, they may be subject to calls for additional margin, higher capital requirements, additional capital reporting requirements, or a reduced STEL (such that additional margin would be called at a lower level of capital stress-test exposure (see Key Consideration 4.5). CRM typically also carries out a detailed credit review of participants on the watch list.

ASX Clear (Futures) will also call capital-based position limit (CBPL) AIM from a participant with a large portfolio (measured by initial margin requirements) relative to its net tangible assets, or may make an additional cover call where it has other counterparty credit risk concerns.

During 2013/14, ASX undertook a broad review of concentration risk. As a result of this review, ASX developed a formal Concentration Risk Standard, setting out a risk-based approach to monitoring concentration risks in three areas:

- Concentrations in participants' exposures to their clients (discussed under Principle 19).
- Concentrations of individual participants' positions in particular products. Evidence of such concentration indicates individual participant exposure to large price movements in a particular product that could challenge its capacity to meet obligations to the CCP. CRM monitors the concentration of participants' exchange-traded positions in single products, by number of contracts or value of underlyings. Further review would be triggered should exposure to a particular product exceed a specified share of a participant's total portfolio, subject to a materiality threshold.
- Concentration of positions in a market in a single participant. Evidence of a single participant accounting for a large share of positions in a particular market segment could indicate the potential for complications in closing out or transferring these positions if the participant were to default. CRM monitors the market shares of participants in each exchange-traded product. Further review would be triggered if a single participant held more than 25 per cent of the contracts in the market for that product and the size of the position (relative to average market turnover for that product) suggested that it could take more than two days to close out that participant's position.

If a trigger were met under its Concentration Risk Standard, ASX would not automatically take action. In determining whether further investigation or action was warranted, ASX would take into account a number of factors, including the materiality of the breach and the credit standing and activity profile of the relevant participant (see CCP Standard 4.3).

Under its risk-based approach to monitoring concentration risk, ASX Clear (Futures) has prioritised formal concentration monitoring for exchange-traded products over OTC products. This reflects the currently relatively low level of exposures generated by OTC derivatives transactions. ASX Clear (Futures) nevertheless monitors concentration risks in OTC products via its ongoing monitoring of participant credit exposures.

For details of ASX Clear (Futures)' other participation requirements and participant monitoring arrangements, see Principle 18.

4.3 **A payment system or securities settlement facility should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a deferred net settlement payment system or deferred net settlement securities settlement facility in which there is no settlement guarantee, but where its participants face credit exposures arising from its payment, clearing and settlement processes, such a financial market infrastructure should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.**

Key Consideration 4 is not relevant to central counterparties.

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 Principle 5 on collateral and Principle 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.

During 2013/14, ASX Clear (Futures) increased its total prefunded pooled financial resources to $650 million, from $370 million at the end of June 2013. $180 million of the additional funds was sourced from a capital raising conducted in June 2013, while $100 million was contributed by participants of ASX Clear (Futures)' OTC derivatives clearing service. ASX Clear (Futures) also replaced $20 million of contributions from futures clearing participants with funds from a subordinated loan from ASX Limited. Following these changes, pooled financial resources consist of (in order of application in the event of a futures participant default): $30 million of ASXCC equity; a $90 million subordinated loan from ASXCC (ultimately funded by a subordinated loan from ASX Limited); $100 million from futures participants (the ordering of OTC and futures participant contributions would be switched in the event of an OTC participant default); $150 million of ASXCC equity; $100 million from OTC participants; and $180 million of ASXCC equity. The increase in pooled financial resources reflects the launch of the OTC derivatives clearing service, and the move to testing the adequacy of financial resource against the default of the two largest participants plus affiliates. The magnitude of the increase reflects stress tests of participant portfolios provided to ASX Clear (Futures) as part of a design study for the OTC derivatives clearing service carried out in 2012.

ASX Clear (Futures) conducts daily stress tests to ensure that the level of its prefunded financial resources is sufficient to cover the default of the two participants (and their affiliates) that would potentially cause the largest aggregate credit exposure to the CCP under a wide range of scenarios (see Key Considerations 4.5, 4.6). Since ASX Clear (Futures) clears primarily transactions in exchange-traded futures and OTC interest rate swap (IRS) derivatives, the Bank does not consider that ASX Clear (Futures) is involved in activities with a complex risk profile. However, ASX Clear (Futures) is systemically important within Australia. The Bank has issued supplementary interpretation of the FSS that clarifies how it will determine systemic importance in multiple jurisdictions. One indicator, among other things, is the need to seek 'recognition' in other jurisdictions. Reflecting this supplementary interpretation, the Bank has concluded that ASX Clear (Futures) is systemically important in multiple jurisdictions and therefore subject to higher financial resource requirements (i.e. to cover the default of two participants and their affiliates).

Under ASX Clear (Futures)' 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 (Key Consideration 4.5). 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 financial 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 Key Consideration 4.5).

4.5 A central counterparty should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A 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 total financial resources. 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 (Futures) 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 Key Consideration 4.6). The scenarios have been developed based on statistical analysis of historical market movements, which takes into account correlations between contracts and uses the ‘student t distribution’ (allowing for more extreme events than a normal distribution). On a daily basis, ASX reviews the scenarios which underpin the capital stress-testing regime for ASX Clear (Futures), and on a monthly basis carries out a review of market conditions to determine whether there is any evidence of stress that would support a change to scenarios. Any observed changes in price, volatility or interest rate curves in excess of the stress-test scenarios would constitute an event beyond what was previously considered to be extreme but plausible. Accordingly, it is likely that a revision to the relevant stress-test scenario would be presented for consideration by the Clearing Boards. In addition, ASX conducts monthly reverse stress tests to confirm the sufficiency of pooled financial resources and to cross-validate the capital stress-test scenarios (see Key Consideration 4.6).

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 Key Consideration 2.6). Under this framework the capital stress-test model must be externally validated annually. ASX has engaged external experts to conduct a validation of the capital stress-test model during the third quarter of 2014. The Bank will monitor the outcome of this validation.

Reporting and use of stress test results

Capital stress test exposures are routinely reported to ASX management, the Clearing Boards and the Bank. Participant stress test losses are used to gauge the adequacy of ASX Clear

(Futures)' 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 CRO and CALCO. The CS Boards and ASX Limited Board are responsible for approving any increase to pooled prefunded financial resources where this is considered necessary (see below).

Each participant in ASX Clear (Futures) is allocated a STEL based on its ICR. The maximum STEL represents one half of ASX Clear (Futures)' total pooled prefunded financial resources, reflecting that ASX Clear (Futures) holds prefunded resources to cover multiple participant defaults. ASX Clear (Futures) made a number of adjustments to STELs during the Assessment period, reflecting the move to cover multiple participant defaults, and increases in pooled prefunded financial resources (including contributions received from OTC participants).

Where the projected stress-test losses of a participant exceed its STEL, ASX will call for STEL AIM. Like other margins, STEL AIM is calculated overnight, notified to participants by approximately 8.00 am the next day, and must be met by 11.00 am. Participants may meet these obligations using cash or non-cash collateral, including Australian Government securities and bank bills or negotiable certificates of deposit from ADIs. ASX Clear (Futures) does not accept collateral issued by a clearing participant or associated entity, in order to reduce the possibility that it might face the default of both a clearing participant and a collateral issuer.

In deciding whether ASX Clear (Futures) has sufficient pooled financial resources, ASX considers the size, frequency, duration and distribution of AIM calls across participants. ASX Clear (Futures) would consider increasing these resources if stress-test results in excess of pre-funded pooled resources were persistent, significant and widespread. In other cases, ASX Clear (Futures) would generally rely on additional collateral collected under the AIM regime.

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.

ASX Clear (Futures) uses its capital stress test to establish the overall adequacy of financial resources and to determine whether a participant is required to post AIM (see Key Considerations 4.4, 4.5).

The stress-testing regime comprises a suite of portfolio and single-contract stress-test scenarios based on statistical analysis of historical market movements. Scenarios are tailored to ASX Clear (Futures)' risk tolerance, as defined by its Board. All stress-test scenarios are based on historical observations and aim to capture extreme market moves that have a probability of occurrence of once in 30 years for single-asset scenarios, and once in 100 years for multi-asset scenarios. To meet these targeted probabilities, stress-test scenarios are calibrated to cover 99.987 per cent of daily price and volatility movements for the single-asset scenarios and 99.996 per cent of daily price and volatility movements for the multi-asset scenarios, based on a sample distribution constructed from 20 years of price and volatility data. The sample distribution used by ASX Clear reflects the period in which ASX has judged historical data as consistent and relevant to current market structures.

ASX Clear (Futures) uses 30 scenarios that involve movements of price and volatility across the four major futures contracts: SPI 200; 90-day bank accepted bill; 3-year bond; and 10-year bond.

- Twenty 'multi-asset' scenarios model combinations of price movements across all four contracts. Sixteen of these scenarios model a range of tilts, twists and bends of the yield curve, as represented by different price shocks across the 90-day, three-year and 10-year contracts; for example, the 'tilt (back end up)' scenario has progressively increasing price shocks from short-term to long-term interest rate contracts, with a 0 per cent move in the price of the 90-day contract, a 2 per cent move in the price of the three-year contract, and a 5 per cent move in the price of the 10-year contract. The remaining four of the multi-asset scenarios model moves in equities with balanced movements in the three interest rate contracts, equivalent to a 'parallel' move of the yield curve.
- Eight 'single contract' scenarios model extreme price movements in the four contracts individually.
- Two scenarios model large movements in the interest rate contracts with no movement in equities.

For participants that clear OTC derivatives, ASX Clear (Futures) applies the same multi-asset and single-asset scenarios, with extensions to capture movements in the bank bill swap rate (BBSW) and Australian overnight index average (AONIA) for overnight indexed swaps. Accordingly, the scenarios test shocks to exchange-traded derivatives and IRS simultaneously. The BBSW and AONIA curves are split into segments based on differences in participation and activity in the underlying market. The price shocks are calibrated using 20 years of data history for the Australian interest rate derivatives market, and take into account the assumed five-day close-out period for OTC derivatives transactions. As for the futures-only scenarios, the combined futures and OTC scenarios are sized to be equivalent to one in 30 year price movements for single-asset shifts, and one in 100 year outcomes for multi-asset shifts.

In February 2014, ASX added 10 new scenarios that consider various forms of basis risk. Two of these new scenarios expand on two pre-existing scenarios modelling the basis risk that results from a potential change – either temporary or permanent – in the economic relationship between interest rate futures and IRS. Two other new scenarios model the effect of a change in the spread between AONIA and BBSW rates at various tenors, while six new scenarios model changes in the tenor spread for BBSW. Each pairwise basis risk spread has been sized to a once in 100 year event. The new scenarios bring the total number of capital stress-test scenarios for OTC participants to 42.

In addition to the active scenarios for OTC derivatives, ASX introduced 14 internal scenarios in early 2014. These model shocks affecting a single tenor, the effect of assuming an increased close-out period and the impact of an absolute interest rate shock. Review of scenarios used in ASX Clear (Futures)' capital stress test against observed market movements also occurs on a daily basis and against overall market conditions on a monthly basis (see Key Consideration 4.5).

Over the course of 2013/14, ASX developed a reverse stress test for ASX Clear (Futures) that takes into account the impact of systematic shocks across multiple contracts and considers changes to other model assumptions. For instance, an assumed change in equities prices (up or down), which affects the size of exposures on SPI-200 positions, is combined with an assumed change to the level or shape of the interest rate curve (e.g. to steepen, twist, or effect a parallel shift up or down) which affects the three major interest rate futures contracts. In developing these combinations of market movements, ASX considers the prevailing capital stress-test scenarios, and observed historical and statistical relationships between the relevant market variables. The reverse stress test then simulates a level shift to this fixed combination of market movements to discover the point at which pooled financial resources would be exhausted.

In order to test the sensitivity of the stress-test models to other model assumptions, the reverse stress test is repeated for a wide range of scenarios. These include assuming the default of multiple participants beyond the available financial resources of ASX, and varying assumptions on the size, concentration or directionality of participants' portfolios. To test these assumptions, reverse stress tests are applied to participant portfolios that exhibit certain characteristics, such as concentrated exposure to certain products or a highly directional interest rate exposure. ASX also conducts tests of extreme hypothetical portfolios that would generate losses sufficient to exhaust pooled financial resources under plausible market scenarios.

In interpreting the results of reverse stress testing, ASX considers the plausibility of any scenarios that could exhaust pooled financial resources. Any recommended changes to stress-test scenarios or pooled financial resources would first be considered by the RQG and then escalated to the Clearing Boards for approval. A summary of reverse stress testing outcomes is reported alongside the monthly margin backtesting and capital stress test review reports and included in quarterly risk management reports to the Clearing Boards.

The Bank will continue to monitor the implementation of these enhancements to ASX Clear (Futures) approach to reverse stress testing.

4.7 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.

In March 2014, ASX finalised a basic recovery plan that relies on existing tools and powers within the CS facilities' Operating Rules. In preparing the plan for ASX Clear (Futures), ASX identified that the existing Operating Rules do not provide the CCP with sufficient tools to be able to fully address any uncovered credit losses and replenish financial resources following a participant default (see Key Consideration 3.5). While ASX's recovery plan identifies measures that could be used to mitigate this in part (such as adjustments to STELs and the collection of additional margin), additional measures will be required to comprehensively allocate uncovered losses and adequately and reliably replenish financial resources.

In relation to replenishment, responsibility for determining if 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 (Futures) Board. ASX has documented replenishment intentions, which include several options; the particular approach taken to replenishment would depend on the specific circumstances, including the severity of the loss and the market environment (see Key Consideration 13.1). ASX Limited has also committed to maintaining a certain level of equity capital in ASX Clear (Futures) (including via ASXCC), provided certain conditions are met, including that the CCP is solvent.

ASX has commenced work to develop a more comprehensive recovery plan supported by tools to fully address uncovered credit losses and replenish financial resources. It intends to base these tools on forthcoming CPSS-IOSCO guidance on recovery planning, expected to be published in late 2014. ASX intends to consult on its proposed recovery approach in the second half of 2014.

Principle 5: Collateral

A central counterparty that requires collateral to manage its or its participants' credit exposure 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

The Bank's assessment is that ASX Clear (Futures) observes the requirements of Principle 5. ASX Clear (Futures)' collateral acceptance policies are described in further detail under the following Key Considerations.

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

The acceptable collateral depends upon the type of margin called.

- Futures participants generally meet their initial margin obligations using AUD cash, although they may also use high-quality non-cash collateral, such as eligible debt securities, and deposits in major foreign currencies. The acceptable types of non-cash collateral are Australian Government and some semi-government securities, and US Treasury bills Acceptable foreign currencies are NZD, EUR, JPY, USD and GBP. Acceptable collateral is reviewed annually, with haircuts applied to all non-cash collateral posted and all cash collateral that is not in the same currency as the product being covered.
- Participants may meet STEL AIM obligations using AUD cash or non-cash collateral, including Australian Government and some semi-government securities, bank bills and negotiable certificates of deposit from ADIs. Foreign currencies are not eligible for STEL AIM calls.
- Variation margin and intraday margin must be settled in cash.

ASX Clear (Futures) does not accept collateral that is issued by a clearing participant or associated entity for any margin calls. This reduces the possibility that it might face the default of both a clearing participant and a collateral issuer ('wrong-way risk'). In April 2014, an amendment to the ASX Clear (Futures) Operating Rules removed the ability for participants to use letters of credit to meet contributions to pooled financial resources.

During 2013/14, ASX formally documented its approach to collateral in a Collateral Policy and a Collateral Standard. These documents set out ASX's collateral eligibility criteria, procedures for review of eligibility, the basis for calibrating haircuts and arrangements for the review of collateral settings.

ASX Clear (Futures) takes into account market liquidity in determining the eligibility of collateral. ASX Clear (Futures) considers the debt securities that it will accept as collateral – Australian Government and some semi-government securities, US Treasury bills, bank bills and negotiable certificates of deposit from Australian ADIs – to be sufficiently liquid that the eligibility of these assets as collateral will not have any material impact on market liquidity or price. In light of the depth of liquidity in these assets, ASX Clear (Futures) would also expect to be able to liquidate such collateral in a timely fashion as required. These assets are also commonly accepted in the Australian market, including by the Bank.

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

Since the eligible assets for non-cash collateral at ASX Clear (Futures) – Australian Government and some semi-government securities, US Treasury bills, bank bills and negotiable certificates of deposit from Australian ADIs – are highly liquid, price information is readily available. ASX revalues non-cash collateral on a daily basis using end-of-day prices.

ASX Clear (Futures) sets haircuts on non-cash collateral to cover a fall in the collateral value of stocks over a one-day period under extreme but plausible scenarios. Haircuts are calculated based on the same methodology that is used to calculate price falls of contracts in capital stress-test scenarios (see Key Consideration 4.6). Haircuts are also applied to cash collateral lodged to meet margin requirements for products denominated in a currency other than the collateral (currently between 6 and 10 per cent, depending on the currency). Collateral haircuts are reviewed at least annually to take into account any changes to historically observed volatility trends. Collateral haircuts were most recently reviewed in January 2014, with a supplementary review of haircuts applied to foreign currencies in June 2014. In addition, since collateral haircuts are calibrated to the same stress scenarios as those used in the stress-testing regime, the ongoing review of capital stress test scenarios also verifies the appropriateness of haircut rates (see Key Consideration 4.4).

5.3 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 (Futures)' 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.

5.4 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.

During 2013/14, ASX developed a risk-based policy for managing concentration risks in its CCPs (see Key Considerations 4.2, 19.4); however, this policy does not address concentrations in collateral holdings since non-cash collateral has made up only a small proportion of total collateral received. The maximum holding of non-cash collateral during 2013/14 was $111 million (around 4 per cent of total margin). Cash remains the sole form of collateral utilised by the majority of participants. ASX also considers that the assets eligible for non-cash collateral – Australian Government and some semi-government securities, US Treasury bills, bank bills and negotiable certificates of deposit from Australian ADIs – are sufficiently liquid that concentration is unlikely to be a significant concern. Concentration risk in foreign currencies is considered whenever a participant approaches ASX for approval to lodge foreign currency collateral (see Key Consideration 5.5). As the materiality of non-cash collateral increases, restrictions on concentrations are expected to align with those of the investment mandate (see Key Consideration 16.4). The Bank will continue to discuss with ASX its approach to monitoring collateral concentration risks.

5.5 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 (Futures) accepts cross-border collateral for initial margin in the form of selected foreign currencies and US Treasury bills. During 2013/14, maximum foreign cash holdings were around $499 million (AUD equivalent) in comparison to average total collateral holdings of around $3.3 billion (daily average of initial margin held over 2013/14), while no US Treasury bills were held. Holdings of non-AUD collateral in excess of 25 per cent of liquid assets held by ASXCC trigger escalation to senior management. Haircuts are applied to both foreign cash collateral and US Treasury bills (see Key Consideration 5.2). Participants must lodge a request to post foreign currency, which is reviewed and then approved or denied by the Portfolio Risk Management team. In making this determination, the Portfolio Risk Manager will take into account the limits on foreign currency, as well as the concentration risk in accepting the request. ASX Clear (Futures) has the ability to use foreign exchange swaps to facilitate the timely use of collateral in foreign currencies. Arrangements for the settlement of foreign currencies are described in Principle 9.

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

Collateral management system

ASX Clear (Futures) manages the calculation and execution of margin calls through internal risk analysis and margin management systems. These are linked to its core Genium system for information on positions, and Austraclear's EXIGO system for the lodgement of settlement instructions. These systems accurately monitor initial and variation margin levels and flows on an intraday basis. The direct link to Austraclear facilitates the timely deposit, withdrawal and substitution of non-cash collateral and settlement of cash collateral.

ASX Clear (Futures)' participants can also make use of ASX's collateral management service, ASX Collateral, for the management of non-cash collateral lodged with the CCP. However, ASX Collateral was not used for the lodgement of any collateral at ASX Clear (Futures) during 2013/14.

Re-use of collateral

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

Principle 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

The Bank's assessment is that ASX Clear (Futures) broadly observes the requirements of Principle 6. In order to fully observe Principle 6, ASX Clear (Futures) should:

- complete the full external validation of its SPAN and OTC IRS Historic VaR margin models by external experts.

ASX Clear (Futures)' margin system is described in further detail under the following Key Considerations.

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 (Futures) applies initial and variation margin to all derivatives products. Initial margin provides protection to a CCP in the event that a participant defaults and an adverse price change occurs before the CCP can close out the defaulted participant's positions (potential future exposure). Variation margin is levied to reflect observed price movements (current exposure); it is collected from the participant with a mark-to-market loss and (typically) passed through to the participant with a mark-to-market gain.

Exchange-traded derivatives

ASX Clear (Futures) has adopted a variant of the internationally accepted SPAN methodology for calculation of initial margin. For exchange-traded derivatives products, initial margin is calibrated so as to cover the higher of three standard deviations of the 60-day and 252-day historical distribution of price movements, using the higher of one- or two-day price movements. ASX Clear (Futures) 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). All margin rates are reviewed on a three-monthly cycle, supplemented with ad hoc reviews during especially volatile market conditions. ASX Clear (Futures) also levies variation margin on positions at least daily to reflect observed price movements.

OTC derivatives

ASX Clear (Futures) margins OTC derivatives portfolios (including interest rate futures that participants have allocated for cross-margining with OTC derivatives positions (see Key Consideration 6.5)), using a historical simulation of value at risk model within the Calypso margin system. The OTC IRS Historic VaR model is calibrated so as to cover three standard deviations (99.7 per cent) of the five-year historical distribution of five-day price movements. By calculating initial margin requirements on a portfolio basis using the historical distribution of price movements, this methodology adjusts for observed price volatility and correlation. The five-day close-out period reflects the lower liquidity in OTC derivatives products. This approach is closely aligned with the methodology used at other OTC derivatives CCPs internationally.

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 (Futures) has access to timely price data for its exchange-traded products.

To value cleared OTC derivatives products, ASX Clear (Futures) uses a range of BBSW, ICAP and Reuters pricing points, as well as the official cash rate, pricing from 90-day bank bill futures contracts, and swap yields for contracts greater than three years. These sources provide sufficient pricing points to value the OTC derivatives products that ASX Clear (Futures) clears, even when some pricing data are not readily available or reliable.

Participants are given all information necessary to create the end-of-day yield curve and independently calculate the net present value of any contract. Although the OTC IRS margin system can accommodate hourly updated pricing, ASX Clear (Futures) is implementing a system of manually 'approved' prices, and will focus on end-of-day and midday updates to ensure that valuation is based on prices that accurately reflect market pricing. ASX Clear (Futures) will consider introducing more frequent price updates as the service develops.

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, this requirement must be met for the corresponding distributions of future exposure. The model should (a) use a conservative estimate of the time horizons for the effective hedging or close out of the particular types of products cleared by the central counterparty (including in stressed market conditions), (b) have an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products, and (c) to the extent practicable and prudent, limit the need for destabilising, procyclical changes.

Exchange-traded derivatives

ASX Clear (Futures) calculates initial margin requirements for each portfolio of positions using the SPAN methodology. House and omnibus client accounts are considered as separate portfolios. Further to the introduction in July 2014 of an account structure that supports individual client segregation, ASX Clear (Futures) positions held in these will also be considered as separate portfolios (see Principle 13).

The key parameters in the SPAN methodology are the 'price scanning range' (PSR) and 'volatility scanning range' (VSR). These scanning ranges are individually calibrated to the distribution of price and volatility movements for a set of related contracts under normal market conditions. The scanning ranges inform a set of 16 hypothetical risk scenarios used to measure the loss from a portfolio under alternative combinations of changes in price and volatility. For example, in one risk scenario, price increases by one-third of the PSR and volatility falls by the full VSR, while in another scenario price falls by the full PSR and volatility rises by the full VSR. The margin rate is then based on the highest estimated loss across the 16 scenarios.

ASX Clear (Futures) bases the scanning ranges on key volatility statistics; namely, the higher of three standard deviations (a confidence interval of 99.7 per cent) of a 60-day or 252-day sample distribution, 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 (1 day, 1 week, 120 business days and 12 months).

ASX Clear (Futures) also applies a series of adjustments within SPAN to account for correlations and specific risks.

- *Intra-commodity spread charge*. This is an adjustment to the margin requirement for a given set of related contracts, to account for less-than-perfect correlation between contracts with different expiries. This adjustment is based on a participant's actual net position at each expiry month multiplied by an 'intra-commodity charge rate', which is itself based on observed price correlations between the different expiries. The default setting is to apply a single charge rate. However, for some contracts ASX utilises SPAN's charge-rate tiering functionality. This allows charge rates to vary depending on the temporal difference in the pair's expiries.

- *Inter-commodity spread concession*. ASX Clear (Futures) also applies offsets designed to account for reliable and economically robust correlations across different contract types (Key Consideration 6.5). These offsets reflect that, while the scanning risk for each related contract – a 'combined commodity' in SPAN terminology – is set based on the worst-case risk scenario for that combined commodity, it may be highly unlikely that the set of worst-case scenarios occurs simultaneously. This is particularly the case if a participant holds net long and net short positions in different related contracts that have a robust positive correlation. The inter-commodity spread concession is calculated by applying (in a defined order) a spread ratio and concession rate to a participant's actual net positions in pairs of related contracts. The spread ratio determines the number of net positions in one related contract required to offset a position in another related contract. The concession rate is specified as a percentage of the scanning risk for both contracts in the pair. For example, at ASX Clear (Futures), for 10-year bond futures relative to 90-day bank bill futures, a spread ratio of 1:4 and a concession rate of 65 per cent would mean that one net position in the 10-year bond contract is offset against four net positions in the 90-day bank bill contract, and that the concession for that pairing will be 65 per cent of the scanning risk of the contracts subject to the offset. ASX calculates these parameters in the same manner as the price movement for the intra-commodity spread charge.

- *Other adjustments*. ASX Clear (Futures) 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 ASX's internal Margin Standard, the Manager of Exposure Risk Management (part of CRM) can approve adjustments to margin rate settings jointly with the CRO, or with the General Manager of either CRM, Clearing Risk Strategy and Policy or CRQ. Such adjustments may be made if application of the standard statistical analysis would result in inappropriate outcomes; for example, 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 Standard also allows exceptions to the normal margin rate setting process based on a broader risk assessment – such exceptions require the approval of the General Manager of Clearing Risk Strategy and Policy and the General Manager of CRQ.

OTC derivatives

ASX Clear (Futures) uses an HSVaR model to calculate margin requirements for OTC derivatives, based on a minimum five-year sample period. Observations within the sample period are weighted according to an exponential decay factor (currently 0.97), placing greater weight on more recent observations and applying a volatility scaling floor. To ensure that the methodology remains conservative and to limit the need for procyclical changes, ASX Clear (Futures) continues to include the extreme observations from the quarter ending in December 2008 within its sample period, even though these fall outside the five-year window. ASX Clear (Futures) calibrates initial margin based on a 99.7 per cent confidence interval with an assumed close-out period of five days. Under ASX Clear (Futures) client clearing arrangements for OTC derivatives, the close-out period for client positions is seven rather than five days in order to allow time to achieve a transfer of positions (see Principle 14). However, ASX applies the same margin settings for client positions as it does for participants' house positions (i.e. a five-day holding period). ASX's modelling indicates that margin requirements are typically higher under a five-day holding period calibrated to a 99.7 per cent confidence level than they would be under a seven-day holding period calibrated to a 99.5 per cent confidence level, consistent with the Bank's supplementary interpretation of the FSS requirements that correspond to this Key Consideration.

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 for both futures and OTC participants are calculated overnight, with variation margins based on closing prices each day, and notified to participants the next morning. All margin obligations are settled via Austraclear and regular calls must be met by 10.30 am.

ASX Clear (Futures) may make intraday calls where there is significant erosion in the margin cover provided by individual participants. Intraday margin calls reflect changes in participants' positions and price movements.

- For exchange-traded products, intraday margin calculations are carried out routinely at 8.30 am and 11.30 am each business day. ASX is considering whether to modify the timing of intraday calls to better align with overnight margin calls, and take into account price movements and changes in position later in the day. ASX Clear (Futures) tracks the price movements of all contracts in real time through the day. An ad hoc calculation may be performed if the change in price of an individual contract exceeds 100 per cent of its margin rate (the PSR in SPAN). To determine if intraday margin is required, a nominal call amount is calculated for each portfolio of the participant (house and client) based on the combined initial and variation margin that would be due at the time of the intraday calculation. This is compared with the total margin posted by the participant. If available margin has eroded by more than 40 per cent, and if the nominal call amount is greater than $100 000 and the participant has not already lodged excess collateral sufficient to cover the nominal amount, an intraday call is made. Participants are notified of the call by phone and email, and must make the payment within two hours of notification.

- For OTC derivatives positions, including cross-margined futures, ASX Clear (Futures) recalculates its exposures to participants on an approximately hourly basis. In the event that ASX Clear (Futures)' exposure to any OTC participant has risen beyond a specified threshold, intraday margin is called (see Key Consideration 4.2).

Under ASX Clear (Futures)' AIM methodology (discussed above in relation to Principle 4), a participant is required to post additional collateral should stress-test outcomes reveal potential losses that exceed a predetermined STEL or if participants have large portfolios relative to their capital (see Key Consideration 4.5).

If a margin payment is not made by the required time, ASX will contact the participant to determine the reasons for the delayed payment. Delayed payments are not common. When they do occur, they are typically the result of communication or technical issues involving the participant and/or its payment provider. Early communication by ASX aims to ensure that, in such cases, payment can still be made within a short period of the required time. In the event that the matter was more serious, ASX would investigate to decide whether a default event should be declared and, if so, how the default should be managed (see Principle 13).

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 two or more central counterparties are authorised to offer cross-margining, they must have appropriate safeguards and harmonised overall risk management systems.

In applying the SPAN methodology to futures transactions, ASX allows offsets in the form of 'inter-commodity spread concessions' (see Key Consideration 6.3). These offsets reduce margin requirements to account for reliable and economically robust correlations observed across related contracts. 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. ASX uses sensitivity analysis to verify the reliability of assumed correlations between products used in calculating inter-commodity spread concessions. Changes to inter-commodity spread concessions must be approved by the RQG, which considers whether changes identified by SPAN appropriately reflect underlying economic relationships, including in periods of market stress.

ASX Clear (Futures) also offers OTC participants the ability to choose to cross-margin specific directly cleared interest rate futures by allocating these positions to their OTC derivatives portfolio. If participants choose to do so, the allocated interest rate futures are margined under the OTC IRS Historic VaR model, rather than using the SPAN methodology. While HSVaR margining can result in less conservative estimates of correlations, interest rate futures in the pool under the OTC IRS Historic VaR methodology will be subject to a five-day rather than a one to two day close-out assumption. As a result, ASX has indicated that, absent an offset, cross-margined interest rate futures would generally be subject to higher margin requirements under the OTC IRS Historic VaR methodology than under the SPAN methodology.

Cross-margining recognises the economic relationship between AUD IRS and AUD interest rate futures and, to the extent that positions are indeed offsetting, would be expected to result in a reduction in the amount of initial margin required relative to the case in which positions were margined independently. Notwithstanding the economic relationship between AUD IRS and AUD interest rate futures, analysis of historical data demonstrates that the basis does vary over time, particularly during times of stress. This observed change of basis is captured through the VaR margining process. The robustness of the empirical relationship between AUD IRS and AUD interest rate futures in stressed market conditions is addressed through the introduction of stress-test scenarios that capture basis risk, as discussed above under Key Consideration 4.6. In addition, margin sensitivity analysis that varies the length and composition of the historical simulation period is used to test the effect on margin coverage of variations in observed correlations across products over time. In particular, the inclusion of periods of stress in the historical simulation period tests whether changes in the relationship between products in times of stress affects margin coverage (see Key Consideration 6.6).

ASX Clear (Futures) does not currently have any cross-margining arrangements with any other CCPs.

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.

During 2013/14, ASX made significant enhancements to its backtesting and sensitivity analysis of margin models, introducing improvements to daily backtesting procedures supplemented by more comprehensive periodic backtesting and sensitivity analysis of its margin models.

Under ASX's Model Validation Standard, daily backtesting of both the SPAN and OTC IRS Historic VaR margin models is used to test, on an ongoing basis, whether the margin models reliably cover price movements to a 99.7 per cent confidence interval. Daily backtesting is performed against both dynamic and (for the OTC IRS Historic VaR model) static actual portfolios. Backtesting against actual dynamic portfolios involves the comparison of actual initial margin collected from each participant against actual variation margin collected over the following one or two days (for SPAN), depending on which is the larger amount, or the following five days for the OTC IRS Historic VaR model. One limitation of using variation margin on dynamic portfolios to model changes in the value of a portfolio over the close-out period is that it is influenced not only by market movements but also by changes in the composition of the portfolio. To address the limitations of dynamic portfolio analysis, static portfolio backtests are used to hold the portfolio composition constant over time. For actual static portfolios, ASX calculates hypothetical variation margin obligations for each day of the validation period based on historical price movements, and compares these to initial margin calculated on the actual portfolio on the day of the backtest. Under both types of backtest, when 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 99.7 per cent confidence interval.

A report summarising the results of backtesting is automatically generated and circulated to relevant staff in the Risk division. Further analysis is undertaken when an exception is recorded, both to investigate model performance and to investigate the potential financial implications of the exception given the particular participant and portfolio affected. Further investigation also takes place if the actual number of exceptions exceeds the expected number. By investigating further, ASX determines whether any follow-up actions are required, such as the calling of additional margin or the managing down of positions.

Daily backtesting reports are aggregated into a monthly backtesting report which compares the number of observed exceptions to expected exceptions for the previous month, quarter and year. This report, which also includes the results of sensitivity analysis (see below) is reviewed by the RQG and used to identify the need for further investigation of margin model performance. RQG will take into account the frequency and magnitude of any breaches in determining whether to commission additional analysis from CRQ.

On a periodic basis, approximately every four months, ASX performs a more comprehensive backtesting analysis of each of its margin models. The periodic reviews allow ASX to examine the model in more detail and provide a basis for recommending changes to the model or further analysis. Hypothetical portfolios extend the analysis, allowing ASX to test the performance of margin models when applied to portfolios with certain characteristics (e.g. mix of contracts, concentrations, directionality) that may be particularly adversely affected by market conditions during the validation period.

ASX applies sensitivity analysis to its margin models as part of its quarterly margin rate reviews for SPAN, and alongside periodic margin backtesting for the OTC IRS Historic VaR model. Sensitivity analysis allows ASX to test the performance of a model beyond the boundaries of its existing assumptions, potentially also examining the implications of assumptions that would not reasonably be expected to hold. ASX has developed internal guidance setting out its approach to sensitivity analysis for margin models, which highlights three main assumptions that it varies when conducting sensitivity analysis: the confidence interval, close-out period and look-back period. In addition, ASX investigates the impact of varying the historical simulation period for the OTC IRS Historic VaR model and the application of floors to model parameters in SPAN. If varying particular inputs reveals weaknesses in the model, ASX considers how plausible these varied assumptions are when considering whether to make adjustments to the model. Where sensitivity analysis identifies potential weaknesses in margin models, the RQG will consider recommended changes to address these.

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

ASX Clear (Futures)' margin methodologies are also be subject to a comprehensive annual validation and ongoing review under ASX's Model Validation Standard (see Key Consideration 4.5). The RQG is responsible for performing regular reviews of models, while Internal Audit coordinates the independent validation process with CRQ input. 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 Key Consideration 2.6). Under this framework the SPAN model must be externally validated annually, while the OTC IRS Historic VaR must be externally validated once every two years. ASX has engaged external experts for a three-year period to conduct annual validations of ASX's key risk models, including both the SPAN and OTC IRS Historic VaR margin models. The first validations of these models will occur during the second half of 2014. The Bank will monitor the outcome of these validations.

At ASX, the margining process is governed by an internal Margin Standard, which is reviewed annually, with material changes approved by the Clearing 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. These files allow participants to perform margin calculations on hypothetical or actual portfolios.

Principle 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: Broadly observed

ASIC and the Bank's assessment is that ASX Clear (Futures) broadly observes the requirements of Principle 7. In order to fully observe Principle 7, ASX Clear (Futures) should:

- implement mechanisms consistent with forthcoming CPSS-IOSCO guidance on recovery planning that would fully address any uncovered liquidity shortfall following a participant default
- complete the full validation of its liquidity stress-test model by external experts.

ASX Clear (Futures)' arrangements to measure, monitor and manage its liquidity risk are described in further detail under the following Key Considerations.

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 (Futures) is the potential default of a participant with Australian dollar payment obligations to the CCP. To the extent that the CCP relies on such incoming payment flows to meet its obligations to other participants, it could face a liquidity shortfall. Payment obligations to and from participants typically take the form of initial and variation margin, although they may also relate to the cash settlement of contracts. ASX Clear (Futures) does not 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 (Futures) minimises the size of its liquidity obligations to participants through daily and intraday settlement of variation margin. This prevents the build-up of large (credit and) liquidity exposures. ASX Clear (Futures)' framework for managing its remaining liquidity risks involves the monitoring of liquidity exposures through daily stress testing (see Key

Consideration 7.9) and the maintenance of sufficient liquid resources to be able to meet payment obligations in the event of a participant default (see Key Consideration 7.4).

ASX Clear (Futures) 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 SPAN 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.

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 department reviews a daily report of key risk indicators, related to liquidity demands. Any issues are escalated to the CRO. Funding arrangements, such as settlement flows and foreign currency lodgements, are also monitored in real time by the CRM and Treasury functions.

Portfolio Risk Management uses reports provided by CRM to monitor SPAN-calculated margin flows originating from ASX Clear (Futures)' Collateral Management System, which feed into ASX's Treasury Management System. Portfolio Risk Management enters trades required to manage daily cash flows into ASX's Treasury Management System. Clearing and Settlement Operations uses daily settlement reports produced by the Treasury Management System to generate settlement instructions in Austraclear. Resulting cash flow movements are monitored in RITS. Margin payments from participants must be matched in Austraclear by 10.30 am and settled by 11.00 am, while outward payments to participants are manually managed in the RITS queue and are only released once all incoming margin obligations have been settled (generally by 12.00 pm).

ASX Clear (Futures) mitigates potential liquidity risks in several ways. ASX Clear (Futures)' pooled financial resources are entirely prefunded (see Principle 13). ASX Clear (Futures)' liquid assets are invested and managed on its behalf by ASXCC (see 'ASX Group Structure' in Section 2.3.1). 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 Key Consideration 7.5).

7.3 A payment system or securities settlement facility, including one employing a deferred net settlement mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate intraday or multiday settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.

Key Consideration 7.3 is not relevant to central counterparties.

7.4 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.

ASX Clear (Futures)' liquid resources include margin and other collateral posted by participants, as well as its own holdings of liquid assets. ASX Clear (Futures)' 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 Default Liquidity Requirement (DLR) across the ASX CCPs*. The DLR is the amount required to cover the estimated cash requirement of the largest participant (and its affiliates, as measured by payment obligations to the CCP) on ASX Clear and the two largest participants on ASX Clear (Futures) in the event of their joint default under stressed market conditions used in each CCP's liquidity stress test.
- *An 'ordinary liquidity requirement'*. This 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.

The requirement that ASXCC cover the DLR 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 the two largest participants (and their affiliates) in ASX Clear (Futures).

7.5 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 (Futures) (and ASX Clear) (see Key Consideration 7.8). 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 specified by the Bank that is held 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 (Futures)' 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 either a restricted set of highly liquid securities or 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. At 30 June 2014, term deposits accounted for 36.4 per cent of the ASXCC investment portfolio, at-call deposits 16.4 per cent, with holdings of other approved securities making up the balance. Eligible investment counterparties are discussed under Principle 16.

7.6 **A central counterparty may supplement its qualifying liquid resources with other forms of liquid resources. If the central counterparty does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if 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 a part of its liquidity plan.**

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

7.7 **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 DMF (see Key Consideration 13.1) 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 AUD cash first, followed by 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. Non-cash collateral is limited to highly liquid government securities (see Key Consideration 5.1).

7.8 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.

ASXCC holds an ESA. Accordingly, ASX Clear (Futures) may, via ASXCC, access Australian dollar liquidity under the Bank's overnight and intraday liquidity facilities (against eligible collateral specified by the Bank). ASXCC's Investment Mandate clarifies its 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 (see Principle 16).

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

7.9 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 settlement banks, nostro agents, custodian banks, liquidity providers and linked financial market infrastructures), 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 (Futures) uses a daily liquidity stress-testing model to assess the adequacy of its liquidity arrangements. Until August 2013, the model, which is based on ASX Clear (Futures)' capital stress tests (described under Principle 4), calculated the maximum liquid funds that ASX Clear (Futures) would need to access in order to meet obligations arising in the event of the joint default of a clearing participant and its affiliates. Since there were no affiliated participants in ASX Clear (Futures) during 2013/14, liquidity stress tests addressed scenarios involving an individual default. However, further to the introduction of the OTC derivatives clearing service, ASX Clear (Futures) adjusted its liquidity stress tests in August 2013 to take into account potential affiliations between participants involved in OTC and futures clearing. At the same time, the liquidity stress tests formally adopted the more stringent requirement of testing the sufficiency of liquid resources against the joint default of the two participants (plus affiliates) that would create the largest liquidity exposure for ASX Clear (Futures). 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.

All stress-test scenarios are based on historical moves and have been set so that they replicate extreme market moves that have a probability of occurrence of once in 30 years for single-asset scenarios and once in 100 years for multi-asset scenarios (see Key Consideration

4.6). There are 30 scenarios involving movements of price and volatility across the four major contracts (SPI 200 futures, 90-day bank accepted bill futures, 3-year bond futures and 10-year bond futures). 20 multi-asset scenarios model balanced movements of each of the four major contracts and corresponding movements on OTC interest rate contracts, as well as a range of tilts, twists and bends of the yield curve. Eight 'single contract' scenarios model extreme movements in the four contracts individually. In addition, 12 scenarios analyse various forms of basis risk arising from changes in the spread between IRS and futures, and between AONIA and BBSW rates at various tenors. Two 'internal' scenarios that model large movements in the exchange-traded interest rate contracts with little impact on equities and 14 'internal' scenarios for OTC used to further analyse the effects of basis risk between contracts of different tenor, are used for internal risk analysis only.

The results of the liquidity stress tests generate the DLR, which is compared with ASX Clear (Futures)' AFR (set to $650 million from January 2014, see Key Consideration 4.4). 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. Given that liquidity resources are maintained on an aggregate basis (in ASXCC), in order to test the sufficiency of ASX's overall liquid resources the results of liquidity stress testing for each CCP are aggregated to calculate the total DLR.

The results of liquidity stress testing are regularly reported to ASX senior management, the Clearing Boards and the Bank. All liquidity stress-test breaches are reported to the CRO, the General Manager of Clearing Risk Strategy and Policy, and the Portfolio Risk Manager. A sustained or widely distributed breach may lead to a review of the adequacy of the AFR.

Validation

Since stress scenarios are common across both capital and liquidity stress tests for ASX Clear (Futures), the same reverse stress testing approach is used in sensitivity analysis of both models (see Key Consideration 4.6).

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 Key Consideration 2.6). Under this framework the liquidity stress-test model must be externally validated annually. ASX has engaged external experts to conduct a validation of the liquidity stress-test model by the end of 2014. The Bank will monitor the outcome of this validation.

7.10 **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.**

In March 2014, ASX finalised a basic recovery plan that relies on existing tools and powers within the CS facilities' Operating Rules. In preparing the plan for ASX Clear (Futures), ASX identified that the existing Operating Rules do not provide the CCP with sufficient tools to be able to fully address any uncovered liquidity shortfalls following a participant default (see Key Consideration 3.4). While ASX's recovery plan identifies measures that could be used to mitigate this in part (such as the collection of additional margin or seeking to realise non-liquid assets such as term deposits), additional measures will be required to comprehensively address a liquidity shortfall.

ASX has commenced work to develop a more comprehensive recovery plan supported by tools to fully address uncovered liquidity shortfalls. It intends to base these tools on forthcoming CPSS-IOSCO guidance on recovery planning, expected to be published in late 2014. ASX intends to consult on its proposed recovery approach in the second half of 2014.

Standard 8: Settlement finality

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

Rating: Observed

The Bank's assessment is that ASX Clear (Futures) observes the requirements of Principle 8. ASX Clear (Futures)' arrangements for ensuring finality of its settlements are described in further detail under the following Key Considerations.

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

The vast majority of ASX Clear (Futures) settlements involve AUD cash payments between participants and the CCP for the purposes of margin payments and the settlement of cash-settled derivatives contracts. Each day, ASX Clear (Futures) calculates the net obligations of each of its participants. Those participants with a net obligation to the CCP are required to make payments to ASX Clear (Futures) by 11.00 am, for both AUD and NZD-denominated contracts. Once these payments have been received, ASX Clear (Futures) makes payments to those participants with a net obligation from the CCP. AUD cash settlements occur via Austraclear, with interbank obligations settled on a real-time gross settlement (RTGS) basis across ESAs at the Reserve Bank of Australia, via RITS.

In some cases, the settlement of derivatives contracts cleared by ASX Clear (Futures) involves the transfer of a security or physical asset, with a corresponding transfer of cash. For each type of security or asset, ASX Clear (Futures)' arrangements ensure that delivery occurs if, and only if, payment occurs. For 90-day bank bill futures, ASX Clear (Futures) utilises the standard settlement process in Austraclear. For grain and wool contracts, delivery is via commodity warehouses, with ASX Clear (Futures) retaining title documentation until payment has been made.

ASX Clear (Futures) also accepts as collateral for initial margin certain highly liquid debt securities, such as Australian Government securities, and cash collateral in NZD and a small number of other foreign currencies. ASX Clear (Futures) has accounts at Austraclear and NZClear, an SSF owned and operated by the Reserve Bank of New Zealand, for settling AUD- and NZD-denominated collateral, respectively. Collateral denominated in other currencies is settled indirectly via relationships with private banks.

The settlement of obligations in ASX Clear (Futures) is final according to the terms of ASX Clear (Futures)' and, for exchange-traded derivatives, ASX 24's Operating Rules and Procedures, which set out the means of settlement. For payments and securities obligations 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 through Austraclear in the event of a participant entering external administration (see Appendix A2.2, Key Consideration 8.1). Any interbank transactions arising from these settlements are settled in real time across ESAs held with the Bank. Payments within this system are also final and irrevocable; this is again supported by the approval of RITS under Part 2 of the PSNA. With this approval, a payment executed in RITS at any time on the day on which a RITS participant enters external administration has the same standing as if the participant had gone into external administration on the next day. Accordingly, in the event of insolvency all transactions settled on the day of the insolvency are irrevocable and cannot be unwound.

NZD obligations that are settled through NZClear are deemed final in accordance with its System Rules. In particular, NZClear System Rule 11.8 provides that final and irrevocable settlement occurs when the requirements of a trade have been matched and the trade is recorded in the relevant accounts of the respective members. The NZClear settlement system has been declared a 'designated settlement system' for the purposes of Part 5C of the *Reserve Bank of New Zealand Act 1989* (NZ), which establishes the validity and enforceability of the rules of a designated settlement system and the irrevocability of transactions settled through the system.

8.2 A central counterparty should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. A large-value payment system or securities settlement facility should consider adopting real-time gross settlement or multiple-batch processing during the settlement day.

The settlement of obligations in ASX Clear (Futures) is governed by ASX Clear (Futures)' and, for exchange-traded derivatives, ASX 24's Operating Rules and Procedures. These set out settlement arrangements, with procedures and timetables.

Margin payments and settlement of cash-settled derivatives

The majority of settlements in ASX Clear (Futures) are cash settlements made on a net basis (as described above) for the purposes of regular margin payments and settlement of cash-settled derivatives. During 2013/14, the majority of settlements of margin were in cash (AUD or foreign denominated). Initial and variation margin requirements are calculated overnight based on each day's closing contract prices supplemented by additional pricing data for OTC derivatives (see Key Consideration 6.2), and are notified to participants by 6.00 am the next day for payment on that day. Should ASX Clear (Futures)' exposures change significantly during the day, initial and variation margin can be called intraday (see Key Consideration 6.1). Intraday margin payments must be paid in cash within two hours of the participant being notified. End-of-day and intraday margin is settled via Austraclear for AUD payments, and NZClear for NZD payments.

Settlement values for cash-settled derivatives are calculated according to contract specifications, generally on the last trading day, or within one or two days of the last trading day.[5] For example, for ASX SPI 200 Index Futures, ASX Clear (Futures) publishes the final settlement price of the contract on the first business day after expiry, with cash flows arising settled on the second business day after expiry (the value date for this contract). These cash flows in Austraclear or NZClear are settled with finality in real time, as are margin-related payments (see Key Consideration 8.1).

Physical delivery

With regard to deliverable contracts, ASX Clear (Futures)' arrangements for physical delivery are described under Principle 10. It has procedures in place to ensure that margin of matched participants is not released until ASX can confirm that both participants have fulfilled their obligations. ASX Clear (Futures) also monitors and enforces compliance with delivery procedures.

The details of final settlement of deliverable contracts vary according to the contract specifications. For example, trading in the contract for 90-day bank accepted bills ceases on noon of the last trading day. This is followed by the exchange of reconciliation and advice notices between participants and the CCP, with final settlement of securities occurring in real time in Austraclear by 3 pm on the day after the last trading day (the value date for this contract).[6] The delivery period for wool contracts commences on the Friday before the last trading day, with real-time final cash settlement scheduled to occur on the day after delivery.

Options delivery

All options on futures that are cleared by ASX Clear (Futures) either automatically exercise or are abandoned on expiry. In-the-money options automatically exercise unless the holder requests otherwise, and the holder and writer of the options receive their respective positions in the underlying futures contract. All cash flows related to the exercise of options contracts are included in daily settlement flows (along with initial and variation margin payments). There are no up-front premium payments associated with the options over futures contracts that are cleared by ASX Clear (Futures).

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 revoke a payment or transfer instruction once it has been submitted to ASX Clear (Futures).

Principle 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

The Bank's assessment is that ASX Clear (Futures) observes the requirements of Principle 9. ASX Clear (Futures)' money settlement arrangements are described in further detail under the following Key Considerations.

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5 Three days for electricity contracts.

6 The seller is required to enter the 90-day bank bill into Austraclear by 10 am. This must be matched by the buyer by 11 am and settled by 3 pm.

The description of money settlement arrangements in this Principle draws a distinction between 'money settlement agents' – the entities whose assets are used to settle the ultimate payment obligation – and 'settlement banks', which maintain accounts with the money settlement agent to settle their own obligations or those of other participants.

9.1 A central counterparty should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.

AUD and NZD money settlements in ASX Clear (Futures) are settled in central bank money, but collateral in other currencies (including EUR, JPY, USD and GBP) is lodged via arrangements with commercial banks.

AUD settlements, which represent the majority of money settlement in ASX Clear (Futures), are initiated via the submission of standard settlement instructions to Austraclear. Settlement occurs on an RTGS basis across ESAs at the Bank, via RITS. ASX Clear (Futures) uses ASXCC's ESA to settle its obligations in RITS.

NZD settlements are undertaken in NZClear, which operates on a similar basis to Austraclear in Australia. ASXCC is a non-bank participant in NZClear. Non-bank participant interbank obligations are settled on an RTGS basis across accounts at the Reserve Bank of New Zealand (RBNZ), via the Exchange Settlement Account System (ESAS) of a commercial settlement bank (known as a 'Participating ES Accountholder'). Transfers are made in ESAS between the RBNZ Exchange Settlement account of ASXCC's Participating ES Accountholder and the Exchange Settlement accounts of ASX Clear (Futures) participants or their Participating ES Accountholders. Settlement occurs in central bank money in real time; ASX Clear (Futures) manages credit and liquidity exposures in respect of post-settlement balances held with its Participating ES Accountholder in accordance with the ASXCC investment mandate (see Principle 16).

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.

Cash payments in foreign currencies other than NZD (e.g. EUR, JPY, USD and GBP) are settled in commercial bank money via arrangements with commercial banks. Commercial bank money settlement agents and commercial settlement banks used for settlement of foreign currency transactions must be highly rated and subject to appropriate prudential regulation in order to limit any credit or liquidity risk associated with settlement in commercial bank money (see Key Consideration 9.3).

9.3 If a central counterparty settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, a central counterparty should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. A central counterparty should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.

A commercial bank must meet certain criteria before it can be used by ASX Clear (Futures) as either its money settlement agent for foreign currency payments other than NZD, or its commercial settlement bank for NZD settlements in the ESAS system. Commercial banks must be rated A1+ and offer a banking platform and connectivity that are in line with ASX systems. Commercial banks used by ASX Clear (Futures) are APRA-regulated ADIs, and therefore are subject to prudential standards encompassing, for example, capital adequacy, liquidity, credit quality, business continuity management and public disclosure. ASX Clear (Futures)' commercial settlement bank in NZClear must also meet operational requirements set by the Reserve Bank of New Zealand. Arrangements for settlement of other foreign currencies make use of standard web interfaces for banking, with instructions via phone available as a contingency.

All foreign currency lodgements are monitored by ASX Clear (Futures)' risk management and treasury functions, and ASX Clear (Futures) is in regular contact with the participant until funds are received. ASX Clear (Futures) limits the amount of collateral held that is denominated in foreign currency. Participants must lodge a request to post foreign currency, which is reviewed and then approved or denied by the Portfolio Risk Management team. In determining whether the foreign currency cover request is approved or denied, the Portfolio Risk Manager will take into account the limits on foreign currency, as well as the concentration risk in accepting the request.

It is standard practice for participants that lodge foreign currencies other than NZD to lodge excess funds with ASX Clear (Futures). This avoids having to make daily (or frequent) margin settlements. ASXCC also maintains funds in foreign currencies to cover its exposure to liquidity risk if it needed to repay a participant in a foreign currency. During 2013/14, foreign currency holdings peaked at around $499 million – around 15 per cent of average total collateral levels at ASX Clear (Futures) during the year. The aggregate level of foreign currency payments at ASX Clear (Futures) is low, comprising around 2 per cent of total money settlements.

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 (Futures) does not conduct money settlements on its own books.

9.5 A central counterparty's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the central counterparty and its participants to manage credit and liquidity risks.

Payments in foreign currencies made via commercial banks are generally covered by standard terms and conditions for commercial accounts at those banks, including general information about timing of transactions and availability of funds. ASX maintains close contact with its commercial banks in order to monitor and manage the risk of its foreign currency payments. As noted, standard practice is for participants to lodge excess foreign currency margin, thereby reducing credit and liquidity risk to the CCP and liquidity risk to the participant.

Principle 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: Observed

The Bank's assessment is that ASX Clear (Futures) observes the requirements of Principle 10. ASX Clear (Futures)' arrangements for physical deliveries are described in further detail under the following Key Considerations.

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

In some cases, the settlement of derivatives contracts cleared by ASX Clear (Futures) involves the transfer of a security or physical asset. Examples of contracts that require delivery are 90-day bank accepted bills futures, wool, wheat and other grain futures, and renewable energy certificates. ASX Clear (Futures)' Operating Rules and Procedures clearly state its obligations with respect to physical delivery.

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.

ASX Clear (Futures) Operating Rules and Procedures define detailed mandatory arrangements for delivery of a security or physical asset. Securities delivered for the 90-day bank accepted bill contract must meet ASX Clear (Futures)' specifications, which include the acceptable types of paper, maturity dates, parcel sizes and approved banks. Deliveries of commodities must follow a maturity calendar, approved warehouses and locations, guides for buyers and sellers, and rules for delivery documentation (including appropriate certification).

ASX Clear (Futures) mitigates the risks associated with physical delivery by minimising its involvement in the storage and delivery process. Participants that have delivery obligations are matched with those due to receive the commodities or documents, and any legal recourse of the receiving participant in respect of the delivered goods is to the delivering participant. Participants may cash settle contracts in the event of a default by the delivering party.

ASX Clear (Futures) nevertheless monitors and enforces compliance with delivery procedures. In particular, there is regular monitoring of deliveries by Clearing and Settlement Operations in the lead up to expiry, including a daily review and reconciliation of contracts versus holdings via a physical position reconciliation report. Overnight reporting to participants occurs on current commodity holdings. ASX Clear (Futures) communicates directly with participants to confirm their intentions on delivery and lodgement of physical assets. In addition, compliance reviews are undertaken on targeted topics, as well as ad hoc compliance investigations arising from referrals from ASX's operations areas. These compliance checks aim to ensure that participants have the necessary systems and resources to be able to fulfil their physical delivery obligations.

Principle 11: Central securities depositories

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

Rating: Not applicable

Principle 11 is not relevant to central counterparties.

Principle 12: Exchange-of-value settlement systems

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

Rating: Observed

The Bank's assessment is that ASX Clear (Futures) observes the requirements of Principle 12. ASX Clear (Futures)' arrangements for DvP settlement of linked obligations are discussed in further detail under the following Key Considerations.

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

In those cases where settlement of derivatives contracts involves the transfer of a security or physical asset, with a corresponding transfer of cash, ASX Clear (Futures)' arrangements ensure that delivery occurs only if payment occurs. Settlement of securities transactions in Austraclear arising from the settlement of futures contracts in ASX Clear (Futures) occurs on a DvP model 1 basis. This involves the simultaneous transfer of cash and securities obligations between the buyer and seller on an item-by-item basis through the settlement cycle.

For 90-day bank bill futures, ASX Clear (Futures) utilises the standard DvP settlement process in Austraclear; that is, sellers deliver and receive payment for their bills, and buyers pay for and take delivery of the bills as a single exchange of value (see Appendix A2.2, Key Consideration 12.1). For grain and wool contracts, delivery is via commodity warehouses, with ASX Clear (Futures) retaining title documentation until payment has been made.

Principle 13: 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

ASIC's and the Bank's assessment is that ASX Clear (Futures) observes the requirements of Principle 13. ASX Clear (Futures)' default management arrangements are described in further detail under the following Key Considerations.

13.1 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.

Rules and procedures

The Operating Rules and Procedures provide ASX Clear (Futures) with the authority and flexibility to deal with a participant default using a variety of methods to manage its exposure. ASX Clear (Futures) 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 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.

In July 2013, ASX Clear (Futures) amended its default management arrangements for the introduction of its OTC derivatives clearing service. In the event of the default of an OTC participant, ASX Clear (Futures) would convene the relevant DMG, which comprises non-defaulting clearing participants, seconded on a rotating basis. Currently there is only one DMG, since ASX Clear (Futures) clears only one category of OTC derivatives – AUD interest rate derivatives. The DMG would advise and be consulted by ASX Clear (Futures) on each stage of the management of a default. ASX Clear (Futures) is not obliged to follow the recommendations of the DMG, but would provide reasoning where it did not accept the DMG's advice.

Use and sequencing of financial resources

Following a declaration of default, ASX Clear (Futures) would suspend the defaulted participant's authority to clear. Suspension, rather than termination, ensures that the participant remains bound by the central counterparty's rules. There would be no further payments or collateral movements to the clearing participant following declaration of a default. This enables the central counterparty to 'crystallise' the defaulted 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 defaulted participant.

In the first instance, ASX Clear (Futures) 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 Key Consideration 5.1). In the event that the defaulted participant's contributions were insufficient, ASX Clear (Futures) could draw upon pooled financial resources (see Principle 4). Under the amended default arrangements introduced in July 2013, these resources are commingled across futures and OTC products. While not essential, the commingled default fund adopted by ASX Clear (Futures) simplifies the default management process when the defaulter's portfolio contains both OTC derivatives and cross-margined futures positions. ASX regards the commingling of financial resources as appropriate in light of the homogeneity of both the products to be cleared and the clearing participants. The order in which survivors' contributions to pooled financial resources would be used (i.e. the default waterfall) would, however, be proportional to the scope of the defaulter's activities. The proportion of futures and OTC participant contributions that would be used after each tranche of ASX capital will be based on the defaulter's share of initial margin for exchange-traded compared with OTC derivatives products (including cross-margined futures) over the previous 90 days. ASX conducted an initial review of commingling arrangements in the first half of 2014, which was presented to the Risk Committee and CS Boards. The review concluded that the arrangements remained appropriate, particularly in light of the currently small size of exposures generated by OTC derivatives relative to futures. ASX Clear (Futures) will conduct another review of default fund arrangements in late 2014.

ASX has documented, in an internal paper provided to the ASX Limited Board, a process for making decisions regarding replenishment of ASX Clear (Futures)' financial resources following any draw down arising from a participant default. Responsibility for determining whether to replenish financial resources and how this might best be achieved ultimately lies with the ASX Limited Board. The decision would be taken in consultation with the ASX Clear (Futures) 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 would depend on the specific circumstances, including the severity of the loss and the market environment (see also Key Consideration 4.7). ASX Limited has also committed to maintaining a certain level of equity capital in ASX Clear (Futures) (including via ASXCC) provided certain conditions are met, including that ASX Clear (Futures)' is solvent. ASX plans to consult on enhancements to its replenishment arrangements as part of its broader consultation on enhancements to its recovery plans (see Key Consideration 3.4 and Key Consideration 4.7).

Default management – futures

The DMF and the Operating Rules and Procedures allow ASX Clear (Futures) to employ a variety of methods to close out or otherwise manage the positions of a defaulted 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 not available in respect of OTC products) and hedging (see Key Consideration 13.2 for more information on close-out arrangements).

Default management – OTC derivatives

In the event of default of an OTC participant, ASX Clear (Futures) would first suspend the defaulted participant and terminate its open positions, then look to hedge its exposure to non-defaulting participants. ASX Clear (Futures) may engage one or more participating members of the relevant DMG to assist in this process. ASX Clear (Futures) would then conduct one or more auctions to establish new open contracts equivalent to those terminated (including hedges). ASX Clear (Futures) may set a reserve price on the default auction(s).

All OTC participants that have positions in the relevant products are required to bid in the auction of a defaulter's portfolio. In early 2014 ASX implemented a 'juniorisation' mechanism designed to ensure that non-defaulting participants bid competitively in the auction of a defaulter's portfolio. For the participants obliged to take part in the auction, the juniorisation mechanism determines the order in which their contributions to the ASX Clear (Futures) default fund are applied to losses on the default in the event that the auction crystallises losses beyond the defaulter's margin and the first tranche of ASX capital. The order of application is related to the size of participants' bids in the auction, so that the winner of the auction has its contribution applied last and the participant with the lowest bid has its contribution applied first, subject to bids exceeding a minimum threshold determined by ASX. Participants that are not required to take part in an auction (for example participants that lack the capacity to manage particular product types within an auction pool) would have their contributions applied at the same point as the winner of the auction. ASX Clear (Futures), in consultation with the DMG, could conduct the auction in one of the following forms:

- The defaulted participant's portfolio could be auctioned in a single pool to the single highest bidder, or split into multiple identical units auctioned off to several bidders. In the latter case, the order of application of participant contributions to losses would be based on the lowest bid for any unit within the pool.
- Alternatively, the defaulted participant's portfolio could be broken up into separate pools with shared characteristics (for example currency, product, tenor, carry or trade volume), with separate auctions in respect of each pool. Each of these pools could be auctioned off in a single unit or multiple identical units. The application of bidding participants' contributions to losses would be based on the ranking of bids in each of these pools, weighted according to the relative risk of each pool.

As an alternative to an auction, ASX Clear (Futures) could agree the transfer of equivalent contracts with a non-defaulting participant if this would not result in losses requiring the application of non-defaulting participants' commitments.

13.2 A central counterparty should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.

To facilitate early identification of a default event, the ASX Clear (Futures)' Operating Rules and Procedures require that a participant inform ASX Clear (Futures) 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 (Futures) Operating Rules set out specific events of default, declaration of a default would never be automatic. Instead, ASX Clear (Futures) 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 would depend 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 (Futures) to employ a variety of methods to close out or otherwise manage the positions of a defaulted participant. These include hedging, transfer, on- or off-market liquidation, expiry, exercise and compulsory settlement (generally considered to be a last-resort method of closing out). For the OTC derivatives clearing service, ASX Clear (Futures) may conduct an auction of the defaulted participant's OTC derivatives positions.

There are advantages and disadvantages to each close-out method and therefore the specific method used in practice would 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 would be a relevant factor in determining whether client positions could be transferred following a default event. ASX Clear (Futures) has introduced individual client accounts for both OTC derivatives (in April) and exchange-traded derivatives (in July), which are more likely to be able to support the transfer of client positions following a default (see Principle 14). However, both OTC and exchange-traded derivatives clients can opt to clear via an omnibus account with net margining, which may make the transfer of individual client positions in a default event difficult due to possible under collateralisation of individual positions. As described in Key Consideration 13.1, ASX policy establishes a preference for controlling the risk associated with a defaulted participant's OTC derivatives positions through a process of hedging then auction. While ASX Clear (Futures) provides a window of 24 or 48 hours for futures or OTC clients of a defaulted participant with individually segregated accounts to transfer their positions to another participant, it retains the flexibility to shorten this window if circumstances require a more rapid close-out process.

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

ASX Clear (Futures)' Operating Rules and the OTC Rules and OTC Handbook are available on the ASX public website. These rules outline when ASX Clear (Futures) may take action against a participant and the powers of ASX Clear (Futures) in the event of a default, including the ability of ASX to transfer clients' positions to other participants. ASX Clear (Futures)' 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. The OTC Handbook provides a description of the default management auction process for OTC derivatives, including numerical examples of the juniorisation process.

13.4 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 or 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. ASIC and the Bank observed the ASX fire drill exercise conducted in early 2014 and will continue to observe future fire drills. In recent years, the DMF has been updated on several occasions: during 2011/12 to incorporate lessons learned from the default of MF Global; in 2012/13 in anticipation of the launch of the OTC derivatives clearing service; and again in May 2014, to account for the use of offsetting transaction arrangements in ASX Clear.

Currently, participants are not directly involved in default management fire drills that test general default management procedures in ASX Clear (Futures). 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. Nevertheless, 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.

With the introduction of the OTC clearing service, separate fire drills are conducted by the DMG, the first of which took place in June 2014. The DMG comprises representatives of all OTC clearing participants, who are tasked with periodically convening to review the default management process and recommend amendments. Each OTC derivatives clearing member is involved directly in default simulations, including testing of the auction process.

In addition to the default management information provided on its website, ASX provides detailed responses to any targeted requests for information 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 (Futures) take into account, as far as possible, the implementation of any resolution regime that governs 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 FMI resolution once international work on FMI resolution and the proposed domestic framework for FMI resolution have been finalised.

Principle 14: Segregation and portability

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

Rating: Observed[7]

ASIC's and the Bank's assessment is that ASX Clear (Futures) observes the requirements of Principle 14. ASX Clear (Futures)' segregation and portability arrangements are described in further detail under the following Key Considerations.

14.1 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

[7] While ASX Clear (Futures) is assessed as observing Principle 14, the Bank has assessed that ASX Clear (Futures) broadly observes the corresponding CCP Standard 13. This difference in ratings is due to an additional requirement under the Bank's supplementary interpretation of CCP Standards 13.2 and 13.3 that ASX Clear (Futures) offer an account structure that provides protection for client collateral in excess of margin requirements lodged with the CCP.

concurrent default of the participant and a fellow customer, the central counterparty should take steps to ensure that such protection is effective.

During 2013/14, ASX Clear (Futures) introduced client-clearing arrangements for OTC derivatives, with clients of OTC participants offered the choice of holding their positions in either an individually segregated account or a client omnibus account. From July 2014, an individually segregated account structure has also been introduced for exchange-traded derivatives alongside the pre-existing client omnibus account structure.

While in the individually segregated structure client positions are held in individual accounts, the collateral posted to support these positions is held in a single commingled account. ASX nevertheless maintains a record of the value of initial margin attributable to each segregated client account and guarantees each client the transfer or return of this value (net of any close-out costs), even if the return of the specific securities posted is not possible under the current segregation model (see Key Consideration 14.2). ASX Clear (Futures) has commenced a consultation on enhancing its segregation arrangements for client collateral, including to allow lodgement of excess collateral with ASX Clear (Futures).

ASX Clear (Futures) has the capacity to transfer (port) participants' clients' positions and collateral under its Operating Rules (see Key Consideration 14.3). Part 5 of the PSNA supports the transfer of client collateral in the event of the default of a clearing participant as provided for in its Operating Rules without the need to seek approval from the defaulted participant's external administrator.

14.2 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.

With effect from July 2014, ASX Clear (Futures) offers clients of both OTC and exchange-traded futures participants the choice of holding their positions in either an individually segregated account or a client omnibus account. ASX Clear (Futures) launched its OTC client clearing service in April 2014, and in July began offering an individually segregated client account for exchange-traded derivatives in addition to the pre-existing omnibus client account structure for these products. Initial margin is calculated separately for positions held in each individual or omnibus client account. Cross-margining of interest rate futures against OTC positions is only permitted for clients that have individual client accounts for both types of products with the same participant.

Under the individually segregated account structure, only positions are segregated at the individual client account level. Collateral is not segregated; operationally, gross collateral requirements are aggregated across all client accounts and managed by the participant within a single commingled client collateral account. In the event of a default, the value of the initial margin applied to the client's position in an individual client account would either be transferred to another participant or returned to the client (net of any close-out costs). Any excess collateral would be returned to the administrator of the defaulted participant. That is, ASX Clear (Futures) guarantees only the transfer or return of the value of each client's collateral, not the individual collateral securities that may have been posted.

This approach is similar to the internationally used 'Legally Segregated Operationally Commingled' segregation model. However, under such a structure variation margin payments (and other cash flows) to and from clearing participants are netted. Accordingly, there is a risk that a participant could default before passing on to each client the gross flows underlying the net payment. ASX is currently consulting on extending its segregation model to allow excess collateral to be protected and also on options to make client collateral 'bankruptcy remote' from a default by ASX Clear (Futures) itself.

Since under either an individually segregated or an omnibus structure, the positions and collateral of clients are separate and identifiable from those of clearing participants, clients are not directly exposed to losses related to their participant's proprietary (house) activity in the event of that participant's default. Where a client opts to use an individually segregated account, its positions are also separately identifiable from those of other clients, as is the value of its margin obligations.

Clearing participants are not obliged to offer both individually segregated and omnibus client accounts, but must provide their clients with a client fact sheet, developed by ASX, which explains the types of accounts that are available, and the advantages and disadvantages of each option (see Key Consideration 14.4).

14.3 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.

ASX Clear (Futures) has the power under its Operating Rules to transfer client positions and collateral following a participant default. The availability of individually segregated client accounts for both OTC and exchange-traded derivatives increase the likelihood that client positions and collateral could be transferred to another participant in the event of a clearing participant default. Under individual client segregation, margin requirements are calculated on a gross basis for the positions held by each client. This supports portability by making it more likely that clients would have sufficient initial margin transferred with their positions to ensure that their full margin requirements could be met after transfer. Portability is further supported by Part 5 of the PSNA (see Key Consideration 14.1). However, portability cannot be guaranteed since it relies on the willingness and capacity of another participant to take on the affected clients within a short period of time.

ASX Clear (Futures) has established a direct legal relationship with clients to underpin the acceptance of instructions in the event of a participant default. In the absence of a default, ASX Clear (Futures) does not interact directly with clients and the participant remains responsible as principal for its client's obligations to ASX Clear (Futures). However, if the participant were to default, the client would have the right to communicate with ASX and directly enforce the Operating Rules relating to segregation and portability of client positions and the associated value of initial margin held on its behalf.[8] To accommodate structures involving indirect clients – that is, clients of clients – ASX Clear (Futures) allows clients to hold multiple individually segregated accounts and to nominate, as appropriate, an end client for each account. In the event of the default of the relevant clearing participant, the nominated end client would have the right to communicate directly with ASX in relation to the porting of positions in that individually segregated account (and associated value of initial margin).

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8 This right is limited to clients that maintain individual client accounts and are not themselves in default.

In the event of a default, ASX allows a window of 24 hours for porting of exchange-traded derivatives client positions and 48 hours for OTC derivatives client positions. Clients may nominate in advance an alternative (‘back-up’) clearing participant to which it would seek to port its positions (and associated collateral value) in the event of its clearing participant default. Advance nomination of a back-up clearing participant is optional, and even if nominated a ‘back-up’ clearing participant may in the event be unwilling or unable to take on the positions. However, given the short timeframe for decisions in the event of a default, pre-nomination should increase the likelihood that a successful transfer could be achieved.

In the event that a transfer could not be achieved, ASX Clear (Futures) would hedge, close out and/or auction client positions as it would those of the defaulted clearing participant (see Principle 13). The Operating Rules give ASX Clear (Futures) some flexibility to close the porting window if it quickly became clear that a transfer could not be achieved, or if market conditions dictated that it would be beneficial to proceed with other default management processes to reduce ASX Clear (Futures)’ exposure.

14.4 A central counterparty should disclose its rules, policies, and procedures relating to the segregation and portability of a participant’s customers’ positions and related collateral. In particular, the central counterparty should disclose whether customer collateral is protected 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 described in the ASX Clear (Futures) Operating Rules and Procedures (including the OTC Rulebook and Handbook). ASX has also published an overview of clearing participant default arrangements, which outlines the implications of different account structures and discloses the current operational constraints to portability. ASX will be updating the overview to reflect default management implications of both the OTC derivatives clearing service and the new client clearing arrangements, and to incorporate learnings from the DMG’s OTC derivatives default management fire drill.

ASX has published a client fact sheet outlining segregation and portability arrangements in ASX Clear (Futures) and the rights of clients in the event of a default. Participants are required make this fact sheet available to all of their direct clients. The fact sheet is also available on ASX’s public website.[9] In addition, during 2013 and 2014, ASX has publicly consulted stakeholders on segregation and portability arrangements for both OTC and exchange-traded derivatives. These consultations have outlined the implications of different account structures used by ASX Clear (Futures) and identified operational constraints to portability.

Principle 15: General business risk

A central counterparty should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net

[9] The client fact sheet is available at <http://www.asx.com.au/documents/about/ASX_client_clearing_client_fact_sheet.PDF>. A related fact sheet describing the legal model used in ASX Clear (Futures)’ client clearing arrangements is available at <http://www.asx.com.au/documents/clearing/client-protection-model-fact-sheet.pdf>.

assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

Rating: Broadly observed

ASIC's and the Bank's assessment is that ASX Clear (Futures) broadly observes the requirements of Principle 15. In order to fully observe Principle 15, ASX Clear (Futures) should:

- carry out plans to enhance its recovery plan in line with forthcoming CPSS-IOSCO guidance, and ensure that the capital it holds under Key Consideration 15.2 continues to be sufficient to fund the enhanced plan. As ASX Clear (Futures) further develops its recovery plan, it should also review and integrate its recapitalisation processes with its broader recovery planning arrangements.

ASX Clear (Futures)' management of general business risk is described in further detail under the following Key Considerations.

15.1 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 Principle 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 exchange 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 the Group's general business activities arises in the collection of receivables, which principally comprise fees from market participants, issuers, users of market data and other customers. Mitigants include active collection procedures on trade receivables and 'ageing' of receivable amounts.
- Liquidity risk arises from the Group's time-critical payables, and is mitigated by prudent liquidity management, with forward planning and forecasting of liquidity requirements.
- ASX may be exposed to capital risk if equity in group entities falls below prudent or regulatory minimum levels. 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 this process, ASX identifies new strategic business initiatives, such as the projects that delivered the ASX Collateral and OTC derivatives clearing services. These 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 any expansion of its activities or in the event of material changes to its business. Risk assessments are built into ASX's project management framework (see Key Consideration 17.4). Under this framework, an initial high-level risk indication is defined at the project concept stage. This is followed by a formal project risk assessment covering both project delivery risks and impacts to business activities. The assessment of the OTC derivatives clearing service, for example, identified: risks associated with impact on CCP liquidity; changes required to the default waterfall; potential legal issues with regulatory requirements; and a significant dependence on outsourced software services. ASX typically conducts a series of workshops involving project staff to discuss risks associated with any planned new service. Prior to the approval of a project for launch/production, ASX prepares an operational readiness summary and conducts a final workshop to discuss possible risks associated with initial launch. This includes consideration of potential failure scenarios and workarounds, procedures for escalation of issues, and help desk and key staff availability.

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

15.2 A central counterparty should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity a central counterparty should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.

ASX has set aside $232 million for operational and business risk across the four ASX Group CS facilities, $60 million of which has been attributed specifically to ASX Clear (Futures)' 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. Each CS facility has a separate allocation for business risk capital that is explicitly recognised within group-wide capital holdings. These holdings include an additional buffer against potential losses sustained elsewhere in the group. During 2013/14, ASX made amendments to the ASX Group Support Agreement, placing an obligation on ASX to maintain sufficient capital to support ASX Clear (Futures)' continued operations in the event of general business losses. These amendments support the legal certainty of ASX Clear (Futures)' access to business risk capital as required.

In determining the sufficiency of the $60 million in operational and business risk capital set aside for ASX Clear (Futures), ASX has estimated the capital required to cover six months of current operating expenses (see Key Consideration 15.3), plus that required to cover operational and legal risk, non-covered credit and counterparty credit risk, non-covered market risk, business risk and an additional capital buffer. It has calculated these components consistent with the methodology used by CCPs in the EU, under the *European Regulation on OTC derivatives, central counterparties and trade repositories* (EMIR).[10]

15.3 A central counterparty should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, a central counterparty should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.

ASX Clear (Futures) has developed a plan setting out options for its recovery or wind-down based on its existing Operating Rules, and has commenced work towards enhancing this plan in line with forthcoming CPSS-IOSCO guidance on recovery planning (see Key Consideration 3.4). In calculating the quantum of business risk capital described under Key Consideration 15.2, ASX has sought to ensure access to sufficient liquid net assets to fund operations during the execution of ASX Clear (Futures)' recovery plan, or to cover a minimum of six months of current operating expenses.

15.4 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; Commonwealth Government securities; and selected semi-government securities. Limits are applied against counterparty, liquidity and market risks. Liquidity limits are specified for maximum instrument maturity and weighted average maturity.

15.5 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 by way of a $553 million share entitlement offer, with the bulk of the funds being used to increase the business risk capital of the CS facilities and their

[10] The EMIR methodology requires, for example, that ASX Clear (Futures) set aside funds for: winding down or restructuring the business based on monthly gross operating expenses multiplied by the time span required to wind down or recover; operational and legal risk based on a basic indicator approach (e.g. a percentage of average income over several years) or advanced measurement approach; non-covered credit and counterparty credit risk based on a percentage of risk-weighted exposure amounts; non-covered market risk based on own capital requirements; and business risk based on the higher of the CCP's own estimate or one quarter of annual gross operating expenditures.

pooled financial resources to deal with participant default. Recapitalisation processes will be reviewed and integrated with broader recovery planning arrangements as ASX Clear (Futures) further develops its recovery plan in line with forthcoming CPSS-IOSCO guidance.

Principle 16: 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

ASIC's and the Bank's assessment is that ASX Clear (Futures) broadly observes the requirements of Principle 16. In order to fully observe Principle 16, ASX Clear (Futures) should:

- implement plans to further reduce the concentration of unsecured exposures to the large domestic banks under its treasury investment policy. The Bank has opened a dialogue with ASX on the detail of its expectations for the credit and liquidity risk profile of ASXCC's investment portfolio, as well as the time frame over which these expectations should be met.

ASX Clear (Futures)' management of custody and investment risks is described in further detail under the following Key Considerations.

16.1 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 (Futures) and its participants are administered and held within the ASX Group. Intragroup arrangements allow ASX Clear (Futures) to fully understand the nature of its risk exposure to ASXCC and other group entities such as Austraclear (for safekeeping of AUD-denominated debt securities). 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 Key Consideration 2.6).

Non-cash collateral is held in ASX Clear (Futures)' account in Austraclear. ASX Clear (Futures)' Operating Rules and Procedures define how collateral is used. ASX Clear (Futures) 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 (Futures) is a subsidiary (see 'ASX Group Structure' in Section 2.3.1). 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 Key Consideration 16.4).

16.2 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 (Futures)' clearing activities. Only investments in instruments that can be liquidated or repurchased for cash within two hours are treated as 'liquid' products (see also Key Consideration 7.5).

16.3 A central counterparty should evaluate and understand its exposures to its custodian banks, 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 (Futures).

16.4 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 Clearing Boards and itself governed by the ASX Enterprise Risk Management Policy. 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 (Futures)' mitigation of investment-related credit, market and liquidity risks (Principle 7). The performance of the investment portfolio within the parameters of 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 and percentage of total liquid assets held in non-AUD denominated securities.

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), APRA-approved ADIs that are licensed banks in Australia under the *Banking Act 1959*, or (from July 2014) supranational agencies that issue in the Australian bond market. ADIs must also have a Standard & Poor's short-term credit rating of A1 or above, while supranational agencies must have a rating of AAA. The Investment Mandate does not permit investments in securities of ASX Group entities. Nor is ASXCC permitted to create unsecured exposures to any other investment counterparty that is a participant or affiliated with a participant, other than the four major banks.

- *Counterparty investment limits*. 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 both the proportion of the portfolio and the absolute amount that can be invested with a single counterparty.

The Investment Mandate aims for quick liquidation of investments with little, if any, price effect. Only investments in instruments that can be liquidated or repurchased for cash within two hours are treated as 'liquid' products. These are defined based on the depth of market liquidity and the terms of investment, including whether the instruments are eligible for repurchase transactions with the Bank (see Key Consideration 7.5). Investment specifications under the ASXCC Investment Mandate include approved products, approved counterparties and obligors, limits against credit, market and liquidity risk, and other investment restrictions. The policy restricts investments to high-quality liquid assets, such as Commonwealth Government securities, bank bills and certificates of deposit. The policy also sets a 'value-at-risk' limit.

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 with input from the Risk Committee. The broad approach to investment and investment holdings are disclosed publicly in the ASX Annual Report.

Consistent with the revisions to its Investment Mandate, during 2013/14 ASX reduced the limits applicable to the large domestic banks in recognition of their participation in the new OTC derivatives clearing service, and applied a further reduction in limits as part of the annual review of the ASXCC Investment Mandate. In addition, ASX has taken steps to diversify its unsecured exposures to a broader range of highly rated investment counterparties and has introduced arrangements allowing it to invest cash with selected counterparties on a secured basis. ASX plans to review concentration limits to investment counterparties again in 2015 and is working to further strengthen its capacity to invest on a secured basis. The Bank has opened a dialogue with ASX on the detail of its expectations for the credit and liquidity risk profile of ASXCC's investment portfolio, as well as the time frame over which these expectations should be met.

Principle 17: 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

ASIC's and the Bank's assessment is that ASX Clear (Futures) observes the requirements of Principle 17. ASX Clear (Futures)' arrangements for managing operational risks are described in further detail under the following Key Considerations.

17.1 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 Key Consideration 3.1). Under this framework, the ASX Limited Board is responsible for reviewing and overseeing the group's risk management systems (see Key Consideration 2.6). 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 departments, 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 departments. Under the Enterprise Risk Management Framework, individual departments 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. A dedicated security team has responsibility for assessing both physical and cyber security risks, and is overseen by a

Security Steering Committee comprising the Chief Information Officer, head of Internal Audit and other senior executives.

Access to resources

ASX Clear (Futures) has arrangements in place to ensure that it has well-trained and competent personnel operating Genium and Calypso. 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 and broader skills matrices, with training provided for identified areas of weakness. ASX Clear (Futures) has a formal succession planning and management process in place for key staff. ASX has sought to automate routine operational processes and reporting over recent years, freeing up additional staff resources that would otherwise be devoted to these tasks.

To facilitate rapid recovery in the event of an operational disruption, ASX intends to increase the proportion of operational staff based at its secondary operations site (which is also the primary data centre), to around 30 per cent from the current 20 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 Section 2.3.1), under a contractual Support Agreement. In the event that ASX Operations Limited became subject to external administration, to the extent permissible by law, provisions within the Support Agreement provide for ASX Clear (Futures) and the other clearing and settlement corporate entities to retain the use of operational resources.

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, such as the move from SECUR to Genium, the PMO rates projects to ensure that 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.

Over recent years, ASX has undertaken work on close to 60 projects, including major projects such as the OTC derivatives clearing service and enhanced client clearing arrangements in ASX

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[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.

Clear (Futures) and the ASX Collateral service. 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. Targeted deadlines for key projects have nevertheless 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, including in respect of the OTC derivatives clearing service.

17.2 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 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 departments.

Policies and procedures are the subject of internal and external review. ASX's Internal Audit department 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 considered by external auditors annually.

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

- ISO 31000 – Risk Management Principles and Guidelines is used to benchmark ASX's overarching framework for operational risk management.
- The business continuity framework is benchmarked against the Business Continuity Institute's Good Practice Guidelines 2013, 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. Cyber security strategies are further benchmarked against the Australian Signals Directorate's Strategies to Mitigate Targeted Cyber Intrusions.
- The compliance framework is benchmarked to the AS 3806-2006: Compliance Programs.
- The ASX Fraud Control Policy is benchmarked against AS 8001-2008: Fraud and Corruption Control.

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 (Futures) operates a separate test environment for its core systems (Genium and Calypso) and has a formal, documented change management process. There are also defined procedures for communicating with participants and vendors details of technology upgrade releases, which include regular notices to participants of upcoming changes.

17.3 A central counterparty should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.

Availability targets are documented and defined formally for critical services. Genium/SECUR and Calypso are required to meet a minimum availability target of 99.8 per cent; during 2013/14, SECUR was available 100 per cent of the time, Genium was available 100 per cent of the time and Calypso was 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 capacity 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. The aggregated average capacity utilisation of SECUR during 2013/14 was 9 per cent, while peak utilisation was 15 per cent;[12] average capacity utilisation of Genium was 8 per cent, while peak utilisation was 10 per cent and average capacity utilisation of Calypso was 1 per cent, while peak capacity utilisation was 3 per cent. ASX Clear (Futures) considers that it has sufficient technical and human resources to operate Genium and Calypso during peak periods, including in the event of operational incidents or system failure.

17.4 A central counterparty should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.

ASX Clear (Futures)' approach to ensuring scalable capacity adequate to handle increasing stress volumes and to achieve its service level objectives is described under Key Consideration 17.3. As noted above, average capacity utilisation of SECUR during 2013/14 was 9 per cent, while peak utilisation was 15 per cent; average capacity utilisation of Genium was 8 per cent, while peak utilisation was 10 per cent; and average capacity utilisation of Calypso was 1 per cent, while peak capacity utilisation was 3 per cent. All core systems were available 100 per cent of the time over this period.

17.5 A central counterparty should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.

Information security policy is implemented using a risk-based decision process, based on ISO 31000, 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, the cost of controls, and the richness and flexibility of services. ASX's 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 March 2014.

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[12] Genium will provide additional capacity headroom in future.

Information security policy is tested at a number of levels. This includes penetration testing against the ASX perimeter and vulnerability testing within the perimeter. ASX Clear (Futures) performs SECUR security testing on a quarterly basis. ASX operates a suite of controls designed to prevent and detect cyber attacks on its systems, such as denial of service or malware threats. These 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 departmental 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.

17.6 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 (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the central counterparty to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The central counterparty should regularly test these arrangements.

Business continuity arrangements

ASX Clear (Futures) 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 (Futures) policy requires that failover to the backup data centre should occur within two hours for all systems. Plans for recovery of key systems apply to both physical and cyber threats to business continuity.

ASX Clear (Futures) 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 broadly equivalent 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 is targeted to take place within two hours, but would generally be expected to occur within an hour, under the control of management.

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

ASX Clear (Futures) 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. Since May 2014 these include the use of Twitter to advise stakeholders of market-wide operational or technical incidents. 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.

ASX Clear (Futures) 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 (Futures). Live technology tests, where clearing 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.

Participant continuity arrangements

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[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.

Recognising that effective continuity of operations may depend on the capacity of participants to recover from an operational disruption, business continuity requirements for participants are set out in the ASX Clear (Futures) Operating Rules and Procedures, supplemented by additional guidance issued by ASX on 1 July 2014. These 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 (Futures)' expectation (set out in guidance) that this would be within two hours, and no more than four hours, following a contingency event for large participants. The targeted recovery time for smaller participants is four hours (and no more than six). These arrangements are reviewed as part of the participant admissions process. If a participant fails to maintain business continuity arrangements consistent with these recovery targets, it may become subject to sanctions or restrictions on its activities. 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. These spot checks examine the participant's governance and processes for resilience and business continuity. If a participant fails to implement any recommendations arising from a check, ASX may impose sanctions.

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 dealing with operational issues is to work collaboratively with the participant to educate them on their obligations. If the matter is serious, ASX may require that the participant remediate the weakness as a matter of priority. ASX may impose conditions on participation, or require that the participant appoint an independent expert to assist with the remediation task.

Participants are involved in the contingency testing of ASX Clear (Futures)' 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 (Futures) conducts regular connectivity tests and maintains an external testing environment for system changes.

17.7 A central counterparty should identify, monitor, and manage the risks that key participants, other financial market infrastructures, and service and utility providers might pose to its operations. In addition, a central counterparty should identify, monitor, and manage the risks its operations might pose to other financial market infrastructures.

Interdependencies with 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 Key Consideration 3.1); as part of its assessments of project-related risks (see Key Consideration 15.1); and through its general monitoring of risks under its risk management framework (see Key Consideration 3.1).

For ASX Clear (Futures), 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 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 (Futures)' operations may be affected for an extended period. This risk is managed in part through technical and business continuity requirements placed on participants, but there are limitations to this approach. As a result, and notwithstanding that there are no contractual relationships between ASX and vendors, ASX has implemented 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 SPAN in ASX Clear in late 2012. The program supports vendors' knowledge of ASX technical updates through early engagement before system changes are rolled out, 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 in some cases a lack of familiarity with local market practices and conventions. Such factors, if inadequately mitigated, could increase operational risk. ASX is examining options to mitigate these risks. As part of this, ASX Compliance has carried out a spot review on participants' outsourcing arrangements, benchmarking participants against a number of standards, including APRA's outsourcing prudential standard CPS 231. As a follow-up to the review, ASX is developing new guidance on participant outsourcing and has conducted site visits to selected overseas outsourcing providers.

ASX Clear (Futures) has an operational interdependence with Austraclear, which is used to settle margin payments (Principle 20). Operational risk associated with this interdependence is managed within the context of the ASX Group's operational risk management framework. ASX Clear (Futures) does not have significant operational interdependencies with other FMIs.

Dependencies on service and utility 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. ASX also provides the Bank with a list of critical outsourcing arrangements on an annual basis. Issues relating to outsourcing or service provision are escalated as appropriate to executive management via the ASX Technology Vendor Management Group and the relevant operational support area.

ASX assesses the operational performance of its service providers on an ongoing basis against its own operational policies, to ensure that service providers meet the resilience, security and operational performance requirements of relevant domestic and international standards. 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.[14] Contractual arrangements with critical service providers require the approval of ASX Clear (Futures) before the service provider can itself outsource material elements of its service.

In May 2014, ASX Clear (Futures) upgraded its core exchange-traded derivatives clearing system from SECUR to the Genium clearing system, which is a more recent system offered by the same vendor. ASX Clear (Futures) has responsibility for business continuity arrangements and computer-system support. The vendor provides support where changes to the system components or underlying source code are involved, under an agreement which extends beyond 2014. ASX Clear (Futures) has an escrow arrangement in place that would allow it to access source code for Genium. These arrangements mirror the support agreements in place for SECUR prior to May 2014.

All other ASX Clear (Futures) 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), as well as incident escalation procedures and contacts.

ASX has developed a set of standard clauses for inclusion in contracts with third-party service providers of critical services to ASX Clear (Futures). Similar clauses are also included in the Support Agreement between ASX Clear (Futures) 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 (which align with the Principles). ASX applies 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 (Futures)' agreements with a third-party vendor for support of Genium, which also incorporates EXIGO software support, and another third-party vendor for support of Calypso.

[14] 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.

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 (Futures). 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. The clauses require that providers give the Bank notice of any intention to terminate the agreement as a consequence of ASX Clear (Futures)' failure to pay fees, or in the event of the insolvency of ASX Clear (Futures) 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 (Futures)' arrangements to ensure continuity of operations in the event of a crisis will be shaped by the proposed introduction into Australian law of a special resolution regime for FMIs. This was foreshadowed in consultations undertaken by the Council of Financial Regulators and Treasury in 2011 and 2012. ASX Clear (Futures) will need to ensure that its arrangements to support continuity of operations in a crisis are appropriately adapted to the proposed FMI resolution regime once finalised.

CPSS and IOSCO have developed a draft Assessment Methodology for the oversight expectations applicable to critical service providers.[15] Once finalised, this Assessment Methodology will provide a framework for considering how to apply the oversight expectations for critical service providers set out in Annex F of the PFMIs.

Disclosure

The nature and scope of ASX Clear (Futures)' dependencies on critical service providers are disclosed to participants through: Operating Rules; Guidance Notes; Notices and Bulletins; technical documentation available on the ASX participant website; more general information available on the ASX public website; and in one-on-one meetings with participants, both during the induction process for new participants and on an ongoing basis.

Operational Support

ASX Clear (Futures) provides telephone and email support to participants via a helpdesk, which operates from 8 am to 7.30 pm.

Principle 18: 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

ASIC's and the Bank's assessment is that ASX Clear (Futures) observes the requirements of Principle 18. ASX Clear (Futures)' access and participation requirements are described in further detail under the following Key Considerations.

18.1 A central counterparty should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other financial market infrastructures, based on reasonable risk- related participation requirements.

[15] The draft Assessment Methodology is available at <http://www.bis.org/publ/cpss115.htm>.

ASX Clear (Futures) has objective and transparent participation requirements, which are publicly available and form part of its Operating Rules and Procedures. During the Assessment period, ASX developed an internal policy and supporting standards that summarise the financial and operational requirements placed on participants under the Operating Rules and Procedures, and document the responsibilities of the CS Boards, CRPC, CRO and relevant departments for ensuring these requirements are met and periodically reviewed. 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 (Futures) had 19 participants, predominantly large domestic and foreign banks and their subsidiaries. Eight participants are OTC derivatives clearing participants, of which four clear OTC derivatives only.

18.2 A central counterparty's participation requirements should be justified in terms of the safety and efficiency 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 (Futures)' participation requirements are designed to promote the safety and integrity of the CCP. They cover minimum capital and financial obligations; requirements related to legal structure, governance and regulatory status; business and managerial requirements; operational resources and capabilities; business continuity arrangements; and risk and liquidity management arrangements. ASX Clear (Futures)' participation requirements promote the efficient operation of the facility and do not impose discriminatory or restrictive access constraints such as minimum turnover levels or location requirements.

Participants that clear futures only are subject to a minimum net tangible asset (NTA) requirement of $5 million. ASX management has discretion to impose a higher requirement.

Participation requirements for participants that clear OTC derivatives are set out in the publicly available OTC Rules and OTC Handbook. The capital requirement of $50 million for these participants is significantly higher than that for futures to reflect the increased complexity of OTC derivatives markets, and the potential for a default event to require the closing out of less liquid products than those in the futures market. In particular, it is likely that OTC derivatives participants would be called upon to contribute to the close-out process, including by bidding in an auction of a defaulted participant's positions.

Under the Operating Rules and Procedures, the ASX Clear (Futures) Board must be satisfied that a potential participant has (or will have) the relevant managerial, operational and financial capacity and appropriate complementary business continuity arrangements in place to be able 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.

ASX Clear (Futures) is considering allowing the admission of participants that are incorporated and base their operations offshore, provided that they can demonstrate the capacity to meet all of the financial and operational requirements described above and that no conflicts of law would arise as a result of their participation. ASX intends to run a pilot scheme prior to allowing such arrangements more broadly.

18.3 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 department, which covers both CCPs and reports to the CRO, is responsible for the risk management of exposures to 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 (Futures). Participants are required to inform ASX if at any stage their capital falls below the minimum requirement. 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 Key Consideration 4.1). In addition, Operations and ASX Compliance perform regular and ad hoc compliance monitoring activities.

ASX Clear (Futures) has wide-ranging powers to sanction its participants. ASX Clear (Futures) may restrict, suspend or terminate a participant's authority to clear 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. Where a breach has been identified and the participant has taken appropriate steps to rectify it, ASX Clear (Futures) will typically continue to monitor the participant closely for a period of time. Significant breaches are also referred to ASIC and, depending on the nature of the breach, may be investigated by ASX Compliance for formal disciplinary action.

Principle 19: 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

ASIC's and the Bank's assessment is that ASX Clear (Futures) observes the requirements of Principle 19. ASX Clear (Futures)' approach to tiered participation arrangements is described in further detail under the following Key Considerations.

19.1 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 (Futures) gathers basic information on indirect participation in the form of a Daily Beneficial Owner Report (DBOR) from participants. This report provides details of client positions. These data are aggregated and reviewed to identify positions that may be unusual, result in a concentration of risk, or breach position limits set by the facility for the expiry period. There are, however, practical limitations to the use of these data for the analysis of tiering; in particular, the account codes of an entity or related entities may vary from participant to participant.

In April 2014, ASX Clear (Futures) launched client clearing for OTC derivatives, with the option for individually segregated client accounts. In July 2014, this account structure was extended to exchange-traded derivatives. If clients opt to use individually segregated accounts, ASX will be able to gather better information on client positions to support its monitoring of tiered participation risks (see Key Consideration 19.4).

Under current arrangements, if required, ASX Clear (Futures) may request more detailed information on any indirect client from that client's clearing participant. This information may include further details about the indirect participant's profile or activities, including, but not limited to, its intentions as to open positions or physical delivery. In addition, ASX Clear (Futures) also has an ongoing program of 'thematic' participant reviews, covering risk topics of interest or concern. These could potentially examine tiering risks if ASX Clear (Futures) were to perceive an increased risk from indirect relationships. ASX Clear (Futures) currently considers the risks from concentration of indirect participants to be low.

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

As noted under Key Consideration 19.1, ASX Clear (Futures) monitors dependencies arising from tiered participation indirectly through a variety of means. These include 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, expiry monitoring activities, monitoring of delivery risk (e.g. futures options expiries), and ASX Clear (Futures)' broader array of risk management data collection (including the DBOR, described under Key Consideration 19.1) and monitoring activities. Based on this information, ASX Clear (Futures) has not identified any material dependencies between direct and indirect participants.

As discussed under Key Consideration 19.4, the introduction of individually segregated accounts will permit ASX Clear (Futures) to monitor the proportion of a participant's business attributable to a particular client and set triggers for further action based on the proportion of initial margin attributable to that client.

19.3 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.

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. ASX's general approach to managing risks associated with participants' business activities is based on a framework that can flexibly detect and respond 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 years, notably in managing the default of MF Global in late 2011.

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

During 2013/14, ASX conducted a broad review of its concentration risk policy. This included further consideration of its approach to the risks arising from tiered participation. As a result of this review, ASX developed a formal Concentration Risk Standard, setting out a risk-based approach to monitoring tiered participation risks.

Exposures arising from OTC derivatives clearing remain low relative to exchange-traded derivatives exposures. Furthermore, client clearing arrangements for OTC derivatives were introduced only towards the end of June 2014. Accordingly, ASX has to date focused on the risks from tiered participation arrangements in its exchange-traded derivatives clearing activities.

ASX Clear (Futures) reviews risks arising from tiered participation in exchange-traded derivatives on a daily basis using the DBOR client-level data. A number of predefined triggers are applied to these data to identify positions that may be unusual, result in a concentration of risk, or breach position limits set by the facility for the expiry period. The triggers are defined at the contract level, taking into account factors such as the nature of the contract, the market liquidity, whether the contract has position limits for expiry, and whether it is deliverable. Monitoring of the DBOR data, including the DBOR triggers, is conducted by ASX Participant Compliance as part of its daily monitoring of credit risk (see Key Consideration 4.2) and ASX's broader framework for management of risks (Principle 3).

Once clients commence use of individually segregated client accounts (see Principle 14), ASX Clear (Futures) intends to enhance its monitoring of indirect participation in the exchange-traded derivatives market. In particular, on a daily basis, ASX Clear (Futures) will monitor concentration indicators based on initial margin. If a client's initial margin accounts for over 25 per cent of the clearing participant's total initial margin, further investigation would be triggered. The Concentration Risk Standard notes that indicators may return a number of false positives and escalation of any breaches of triggers will be based on a number of factors, including the materiality of the breach and the credit standing and activity profile of the relevant participant. Clients that continue to clear via an omnibus client account will continue to be monitored using the DBOR data.

Principle 20: FMI links

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

Rating: Observed

ASIC's and the Bank's assessment is that ASX Clear (Futures) observes the requirements of Principle 20. ASX Clear (Futures)' management of link-related risks is described in further detail under the following Key Considerations.

20.1 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 each financial market infrastructure is able to observe the other principles in this report.

Identifying link-related risks

ASX Clear (Futures) 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, irrespective 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. This link supports AUD funds transfers and lodgement of AUD-denominated non-cash collateral. Cash transfers are entered into Austraclear by ASX Clear (Futures), and then matched in Austraclear against the respective clearing participants' cash settlement instructions. Regular margin collections, which make up the majority of cash transfers, are submitted to Austraclear by ASX Clear (Futures)' margin and collateral systems, while intraday margin collections are entered manually. AUD-denominated non-cash collateral is lodged via a collateral lodgement form, and cannot be applied to margin requirements until the day following lodgement of this form. Once ASX Clear (Futures) has received the form, the relevant securities are transferred to ASX Clear (Futures) via a 'free of payment' trade in Austraclear.

The second link is with NZClear. This link supports settlement of NZD payments. ASX Clear (Futures) maintains an account in NZClear to initiate and receive NZD margin payments, with settlement in central bank money via arrangements with a commercial settlement bank (see Key Consideration 9.1).

Managing operational risk

The link to Austraclear is subject to the same operational risk management framework that applies for all the ASX CS facilities. This addresses operational risks associated with software, infrastructure or network failures and manual processing errors. An incident report is required for any significant technical or operational incident, including an assessment of mitigating actions to reduce the risk of reoccurrence. In addition, six-monthly risk profile assessments are prepared and presented to the Audit and Risk Committee, and an independent system-controls audit is conducted annually. Austraclear operations are also covered by the Austraclear System Business Operations Plan, which includes a 'Step-in and Service' agreement with the Bank (see Appendix A2.2, Principle 17).

The potential impact of risks associated with ASX Clear (Futures)' link to NZClear is limited by the small size of NZD margins in comparison with total margins held by ASX Clear (Futures). NZClear is owned, operated and overseen by the Reserve Bank of New Zealand. Any operational issues that arise in NZClear are notified to all members, including ASX Clear (Futures), via email notification. NZClear has the ability to perform transactions on behalf of a member in the event of an operational disruption to ASX Clear (Futures)' link arrangements; in this case, ASX would advise NZClear to perform payment instructions via written instructions signed by ASX's authorised signatories. ASX Clear (Futures) has contingency arrangements that allow for late payment of margin on New Zealand futures products via Austraclear in AUD, with ASX Clear (Futures) applying a haircut to the NZD margin equivalent.

Managing financial risk

ASX Clear (Futures) does not assume any direct financial risks from its links to other FMIs.

20.2 **A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the financial market infrastructures involved in the link.**

ASX Clear (Futures)' link to Austraclear has its legal basis in the Austraclear Operating Rules and Procedures. The finality of settlements via this link is supported by the approval of Austraclear under Part 2 of the PSNA (see Key Consideration 1.4).

The link to NZClear has its legal basis in the system rules of NZClear and Part 5C of the *Reserve Bank of New Zealand Act 1989* (NZ) (see Key Consideration 1.8).

20.3 **Linked central securities depositories should measure, monitor, and manage the credit and liquidity risks arising from each other. Any credit extensions between central securities depositories should be covered fully with high-quality collateral and be subject to limits.**

Key Consideration 20.3 is not relevant to central counterparties.

20.4 **Provisional transfers of securities between linked central securities depositories should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.**

Key Consideration 20.4 is not relevant to central counterparties.

20.5 **An investor central securities depository should only establish a link with an issuer central securities depository if the arrangement provides a high level of protection for the rights of the investor central securities depository's participants.**

Key Consideration 20.5 is not relevant to central counterparties.

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

Key Consideration 20.6 is not relevant to central counterparties.

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

ASX Clear (Futures) does not have links with other CCPs.

20.8 **Each 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 (Futures) does not have links with other CCPs.

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

Key Consideration 20.9 is not relevant to central counterparties.

Principle 21: Efficiency and effectiveness

A central counterparty should be efficient and effective in meeting the requirements of its participants and the markets it serves.

Rating: Observed

ASIC's assessment is that ASX Clear (Futures) observes the requirements of Principle 21. ASX Clear (Futures)' arrangements for ensuring its efficiency and effectiveness are described in further detail under the following Key Considerations.

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

ASX Clear (Futures)' participation structure is designed to suit market demand. ASX Clear (Futures) tailors its participation application process and governance framework to the products, client structure and markets that it clears. An ASX Clear (Futures) participant can be authorised to clear futures and options over futures only, OTC interest rate derivatives only, or both futures and OTC derivatives. Subject to meeting operational requirements, all ASX Clear (Futures) participants have the option to clear for third-party participants.

ASX Clear (Futures) offers clearing services across a range of exchange-traded and OTC derivatives products, including commodities, energy, interest rate and equity-based futures and options and interest rate swap products. While most contracts are Australian dollar-denominated, some interest rate and energy futures and options contracts are denominated in New Zealand dollars. Any ASX Clear (Futures) participant that clears New Zealand dollar-denominated contracts is required to be a member of NZClear in order to make margin payments (see Key Consideration 9.1).

ASX Clear (Futures) has formed a participant Risk Committee to advise its Board on both exchange-traded and OTC derivatives risk management and a participant Product Committee to provide recommendations and proposals on broader OTC derivatives product matters, including eligibility for clearing (see Key Consideration 2.7). ASX intends to expand the scope of the Product Committee to cover product matters for exchange-traded derivatives. Any ASX Clear (Futures) participant that is authorised to clear OTC transactions may also nominate a representative to the DMG established to provide advice and assistance to the CCP on default management matters (see Key Considerations 2.7, 13.1).

ASX Clear (Futures) undertakes regular customer engagement to supplement its formal user governance arrangements via the Risk Committee and the OTC Product Committee. Participant feedback provides an important input for ASX Clear (Futures) to assess its performance against efficiency and effectiveness standards, particularly in relation to proposed new services and products, and changes to Operating Rules and Procedures.

ASX Clear (Futures) maintains a comprehensive governance and reporting framework that includes:

- transparent processes to operate ASX Clear (Futures), with well-defined controls, underpinned by written policies and procedures

- the maintenance of sufficient resources (financial, technological and human resources) to operate the facility properly and to meet its obligations under its CS facility licence. ASIC concluded that these resources were adequate when preparing its 2013 ASX Group Assessment Report[16]
- conflict handling arrangements that are reviewed and adapted to changing circumstances
- processes to monitor and enforce participants' compliance with the Operating Rules
- liaison processes with ASIC and the Bank
- a continuous improvement program.

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

The ASX Limited Board sets group-level strategic direction and business priorities, including via a three-year strategic plan, which is reviewed on a continuous basis. The ASX Clear (Futures) Board sets goals and objectives specific to its clearing service, and governs and reviews ASX Clear (Futures)' risk management processes, internal controls and compliance systems. The ASX Clear (Futures) Board is also responsible for overseeing the production of the management accounts of ASX Clear (Futures), which are prepared on a quarterly basis, as well as audited full year financial reports and statements. The ASX Clear (Futures) Board is also responsible for the management of clearing risks (see Principles 2, 3).

ASX Clear (Futures) measures its progress against goals and objectives in a number of ways.

- ASX Clear (Futures) measures the effectiveness of its services via participant and user feedback. ASX Clear uses customer engagement and consultative processes described under Key Consideration 21.1 to ensure that it achieves its goals in relation to meeting the requirements of participants.
- ASX Clear (Futures) has set availability targets for critical systems such as the Genium (previously SECUR) and Calypso clearing systems, which are monitored and reported to relevant governance committees, including the ASX Audit and Risk Committee and the ASX Clear (Futures) Board, on a regular basis (see Key Consideration 17.3).
- Senior management report to each meeting of the ASX Clear (Futures) Board, and periodically to the Enterprise Risk Management Committee and the Audit and Risk Committee, on the status of ASX Clear (Futures)' risk management goals and objectives. Reporting and measurement mechanisms include risk model reviews, international benchmarking, risk profiling and analysis, internal audit reviews, regulatory assurance reviews, and periodic analysis and reporting of key system service availability and capacity utilisation metrics (see Principles 3, 15, 17).
- Operating Rules and Procedures, together with other participant communications such as market notices, consultation papers and fact sheets, provide transparency to

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16 ASIC's 2013 *Market Assessment Report: ASX Group*, released 28 July 2014, is available at <https://www.asic.gov.au/asic/asic.nsf/byheadline/Reports?openDocument>.

participants and other stakeholders regarding the operation of the ASX Clear (Futures) facility (see Principle 23).

The Audit and Risk Committee has responsibility for considering management reports regarding the effectiveness of ASX Clear (Futures)' risk management framework and processes. The Committee is assisted in this area by Internal Audit, Enterprise Risk and Regulatory Assurance. The Audit and Risk Committee considers reports from these departments on the appropriateness and effectiveness of internal controls, and action taken or proposed in response to assessments conducted by ASIC or the Bank.

21.3 A central counterparty should have established mechanisms for the regular review of its efficiency and effectiveness.

In addition to periodic reporting to the CS Boards and relevant committees under ASX Group's corporate governance framework (see Principle 2 and Key Consideration 21.2), relevant Group Executives also report to the CEO on a monthly basis. Metrics contained within these reports include key measures of system availability and capacity utilisation, and key clearing statistics (such as open interest, option expiry, contract delivery and turnover data), technical incident reporting, and new products/asset classes. Other issues reported include the cause and resolution of problems associated with physical deliveries, and the payment and receipt of cash settlements and margin calls, operational incidents and participant complaints.

The Genium (previously SECUR) and Calypso clearing systems both operate to a 99.8 per cent minimum business service availability target. Capacity utilisation is continually monitored to maintain capacity headroom of 50 per cent above peak utilisation. These objectives were met in 2013/14 (see Key Consideration 17.3).

Responsibility for the regular review of ASX Clear's efficiency and effectiveness is shared between a number of committees and departments within the ASX Group.

- CROCC oversees matters relating to ASX Clear (Futures)' fair and effective obligations under its Australian CS facilities licence. Section 821E of the Corporations Act requires ASX Clear (Futures) to provide a report to ASIC within three months of the end of its financial year on the extent to which the licensee has complied with the conditions of its licence.
- CALCO oversees the structural integrity and efficient use of liquidity, on- and off-balance sheet assets, liabilities and the capital resources of the ASX Group, including ASX Clear (Futures).
- As part of its commitment to continuous improvement, the ASX Operations and Risk divisions have adopted a comprehensive suite of policies and procedures to support the governance and internal review of ASX Clear (Futures). These policies and procedures are reviewed on a regular basis (see Principles 2, 3).
- ASX Compliance monitors and enforces participants' compliance with the ASX Clear (Futures) Operating Rules. Other departments within ASX Group assist ASX Compliance in monitoring ASX Clear (Futures)' performance of its licence obligations.

Principle 22: Communication procedures and standards

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

Rating: Observed

ASIC's assessment is that ASX Clear (Futures) observes the requirements of Principle 22. ASX Clear (Futures)' approach to communication procedures and standards is described in further detail under the following Key Consideration.

22.1 A central counterparty should use, or at a minimum accommodate, internationally accepted communication procedures and standards.

ASX Clear (Futures) has procedures in place to determine the impact of and actions required to accommodate changes in internationally accepted communications protocols. ASX Clear (Futures) also has processes and procedures for the notification of changes to users and other relevant stakeholders, including system vendors. Each new business requirement is analysed in order to identify the most appropriate means of integrating changes to communication protocols, with a particular focus on standardisation and open connectivity.

On 19 May 2014, ASX Clear (Futures) migrated from the SECUR 17.2 clearing system to the Genium INET clearing system (see Principle 17). Participants are now able to validate production connectivity either from the Genium Clearing Workstation application or via a proprietary application programming interface (API) directly to Genium. The Genium Clearing Workstation application is supported on Windows 7.

ASX Clear (Futures) uses the OMnet API as an industry recognised communication standard to facilitate and manage the clearing message flow for financial products traded on ASX 24. The OMnet API is used in exchanges in Asia and Europe (e.g. the Singapore exchange and several Scandinavian exchanges). OMnet API clearing messages are distributed over the ASX Net E2 network to central gateways via a single virtual IP address (IP version 4).

Off-market futures block trades, exchange-for-physical trades, telephone trades (in the event ASX 24 is unavailable) and index basket transactions or 'strip' trades are reported to ASX Clear (Futures) via ASX TradeAccept. TradeAccept is a secure, web-based portal application.

ASX Clear (Futures) uses the Calypso clearing system to support the clearing of bilaterally executed OTC interest rate derivatives. Calypso is used internationally by the majority of global OTC derivatives CCPs, with participants able to communicate with ASX Clear (Futures) via Calypso's flexible connectivity framework.

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

A central counterparty should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the central counterparty. All relevant rules and key procedures should be publicly disclosed.

Rating: Observed

ASIC's and the Bank's assessment is that ASX Clear (Futures) observes the requirements of Principle 23. ASX Clear (Futures)' disclosure of rules, key policies and procedures, and market data is described in further detail under the following Key Considerations.

23.1 A central counterparty should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.

ASX Clear (Futures)' Operating Rules and Procedures form the basis of all material aspects of the CCP's service to participants. The Operating Rules are disclosed on the ASX public website.[17] The Operating Rules are also posted on the ASX participant website, along with Procedures relevant to participants. The OTC Handbook is also available from the ASX public website.

To assist participants in their understanding of the risks of participating in ASX Clear (Futures), and for the information of other interested stakeholders, ASX publishes a range of additional material on its public website. Information specific to ASX Clear (Futures) 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 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. During 2013/14, ASX redesigned its website, one element of which involved centralising links to information required to be disclosed under the Principles.

Specific disclosure requirements are dealt with under Key Considerations 1.3, 2.2, 13.3, 14.4, 16.4, 18.2 and 18.3.

23.2 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.

General descriptions of ASX Clear (Futures)' system design and operations are available on the ASX public website, including as part of ASX's response to the CPSS-IOSCO Disclosure Framework (see Key Consideration 23.5).[18] The Disclosure Framework document describes the ASX group structure, provides a general description of the CS facilities and their roles, system design and operations, outlines the legal and regulatory framework for clearing and settlement, and provides a description of steps taken by ASX to ensure compliance with the Principles and the corresponding FSS. The ASX public website provides additional information on system design and operations, including descriptions of the exchange-traded and OTC derivatives clearing processes and margining approaches.

ASX maintains 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

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17 Available at <http://www.asx.com.au/regulation/rules/asx-clear-futures-operating-rules.htm>.

18 Available at <http://www.asx.com.au/documents/regulation/pfmi_disclosure_framework.pdf>.

which novation occurs, and the scope of contractual arrangements.[19] Part 3 of the ASX Clear (Futures) 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 (Futures) assumes the risk exposure of a trade for transactions on the ASX 24 market (see Key Consideration 1.4). The conditions and timing for the novation of an OTC derivatives trade are outlined in the OTC Rules and the OTC Handbook.

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

All applicants for participation in ASX Clear (Futures) 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 (Futures) has completed an initial assessment of an application, the applicant is also invited to attend formal 'on boarding' meetings with the Compliance, CRM and Operations departments to discuss key areas of importance for participants.

As part of the formal admission process, the applicant must provide supporting evidence of its capacity to comply with the rules. This is reviewed and discussed with the applicant prior to approving admission. For example, 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 details of participants' arrangements to ensure compliance with the Operating Rules and Procedures.

Where ASX becomes aware or suspects that a participant lacks a satisfactory 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 routine 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 arising from delays in the intraday allocation of client positions. Steps available to ASX to address serious matters may include: ASX Clear (Futures) calling for AIM or additional cover from the 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 Key Consideration 17.7).

23.4 A central counterparty should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The central counterparty should provide clear descriptions of priced services for comparability purposes.

A full breakdown of the various fees ASX Clear (Futures) charges for the individual services it offers, including available discount and incentive schemes, is published on the ASX website.

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[19] Available at <http://www.asx.com.au/documents/clearing/131001_Default_Management_-_Public_Information_Document_v1.pdf>.

Fee schedules are available for each CS facility ASX operates.[20] Fees charged on exchange-traded derivatives are generally bundled as a single trading and clearing registration fee, although separate fees are charged for futures cash settlements, physical deliveries and the exercise of options.

ASX Clear (Futures) publishes a description of its priced services and how its fee structure has been calculated in a variety of ways, including on the ASX website and via participant notices. ASX Clear (Futures) announces changes to its fee structure via notices to participants that are publicly available.

23.5 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 data on transaction volumes and values.

ASX has published its response to the CPSS-IOSCO Disclosure Framework, including information describing how its CS facilities observe the applicable Principles. This document was revised during 2013/14, expanding on a previous version that summarised ASX's approach to observance of the Principles with greater detail as to how the CS facilities meet the Principles. ASX plans to update this document quarterly and further enhance its disclosure as necessary from time to time.

ASX currently reports basic risk and activity data for the CS facilities via a monthly activity report, as well as through additional data published on its website. In December 2013, CPSS and IOSCO published a draft set of quantitative disclosure standards for CCPs that are intended to complement descriptive disclosures under the Disclosure Framework. Once a finalised version of these standards comes into effect, ASX Clear (Futures) will be expected to expand the range of quantitative risk and activity data that it publicly discloses.

Principle 24: Disclosure of market data by trade repositories

A trade repository should provide timely and accurate data to relevant authorities and the public in line with their respective needs.

Rating: Not applicable

Principle 24 is not relevant to central counterparties.

[20] The ASX Clear (Futures) fee schedule is available at <https://www.asxonline.com/intradoc-cgi/groups/participant_services/documents/information/asx_027438.pdf>.

A2. Details Supporting Assessment of Securities Settlement Facilities

The following provides detailed evidence relevant to the Australian Securities and Investments Commission's (ASIC's) and the Reserve Bank's (the Bank's) assessment of how the securities settlement facilities (SSFs) ASX Settlement Pty Limited (ASX Settlement) and Austraclear Limited (Austraclear) observe each of the relevant Principles and underlying Key Considerations of the *Principles for Financial Market Infrastructures* (the PFMIs) developed by the Committee on Payment and Settlement Systems (CPSS, now the Committee on Payments and Market Infrastructure (CPMI)) and the Technical Committee of the International Organization of Securities Commissions (IOSCO). It includes ASIC's and the Bank's ratings of how well ASX Settlement and Austraclear comply with each of the Principles at 30 June 2014.[1]

A2.1 ASX Settlement

ASX Settlement is a wholly owned subsidiary of ASX Settlement Corporation Limited, itself a wholly owned subsidiary of ASX Limited (see 'ASX Group Structure' in Section 2.3.1). ASX Settlement is an SSF that provides settlement services for the ASX market and, through ASX's Trade Acceptance Service, Approved Market Operators (AMOs) such as Chi-X Australia Pty Ltd (Chi-X). ASX Settlement also provides a delivery-versus-payment (DvP) settlement service for a small number of transactions undertaken on other markets that provide a platform for trading securities that are not listed on the ASX market, such as the National Stock Exchange of Australia, through ASX's Settlement Facilitation Service. This service is an alternative to the transfer service previously offered to these Approved Listing Market Operators (ALMOs). In May 2014 ASX Settlement launched the mFund Settlement Service for unlisted managed funds.

Principle 1: Legal basis

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

Rating: Observed

ASIC's and the Bank's assessment is that ASX Settlement observes the requirements of Principle 1. The legal basis of ASX Settlement is described in further detail under the following Key Considerations.

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

Legal basis

ASX Settlement's settlement and netting arrangements for transactions entered into by its participants require a high degree of legal certainty. Key components of the legal framework under which the SSF operates are:

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[1] For an explanation of ASIC's and the Bank's Assessment approach and the ratings scale used, see Section 3.1.

- ASX Settlement holds a clearing and settlement (CS) facility licence, under Part 7.3 of the *Corporations Act 2001*. This licence is administered by ASIC in consultation with the Bank, with the Minister acting as ultimate decision-maker on licensing matters.
- ASX Settlement has defined Operating Rules and Procedures. Under section 822B of the Corporations Act, these Operating Rules and Procedures have effect as a contract under seal between: ASX Settlement and each of its participants; each participant and each other participant; and each participant and each issuer. The Operating Rules and Procedures set out the rights and obligations of participants and ASX Settlement, including in the event of default or suspension.
- The netting arrangements contained in ASX Settlement's Operating Rules are protected as an 'approved netting arrangement' under Part 3 of the PSNA, and the finality of money settlements is supported by the approval of the Reserve Bank Information and Transfer System (RITS) as a real-time gross settlement (RTGS) system under Part 2 of the PSNA (Key Consideration 1.4).
- ASX Settlement is a 'prescribed CS facility' for the purposes of Part 7.11, Division 4, of the Corporations Act. Section 1074D of the Corporations Act protects the validity of the transfer of a financial product effected through a prescribed CS facility in accordance with that facility's Operating Rules. Section 10 of the ASX Settlement Operating Rules specifies when transactions are taken to be settled.

The legal basis of ASX Settlement's activities is reviewed by ASX Legal whenever there are material amendments to the Operating Rules or Procedures. Four such reviews occurred for ASX Settlement during 2013/14.

Legal entity

ASX Settlement is a wholly owned subsidiary of ASX Settlement Corporation Limited, which is itself a wholly owned subsidiary of ASX Limited. As a separate legal entity, ASX Settlement's securities settlement 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 Settlement's services are limited to settlement services for the ASX market and other AMOs, such as Chi-X, through the Trade Acceptance Service, a DvP settlement service for a small number of transactions undertaken on ALMOs through the Settlement Facilitation Service, and the mFund Settlement Service for subscriptions and redemption transactions in unlisted managed funds. Accordingly, ASX Settlement does not provide any services that have a distinct profile from, or pose additional risks to, its activity of operating a SSF.

Rights and interests

The rights and interests of ASX Settlement, its participants and, where relevant, its participants' customers in securities held in the Clearing House Electronic Sub-register System (CHESS) are defined in ASX Settlement's Operating Rules and Procedures (see Principle 11).

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

Section 822A of the Corporations Act establishes a framework to prescribe the matters that must be dealt with in the Operating Rules and those that may be considered under the Procedures. Rule changes are subject to a ministerial disallowance process.

ASX Settlement's Operating Rules and Procedures are supplemented with explanatory material, published on ASX's public website and ASX's restricted participant website, to support participants' (and prospective participants') understanding of the risks they face through participation in the system. Publicly available material includes high-level descriptions of ASX Settlement's operations and settlement process, business continuity arrangements and the Default Management Framework (as it applies to participants that also participate in ASX Clear). Participants have access to additional manuals, reports and explanatory notes covering such topics as the application process for new participants, compliance, technical and operational details and fees.

There is a clear process for changing ASX Settlement's Operating Rules and Procedures. Proposed rule changes may be submitted informally to ASIC. In consultation with the Bank, ASIC will consider the changes and advise ASX of any regulatory concerns. Once such concerns are satisfactorily addressed, ASIC will invite formal submission of the proposed changes, which triggers a 28-day 'disallowance' period, during which the Minister may choose to disallow the 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. If changes to the Operating Rules are not disallowed by the Minister, they are notified to participants via the ASX website.

1.3 A securities settlement facility should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.

The legal basis for the activities of ASX Settlement and the facility's protection as an approved netting arrangement under the PSNA – see also Key Consideration 1.4 – are described on the ASX public website in its Disclosure Framework document, which sets out in detail how each CS facility meets the requirements of each Principle within the *Principles for Financial Market Infrastructures* (PFMIs) developed by the Committee on Payment and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO) (see Key Consideration 23.2).[2]

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

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

1.4 A securities settlement facility should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the securities settlement facility under such rules and procedures will not be voided, reversed, or subject to stays.

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2 Available at <http://www.asx.com.au/documents/regulation/pfmi_disclosure_framework.pdf>.

Settlement finality

The finality of ASX Settlement's settlement process is protected by:

- its approval as a netting arrangement under Part 3 of the PSNA. This approval protects the finality of settlements made in ASX Settlement's multilateral net batch in the event of a participant entering external administration (see Key Consideration 8.1)
- the approval of RITS as an RTGS system under Part 2 of the PSNA (see Principle 9). This approval protects payments from being voided in the case of a Payment Provider entering external administration
- its designation as a 'prescribed CS facility' for the purposes of Part 7.11, Division 4 of the Corporations Act, in relation to the transfer of financial products effected through the settlement facility.

Enforceability of ASX rules while under external administration

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

1.5 A securities settlement facility conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.

Although ASX Settlement's operations are based in Australia, participants of ASX Settlement include subsidiaries and branches of entities that are based in foreign countries. ASX Settlement's Operating Rules are governed by Australian law and require that all of its participants submit to the non-exclusive jurisdiction of New South Wales courts. ASX Legal's analysis of potential conflicts of law across jurisdictions has identified no material legal risks.

Principle 2: Governance

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

Rating: Observed

ASIC's and the Bank's assessment is that ASX Settlement observes the requirements of Principle 2. ASX Settlement's governance arrangements are described in further detail under the following Key Considerations.

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

The high-level objectives of ASX Settlement are set out in the CS Boards' Charter, which is available on the ASX public website. The objectives prioritise the Boards' responsibilities in the area of risk management and, in particular, ASX Settlement's responsibility for complying with the Bank's Financial Stability Standards (FSS), which are aligned with stability-related requirements of the Principles.

ASX Settlement's objectives recognise the public interest. These objectives are reflected in the ASX Limited Board Charter, which provides that the Board has a responsibility to oversee the conduct of the 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 (dealing with licensing of CS facilities). These include that ASX Settlement, to the extent that 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 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 Settlement'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 Key Consideration 2.7). Consultations and responses to consultations are made available on the ASX 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 (the Forum) met for the first time in October 2013. The Forum provides user feedback in relation to the ongoing development of cash market clearing and settlement infrastructure and services.[3] 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 Key Consideration 2.7).[4]

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

The governance arrangements of ASX Settlement are documented on the ASX public website. This documentation includes the Charters of the ASX Limited Board, the CS Boards (including that of ASX Settlement), 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 settlement facilities; namely the Managing Director and CEO, and the Executive responsible for settlement risk. Profiles of CS facility directors are

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

4 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>.

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 CPSS-IOSCO Principles; group and business structure, including an organisational chart showing senior group executives; and risk management policies (in summary form).

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

Ultimate responsibility for the oversight of risks faced by ASX Settlement lies with the ASX Limited Board and the ASX Settlement Board. The ASX Limited Board is responsible for the overall business strategy of the ASX Group, and oversight of enterprise risk management policy. The ASX Limited Board Charter delegates certain responsibilities to the ASX Settlement Board, including the review and oversight of ASX Settlement's settlement-related risk, and its compliance with the FSS. The CS Boards' Charter elaborates on other roles and responsibilities of the ASX Settlement 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. The ASX Settlement Board meets regularly (seven times in 2013/14) and receives detailed reports on ASX Settlement's business and operations, risk management and financial performance.

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 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 also 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. If there is a real possibility of a material conflict of interest and duty on a matter subject to vote 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 contain suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board member(s).

At the end of 2013/14, the ASX Limited Board had eight members, comprising the ASX CEO and seven 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 Settlement Board comprises one executive director (the ASX CEO) and five non-executive directors. During 2013/14, one non-executive director resigned and two new directors were appointed. Two of the non-executive directors are also members of the ASX Limited Board, while the remaining three, including the Chair, are external directors appointed for their expertise in clearing and settlement operational and risk management matters. This ensures that directors have the capacity to conduct informed independent review of relevant issues. During 2013/14 ASX made changes to the composition of the CS Boards. Previously, all four CS Boards shared common directors; now, the ASX Clear and ASX Settlement Boards share common directors, but one of these directors does not serve on the ASX Clear (Futures) or Austraclear Boards. This change was made primarily for business reasons, but also supports ASX's conflict handling arrangements (see below under 'Group structure').

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 the ASX website.[5] 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 the ASX 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 Settlement 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 on the recommendation of the Remuneration Committee at regular 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 may take advice from an external remuneration consultant. The process involves benchmarking against a group of peer companies. The last fee review took place at the end of 2013 following changes to relevant governance and regulatory arrangements. The revised fees took effect on 1 January 2014.

Group structure

[5] Available at < http://www.asx.com.au/documents/regulation/ASXL_guidelines_affecting_independent_status.PDF>.

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 and the Principles. ASX considers that there is limited potential for shared directorships to create conflicts between ASX's group-wide commercial interests and the risk management function of the CS facilities. More broadly, it considers that conflicts between directors' roles on the CS Boards and the ASX Limited Board are unlikely given the distinct roles the separate entities perform, and in view of group-wide arrangements to manage matters such as operations and compliance. If a conflict were to arise, a director sitting on multiple CS Boards would be expected to make decisions in the best interests of each facility.

The restructuring of the CS Boards to reduce the number of common directors between each of the CS facilities and ASX Limited further limits the potential for conflict. Two directors will now be able to form a quorum of the ASX Settlement Board, allowing matters that raise potential conflicts of interest to be considered and voted on without the involvement of directors that are also on the ASX Limited Board.

2.5 The roles and responsibilities of management should be clearly specified. A securities settlement facility's management should have the appropriate experience, mix of skills and integrity necessary to discharge their responsibilities for the operation and risk management of the securities settlement facility.

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 Group Executive, Operations (GE, Operations). The Managing Director and CEO has responsibility for the overall operational and business management and profit performance of ASX, while the GE, Operations is responsible for the overall settlement risk management of the CS facilities and for ensuring that the SSFs meet the regulatory obligations placed on them. The GE, Operations has a direct reporting line to the CS Boards.

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 GE, Operations. The CS Boards provide input on the setting of Key

Performance Indicators and may review the performance outcomes for the CRO and the GE, Operations.

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 Human Resources to identify and manage the development of high potential staff according to individual and business needs. Succession and contingency planning is conducted for Group Executives, General Managers and other key staff.

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

ASX has a documented risk management framework, which is described under Key Consideration 3.1. The CS Boards are responsible for approving and reviewing high-level risk management policy. The Boards approve all new clearing and settlement risk policies and standards, as well as material changes to existing clearing and settlement policies and standards. The Boards consider these policies and standards at a concurrent meeting; where the policy or standard is relevant to more than one facility, the Boards of those facilities would simultaneously determine whether to approve the policy or standard. If the policy requirements under consideration differ across facilities, the Boards of each relevant facility would separately determine whether to approve the policy or standard (during the concurrent meeting). Board feedback is incorporated before risk policies and standards are approved.

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

- Detailed reporting to the CS Boards occurs quarterly on the implementation of risk management policies and standards relevant to clearing and settlement operations, and on broader management and operational matters. Internal Audit conducts a rotational risk-based audit program, which includes ensuring that relevant operational departments comply with Board-approved policies and standards, where necessary using external specialists to assist with reviews. The CS Boards may also request external reviews. The ASX Settlement Risk Policy Framework, which provides a formal structure for the development, governance and review of settlement risk policies and standards, was approved by the CS Boards in November 2013, and will be reviewed annually. ASX are currently in the process of formally documenting the policies and standards referenced in the Framework. The Bank will continue to monitor the implementation of those policies and standards.
- 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 departments, 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 departments.

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

Directors are entitled to obtain independent advice. The 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.

Internal audit

ASX maintains an internal audit plan that provides for a three-to-five year review cycle of key operational and risk management processes, and internal control mechanisms that are governed by ASX's Enterprise Risk 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 the ASX public website.

The Internal Audit department is a separate department within ASX that reports to the CRO for administrative purposes, and the Audit and Risk Committee and Managing Director and CEO for audit purposes. The Internal Audit department's reporting structure also includes reports to the CS Boards and ASX Compliance Board. Internal Audit's 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 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 department 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 such audit was carried out in 2011, with the next assessment scheduled for October/November 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.[6] 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.

2.7 The board should ensure that the securities settlement facility's design, rules, overall strategy and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.

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

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

Under the Code of Practice, ASX has established the Forum, an advisory body that allows 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 provides a mechanism for ASX to engage with users in relation to the ongoing development of cash market clearing and settlement infrastructure 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 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, operation and development of the core clearing and settlement infrastructure for the Australian cash equity market, including CHESS.

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[6] 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.

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. Members are appointed for a term of two years. 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 held in October 2013. Upcoming meeting dates, agendas and minutes are all published on a dedicated website, together with a summary of key issues discussed and the Forum's recommendations for the CS Boards. 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 AMOs, and provides business and operational input on the Forum's forward work program. Business Committee meetings are held four to six weeks prior to Forum meetings.

The Forum and Business Committee have progressed three main work streams during 2013/14:

- a proposed move to a shortened two-day settlement cycle for equities
- replacement of the CHESS clearing and settlement system, including review of messaging standards
- international benchmarking of cash market clearing and settlement prices.

Principle 3: Framework for the comprehensive management of risks

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

Rating: Broadly observed

The Bank's assessment is that ASX Settlement broadly observes the requirements of Principle 3. In order to fully observe Principle 3, ASX Settlement should:

- implement plans to enhance its recovery plan consistent with forthcoming CPSS-IOSCO guidance on recovery planning.

ASX Settlement's risk management framework is described in further detail under the following Key Considerations.

3.1 A securities settlement facility should have risk-management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the securities settlement facility. Risk-management frameworks should be subject to periodic review.

Identification of risk

ASX's high-level framework for risk management is described in its Enterprise Risk Management Policy. This policy divides risks identified by ASX into two broad categories: 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 on Implementation* (see Key Consideration 2.6).[7] 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 departments. Managers of each department are responsible for identifying and monitoring risks relevant to their department's activities, as well as for designing and implementing risk management policies and controls to manage identified risks. Department 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 2013/14, ASX adopted an updated and formalised settlement risk policy framework to better align both it and related governance structures with the requirements of the Principles embedded in the FSS. The Settlement Risk Policy Framework sets out a comprehensive set of settlement-related risk policies to support the risk management approach of ASX's SSFs, including ASX Settlement. These policies govern more detailed internal standards, which in turn govern specific procedures for the management of settlement-related risks. The structure of policies, standards and procedures reflects the requirements of the FSS. ASX will be continuing work to finalise and update the policies and standards covering all relevant aspects of the FSS, which it aims to complete during 2014/15. The Bank will continue to monitor the progress made in this work.

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

- *The CS Boards*. Each CS facility has a board (see Key Consideration 2.3 and 'ASX Group Structure' in Section 2.3.1), which shares members with the other ASX CS facilities, has oversight of the Settlement Risk Policy Framework, and is responsible for any significant amendments. Policies and designated key standards under the Framework are governed by the CS Boards.

[7] 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.

- *The Settlement Risk Policy Committee (SRPC)*. The SRPC was formed in November 2013, to review and approve clearing risk policies and standards prior to submission to the CS Boards. The SRPC is chaired by the GE, Operations and includes the ASX Group Legal Counsel, General Manager of Clearing and Settlement Operations and the General Manager of Settlement Services. It will meet as needed when settlement risk policy matters arise.
- *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 settlement risk policies related to developments in 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 SSF Risk, Operations and Compliance Committee (SROCC)*. SROCC is chaired by the GE, Operations and is made up of senior managers and executives from the settlement 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 risk, operational or compliance risk, and manage settlement risk. The SROCC currently meets on a monthly basis.
- *The Participant Incident Response Committee (PIRC)*. The PIRC is responsible for coordinating ASX's response to a settlement participant incident, and provide input into policy determinations and settings as necessary in response to such an incident. The PIRC is chaired by the GE, Operations, and is made up of senior staff from operational, risk management, compliance and legal departments. Meetings of the PIRC are convened as required to address an actual or potential participant incident.

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 departments 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 PricewaterhouseCoopers in 2011 and the next review is scheduled for the second half of 2015.

Previously, the Enterprise Risk Management Policy was reviewed by the Audit and Risk Committee approximately every three years, with the committee informed of material changes in the interim. Following the most recent review in August 2013, future reviews will be conducted on a two year cycle.

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

ASX Settlement may 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 settlement arrangements.

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

ASX Settlement 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 department risk profiles, see Key Consideration 3.1), and its processes for identifying risks associated with new activities. In the case of new products and services, ASX undertakes risk assessments when undertaking an expansion of its activities or in the event of material changes to its business. Risk assessments are built into ASX's project management framework (see Key Considerations 15.1, 17.4).

For instance, ASX Settlement has identified risks to its operational activities arising from participants' increased usage of third-party vendors for back-office systems, and participants' offshore outsourcing of back-office processing. ASX Settlement has also identified interdependencies with service providers. ASX Settlement's response to these interdependencies is outlined in Key Consideration 17.4.

Interdependencies with ASX Clear for the settlement of novated transactions are managed within the context of ASX Group's broader risk management framework (see Principle 20).

3.4 A securities settlement facility should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. A securities settlement facility should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, a securities settlement facility should also provide relevant authorities with the information needed for purposes of resolution planning

ASX Settlement has developed a basic recovery plan that identifies scenarios that could threaten its ongoing provision of critical settlement services. The plan describes how ASX Settlement would respond to such scenarios using existing powers under its Operating Rules and Procedures. The recovery plan sets out the likely sequence of actions that ASX would take under each identified recovery scenario, and analyses the advantages and disadvantages of tools available to ASX Settlement to respond to such scenarios.

ASX Settlement has commenced work to develop a more comprehensive recovery plan in line with forthcoming CPSS-IOSCO guidance on recovery planning, expected to be published in late 2014. As part of this process, ASX will consider whether there is a need for enhancements to the ASX Settlement Operating Rules to address non default-related losses in light of the forthcoming guidance.

Principle 4: Credit risk

A securities settlement facility should effectively measure, monitor and manage its credit exposures to participants and those arising from its payment, clearing and settlement processes. A securities settlement facility should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. 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 sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the 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 to the central counterparty in extreme but plausible market conditions.

Rating: Not applicable

ASX Settlement does not extend credit to participants or provide a settlement guarantee. Accordingly, ASX Settlement does not assume credit risk as principal. ASX Settlement's use of a DvP settlement mechanism ensures that participants do not face credit risks arising from ASX Settlement's settlement processes (see Principle 12).

The Bank has concluded that SSF Standard 4 does not apply to ASX Settlement.

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

Not applicable to ASX Settlement.

4.2 A securities settlement facility should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk management tools to control these risks.

Not applicable to ASX Settlement.

4.3 A payment system or securities settlement facility should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a deferred net settlement payment system or deferred net settlement securities settlement facility in which there is no settlement guarantee, but where its participants face credit exposures arising from its payment, clearing and settlement processes such an FMI should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.

Not applicable to ASX Settlement.

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 Principle 5 on collateral and Principle 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.

Key Consideration 4.4 is not relevant to securities settlement facilities.

4.5 A central counterparty should, determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A 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 total financial resources. 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 counterparties 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.

Key Consideration 4.5 is not relevant to securities settlement facilities.

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.

Key Consideration 4.6 is not relevant to securities settlement facilities.

4.7 A securities settlement facility should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the securities settlement facility. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds a securities settlement facility may borrow from liquidity providers. These rules and procedures should also indicate the securities settlement facility's process to replenish any financial resources that the

securities settlement facility may employ during a stress event, so that the securities settlement facility can continue to operate in a safe and sound manner.

Not applicable to ASX Settlement.

Principle 5: Collateral

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

Rating: Not applicable

Since ASX Settlement does not assume credit risk as principal (see Principle 4), it does not collect collateral from participants.

The Bank has concluded that Principle 5 does not apply to ASX Settlement.

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

Not applicable to ASX Settlement.

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

Not applicable to ASX Settlement.

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

Not applicable to ASX Settlement.

5.4 A securities settlement facility should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.

Not applicable to ASX Settlement.

5.5 A securities settlement facility that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.

Not applicable to ASX Settlement.

5.6 A securities settlement facility should use a collateral management system that is well designed and operationally flexible.

Not applicable to ASX Settlement.

Principle 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: Not applicable

Principle 6 is not relevant to securities settlement facilities.

Principle 7: Liquidity risk

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

Rating: Observed

The Bank's assessment is that ASX Settlement observes the requirements of Principle 7. ASX Settlement's arrangements to measure and monitor liquidity risk for its participants are described in further detail under the following Key Considerations.

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

ASX Settlement conducts its settlements on a DvP Model 3 basis in a multilateral net batch (see Key Consideration 12.1). While ASX Settlement does not assume any payment obligations in the batch settlement process, and hence does not assume liquidity risk as principal, the nature of the multilateral net batch creates liquidity exposures between participants.

The default of a participant with a payment obligation in the batch may require the reconstitution of the batch to bring the payment obligations of the defaulting participant down to zero (net of any liquidity injection by ASX Clear in respect of novated transactions).[8] For non-novated transactions, this is done by removing transactions of the defaulting participant from the batch. These transactions are typically entered into solely to 'prime' the settlement accounts of participants to meet delivery obligations related to the settlement of novated transactions and occur late in the settlement cycle, at a time when the relevant participant is well positioned to meet these obligations. Non-novated transactions are bilateral and hence not subject to the protection of the central counterparty (CCP).

For novated transactions, however, reconstitution of the batch is achieved by injecting new transactions by way of 'offsetting transaction arrangements' with participants due to deliver securities (see Key Consideration 13.3 and Appendix A1.1, Key Consideration 7.4). Offsetting transaction arrangements were introduced by ASX Clear and ASX Settlement in April 2014 to deal with shortfalls of funds related to novated transactions. Under these arrangements, ASX Clear would meet any payment obligations to allow securities delivery transactions to settle as intended, with participants providing the funds for settlement via separate repurchase

[8] ASX Clear will seek to meet payment obligations of the defaulting participant out of its prefunded liquid resources where possible and prudent. However, if it was not possible or prudent to rely solely on prefunded liquidity, ASX Clear may rely on the use of offsetting transaction arrangements with participants to allow novated transactions of the defaulting participant to settle.

transactions for the same stock to unwind the next day. These arrangements provide *ex ante* clarity by explicitly recognising and formalising the role of participants in providing liquidity to ASX Clear to allow settlement to occur as scheduled.

Reconstitution of the batch could create liquidity pressures for non-defaulting participants due to receive funds in respect of transactions that are removed. ASX Settlement seeks to minimise these liquidity pressures through the use of its procedures to back out non-novated transactions or inject offsetting transaction arrangements into the batch in respect of novated transactions (see Key Consideration 13.3). Under these procedures, transactions are removed from the batch or settled by way of offsetting transaction arrangements in such a way as to ensure that non-defaulting participants' payment obligations do not increase. While non-defaulting participants due to receive a net payment of funds in the batch may be exposed to liquidity risk associated with a reduction in expected receipts, ASX Settlement's back-out algorithm is designed to ensure that receipt expected by a participant does not become a payment obligation, and disperses this liquidity risk across a number of participants through a random allocation mechanism.

7.2 A securities settlement facility should have effective operational and analytical tools to identify, measure and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.

Since ASX Settlement does not assume liquidity risk as principal, it does not have payment obligations related to settlement.

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

In the event of a participant default, ASX Settlement uses its backout algorithm to reconstitute the batch and select transactions to be settled via an offsetting transaction arrangement. The outcome of the algorithm is dependent on the mix and profile of transactions scheduled for settlement at the time it is run, so it is not possible for ASX Settlement to provide detailed *ex ante* information to participants on how their settlement obligations might change in the event of a default. However, ASX Settlement's back-out arrangements are described in Section 10 of the ASX Settlement Operating Rules, as well as in related Procedures available to participants. Furthermore, during consultation with participants on the introduction of offsetting transaction arrangements, ASX released a consultation paper and subsequent explanatory note outlining the operation and potential liquidity impact of offsetting transaction arrangements (see Key Consideration 7.1). The Bank will discuss further with ASX whether any additional information could be disclosed to participants on the potential liquidity impact of reconstitution of the batch and implementation of offsetting transaction arrangements. This will be done in the context of ASX Clear's planned review of liquidity stress-testing arrangements (see Appendix A1.1, Key Consideration 7.9).

7.3 A payment system or securities settlement facility including one employing a deferred net settlement mechanism should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate, intraday or multiday settlement of payment obligations with a high degree of confidence under a wide range of potential

stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.

Since ASX Settlement does not assume liquidity risk as principal, it does not need to maintain liquid resources to cover payment obligations.

7.4 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.

Key Consideration 7.4 is not relevant to securities settlement facilities.

7.5 For the purpose of meeting its minimum liquid resource requirement, a securities settlement facility's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If a securities settlement facility has access to routine credit at the central bank of issue, the securities settlement facility may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.

Since ASX Settlement does not assume liquidity risk as principal, it does not maintain liquid resources to cover payment obligations in stressed scenarios (see Key Consideration 7.3).

7.6 A securities settlement facility may supplement its qualifying liquid resources with other forms of liquid resources. If the securities settlement facility does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if a securities settlement facility does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. A securities settlement facility should not assume the availability of emergency central bank credit as a part of its liquidity plan.

Since ASX Settlement does not assume liquidity risk as principal, it does not maintain liquid resources to cover payment obligations in stressed scenarios (see Key Consideration 7.3).

7.7 A securities settlement facility should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the securities settlement facility or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. A securities settlement facility should regularly test its procedures for accessing its liquid resources at a liquidity provider.

Since ASX Settlement does not assume liquidity risk as principal, it does not maintain liquid resources to cover payment obligations in stressed scenarios (see Key Consideration 7.3).

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

ASX Settlement does not assume liquidity risk as principal.

7.9 A securities settlement facility should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. A securities settlement facility should have clear procedures to report the results of its stress tests to appropriate decision-makers at the securities settlement facility and to use these results to evaluate the adequacy of, and adjust, its liquidity risk management framework. In conducting stress testing, a securities settlement facility should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the securities settlement facility, include all entities that might pose material liquidity risks to the securities settlement facility (such as settlement banks, nostro agents, custodian banks, liquidity providers and linked FMIs), and where appropriate, cover a multiday period. In all cases, a securities settlement facility should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.

Since ASX Settlement does not assume liquidity risk as principal, it does not maintain liquid resources to cover payment obligations in stressed scenarios (see Key Consideration 7.3).

7.10 A securities settlement facility should establish explicit rules and procedures that enable the securities settlement facility to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the securities settlement facility's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

Since ASX Settlement does not assume liquidity risk as principal, it does not need rules and procedures to address a liquidity shortfall.

Principle 8: Settlement finality

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

Rating: Observed

The Bank's assessment is that ASX Settlement observes the requirements of Principle 8. ASX Settlement's arrangements for ensuring finality of settlements are described in further detail under the following Key Considerations.

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

The point at which settlement is final is defined in the ASX Settlement Operating Rules and Procedures. Settlement of securities transfers is final once ASX Settlement has recorded the transfers of securities in the settlement accounts of participants.

To provide legal certainty to the finality of its settlement process, ASX Settlement has obtained approval under Part 3 of the PSNA. In addition, money settlements between commercial settlement banks (known as Payment Providers) as part of the multilateral net batch fall within the scope of the approval of RITS as an RTGS system under Part 2 of the PSNA. With this approval, a payment executed in RITS at any time on the day on which a RITS participant enters external administration has the same standing as if the participant had gone into external administration on the next day. Accordingly, in the event of insolvency all transactions settled on the day of the insolvency are irrevocable and cannot be unwound.

8.2 A securities settlement facility should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. A securities settlement facility should consider adopting real-time gross settlement or multiple-batch processing during the settlement day.

Settlement of securities transactions in ASX Settlement occurs on a DvP Model 3 basis in a single net batch on the settlement day (value date). This involves the simultaneous transfer of net payment and net securities obligations between buyers and sellers at the end of the settlement cycle (see Key Consideration 12.1).

ASX Settlement has also developed the functionality to settle securities transactions on a DvP Model 1 basis (by individual line of stock) via its CHESS RTGS service. However, this service is not currently in use by any participants due to the relative netting efficiencies inherent in settling on a DvP Model 3 basis via a single batch. For the same reason, ASX Settlement currently has no plans to increase the frequency of batch settlement beyond once per day.

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

Participants have until settlement cut-off (typically 10.30 am) on the day of settlement to remove payment or transfer instructions from the settlement batch.

Principle 9: Money settlements

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

Rating: Observed

The Bank's assessment is that ASX Settlement observes the requirements of Principle 9. While existing arrangements meet the minimum standard, the Bank encourages ASX Settlement to work with ASX Clear to introduce a framework to formally engage Payment Providers on changes to settlement processes in response to regulatory or market-driven change.

ASX Settlement's money settlement arrangements are discussed in further detail under the following Key Considerations.

The description of money settlement arrangements in this Principle draws a distinction between 'money settlement agents' – the entities whose assets are used to settle the ultimate payment obligation – and 'settlement banks', which maintain accounts with the money settlement agent to settle their own obligations or those of other participants.

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

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

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

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

9.3 If a securities settlement facility settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, a securities settlement facility should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. A securities settlement facility should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.

Participants in ASX Settlement use commercial bank Payment Providers to effect money settlements on their behalf. Payment Providers must be approved by ASX Settlement and their provision of this service is governed by the terms of a standard deed (see Key Consideration 9.5). A Payment Provider must submit an application to ASX Settlement and meet the following criteria:

- be approved by APRA as an authorised deposit-taking institution (ADI) for the purpose of carrying out banking business within Australia
- be a member of RITS with an ESA

- have the operational capacity to make payments to participants and on behalf of participants
- have executed the standard client payment deed
- have the technical ability to connect to CHESS, and the technical and financial capacity to participate in DvP settlement.

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

Currently there are 12 Payment Providers. ASX periodically monitors the proportion of participants that use each Payment Provider, but this is not subject to frequent change. ASX has identified that two large Australian banks act as Payment Providers for a large share of participants; however, the average value of daily settlements involved is small relative to the financial and operational capacity of these banks.

The terms of Payment Provider arrangements are covered by 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 that act as commercial settlement banks for participants. Changes to the deed may be required to support the introduction of planned enhancements to settlement processes for client securities holdings (see Appendix A1.1, Principle 14). The process of updating the deed involves negotiation with APCA and Payment Providers, which can create delays in implementing changes to authorisation deadlines or other operational requirements required to support changes to the settlement process.

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

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

9.5 A securities settlement facility's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the securities settlement facility and its participants to manage credit and liquidity risks.

ASX Settlement does not conduct settlements via commercial bank money settlement agents. Participants' arrangements with Payment Providers are conducted under legal agreements between the parties involved. ASX Settlement does, however, maintain separate agreements with Payment Providers regarding operational requirements (see Key Consideration 9.3).

Principle 10: Physical deliveries

A securities settlement facility 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

ASX Settlement does not settle obligations requiring physical delivery.

The Bank has concluded that Principle 10 does not apply to ASX Settlement.

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

Not applicable to ASX Settlement.

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

Not applicable to ASX Settlement.

Principle 11: Central securities depositories

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

Rating: Observed

ASIC's and the Bank's assessment is that ASX Settlement observes the requirements of Principle 11. ASX Settlement's arrangements for its central securities depository activities are described in further detail under the following Key Considerations.

11.1 A central securities depository should have appropriate rules, procedures, and controls, including robust accounting practices, to safeguard the rights of securities issuers and holders, prevent the unauthorised creation or deletion of securities, and conduct periodic and at least daily reconciliation of securities issues it maintains.

ASX Settlement employs a range of controls to ensure the integrity of securities held in CHESS. It maintains dual redundancy and a synchronous data update model which ensures that securities holding data are consistent across primary and backup data centres (see Principle 17). A monthly statement is sent to securities holders to report changes in their holdings of securities on the CHESS sub-register, and issuer registries are sent daily information on the movement of securities to enable them accurately to maintain company registers.

Annual audits of CHESS system controls are conducted by an external auditor and the resulting report is published on the ASX website. These audits assess controls over transaction processing, as well as change management, security protocols, data system operations and disaster recovery planning. The auditor's opinion is provided under the Australian Government Auditing and Standards Board standard ASAE 3402 – Assurance

Report on Controls at a Service Organisation. ASX Internal Audit performs an additional risk-based audit of key CHESS functions on a rolling three-year cycle.

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

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

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

The transfer of title to securities in CHESS is given effect by electronic book entry. Settlement occurs via a DvP Model 3 process in a daily scheduled batch settlement cycle (see Key Consideration 12.1). The ASX Settlement Operating Rules and Procedures also provide for the free-of-payment transfer of securities, where required.

In the event of ASX Settlement's insolvency, the rules and arrangements for title within ASX Settlement provide a high degree of assurance that participants' securities would be immune from claims by ASX Settlement's creditors. ASX Settlement is not the legal owner of any participant or client assets; these assets are recorded in CHESS in the name of the participant or sponsored client.

11.2 A central securities depository should prohibit overdrafts and debit balances in securities accounts.

Participants do not maintain cash accounts with ASX Settlement, removing the possibility of overdrafts or the extension of credit. CHESS does not allow the movement of securities from a holding that exceeds the available securities in the holding, preventing any potential debit balance in securities accounts.

11.3 A central securities depository should maintain securities in an immobilised or dematerialised form for their transfer by book entry. Where appropriate, a central securities depository should provide incentives to immobilise or dematerialise securities.

Securities held in CHESS are dematerialised; securities underlying a CDI are immobilised and held by a nominee on behalf of the beneficial owner (see Key Consideration 11.1).

11.4 A central securities depository should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.

ASX Settlement has identified potential custody risks arising from negligence, misuse of assets, fraud, poor administration, or inadequate recordkeeping. Operational controls to mitigate these risks include segregation of duties, access restrictions and authorisation checks. ASX Settlement's Operating Rules allow ASX Settlement to give advice to a participant or issuer to correct an error that it has caused. If ASX Settlement causes an error in its securities holdings, it is responsible for correcting that error.

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

11.5 A central securities depository should employ a robust system that ensures segregation between the central securities depository's own assets and the securities of its participants and segregation among the securities of participants. Where supported by the legal framework, the central securities depository should also support operationally the segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings.

ASX Settlement is not the legal owner of any participant or client assets; these assets are recorded in CHESS in the name of the participant or sponsored client. CHESS provides an account structure that ensures the legal and operational segregation of participants' securities in CHESS and the segregation of clients' securities from those of participants. Under this account structure, securities are held against a unique Holder Identification Number for each client or participant.

However, during the settlement cycle there is a period in which securities have to be transferred into a separate 'entrepot' settlement account with no operational segregation between participant and client securities (reflecting the account structure at ASX Clear – see Appendix A1.1, Principle 14; see also Key Consideration 12.1). ASX Settlement's Operating Rules limit this period to 3 days. Prior to transfer to the settlement account, client securities may also be temporarily placed in an 'accumulation' account in the name of the participant. However, the client remains the beneficial owner of securities in the accumulation account until the point of transfer to the settlement account. ASX Settlement implemented rule changes in April 2014 to clarify the beneficial ownership of client securities held in accumulation accounts. In addition, ASX Settlement has proposed changes to the settlement process, due to be implemented in May 2015, that would allow client securities to be transferred into the settlement account shortly before settlement, minimising the time during which these are commingled with participant securities.

11.6 A central securities depository should identify, measure, monitor, and manage its risks from other activities that it may perform; additional tools may be necessary in order to address these risks.

ASX Settlement does not perform any ancillary activities that may pose a risk to the operation of its central securities depository function. It does not provide a centralised securities lending facility or act as a principal in securities lending transactions.

Principle 12: Exchange-of-value settlement systems

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

Rating: Observed

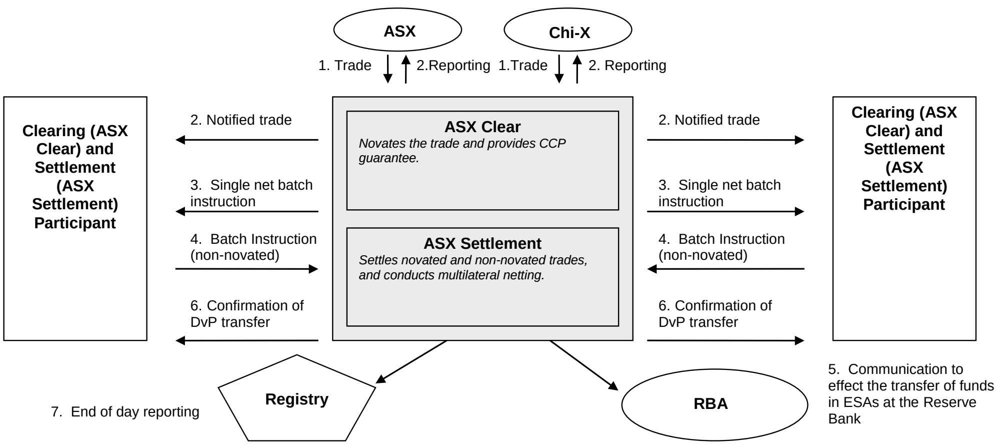
The Bank's assessment is that ASX Settlement observes the requirements of Principle 12. ASX Settlement's arrangements for exchange-of-value settlements are described in further detail under the following Key Considerations.

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

ASX Settlement eliminates principal risk by ensuring that the settlement of securities delivery obligations occurs if and only if associated payment obligations are settled. It does so by linking the final settlement of securities and payment obligations through a DvP Model 3 mechanism, where final securities and payments transfers occur contemporaneously on a multilateral net basis through a single batch of instructions. The settlement of securities via this mechanism involves several steps (including related steps taken for the clearing of novated transactions in ASX Clear and the 'priming' of settlement accounts) (Figure 1).

Figure 1

Current ASX Clearing and Settlement Arrangements



Step 1: Once a trade has been executed on either the ASX or Chi-X markets, a trade-related instruction is sent to CHESS.

Step 2: Once CHESS validates these trades they are novated in real time to ASX Clear and CHESS sends messages to the relevant clearing participants (and to Chi-X if the trade was executed on its market), notifying them that the trade has been accepted and cleared. Trades that have the same clearing participant as buyer and seller, called clearing crossings, are not novated, netted or scheduled for settlement in the CHESS batch. To facilitate the remaining back-office processes for these trades, CHESS sends a single message to the clearing participant confirming the trade's details. The settlement of clearing crossings is negotiated bilaterally between brokers and their clients and occur when securities are transferred between broker and client settlement accounts.

Step 3: At T+1, CHESS generates a single net batch instruction reflecting the net position of each participant's novated trades in each line of stock. Before netting, clearing participants can mutually agree to block a transaction from netting, or delete or modify existing novated transactions. If matching instructions are sent from both clearing participants that are counterparties to a particular trade, CHESS sends messages to the clearing participants confirming that instructions for that trade have been processed.

Step 4: Between T+1 and T+3, participants can also instruct CHESS to include additional non-novated (off-market) transactions in the batch at T+3. During 2013/14, an average of around 84 per cent of the value of net securities settled in the final batch was in respect of non-novated transactions. Non-novated trades mainly arise from three types of activities: pre-positioning transfers of securities across accounts; securities lending to cover a short sale or a shortfall in a participant's securities account; and off-market trades. Pre-positioning involves transferring securities to a participant's entrepot settlement account, i.e. a centralised settlement account.

Step 5: On the evening before settlement, ASX Settlement notifies each participant of its projected net cash payment obligations. Participants have until 10.30 am to negotiate any additional non-novated transfers necessary to 'prime' their accounts for settlement. After the cut-off for new instructions, transfer of securities positions is stopped in CHESS pending completion of transfer once cash movements have been confirmed (Step 6), and participants' Payment Providers are requested to fund the net cash obligations of settlement participants.

Step 6: Payment obligations are settled between Payment Providers in RITS as a single daily multilateral net batch. Immediately upon confirmation from RITS that the funds transfers have been settled, ASX Settlement completes the net securities transfers in CHESS, thus ensuring DvP settlement. This typically occurs at around 11.30 am. CHESS then notifies the participants that settlement has been completed successfully.

Step 7: At the end of the day CHESS reports net movements on each sub-register to the holder of the issuer's complete register.

There is considerable activity in the hours prior to the 10.30 am cut-off for settlement instructions as participants arrange to lend and transfer securities in order to prime their settlement accounts. Settlement participants may wait until the morning of T+3 to complete the priming of their accounts, partly due to the need to wait for final matched settlement instructions from offshore clients. As a consequence, fails in delivery of securities are a daily occurrence, although fail rates are relatively low by international comparison. The failure of a participant to meet payment obligations is a much rarer occurrence and may be indicative of problems that are not merely operational.

If a participant is unable to settle its scheduled obligations in the batch, due to a shortfall in either securities or funds, ASX Settlement's rules allow for all or some of the transactions of the affected participant to be either ‘backed out’ or settled by means of an offsetting transaction (see Appendix A1.1, Key Consideration 7.4). If the failed transactions relate to a shortfall of securities, these are rescheduled for settlement on the next settlement day. If the failed transactions related to a shortfall of funds, however, ASX Clear would, as part of its default management strategy, consider injecting liquidity to ensure the settlement of novated trades. If this did not occur, ASX Clear would settle novated trades by entering into offsetting transaction arrangements with participants due to deliver securities. These offsetting transactions would be scheduled for settlement on the next settlement day.

ASX Settlement’s back-out algorithm is used to identify transactions to be rescheduled or settled by means of offsetting transactions. The algorithm seeks to remove or roll over as few transactions from the batch as possible, maximising settlement values and volumes, while minimising the spillover to other participants. Transactions unrelated to novated settlement obligations would typically be backed out first. In 2013/14, an average of 0.06 per cent of settlement transactions were recorded as ‘initial fails’ (where a participant has insufficient stock on t+3), with an average of 0.32 per cent of settlements rescheduled following the application of the back-out algorithm. Both initial fails and rescheduled settlements were slightly lower as a proportion of total settlements than in 2012/13.

The Forum and Business Committee established under the Code of Practice are overseeing work on a proposal to shorten the equities settlement cycle described above to a two-day cycle. The transition to a T+2 settlement cycle is being targeted for early 2016.

The use of the DvP Model 3 settlement mechanism described above is acceptable for ASX Settlement given the relatively low average value of securities transactions involved. In 2013/14, the average value of individual gross settlement instructions in ASX Settlement (for both novated and non-novated transactions) was around $10 800. This compares with an average of $29.5 million for an individual DvP settlement instruction for debt securities in Austraclear.

DvP Model 1 settlement (real time exchange of individual obligations) has certain risk management advantages over DvP Model 3 settlement, since the latter framework may only settle on an all or nothing basis. However, DvP Model 3 may be advantageous for a settlement system servicing a CCP that manages its risk on a net portfolio basis. Partial settlement (due to a clearing participant default) under DvP Model 1 would alter net exposures upon which the CCP’s risk controls are based. This issue may be addressed within a DvP Model 1 framework by managing the order in which obligations are settled. However, achieving this may be complex and introduce inefficiencies from a liquidity viewpoint. Accordingly, 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, taking into account these complexities, neither ASX nor market participants are persuaded of the need to move to a new settlement model. Furthermore, ASX has taken actions since the 2008 review to further strengthen the resilience of the batch settlement process.

During 2013/14 the average daily value of CGS settled in the CHESS batch was less than $1 million, compared with $40.5 billion in debt securities transactions settled in Austraclear, suggesting that there has been no significant movement of wholesale CGS transactions into the CHESS batch. In May 2014, ASX Settlement launched the mFund Settlement Service for payments related to unlisted managed funds. Initial settlement values from the mFund service have been small relative to the size of the gross value of settlements in the CHESS batch. While neither the settlement of CGS or mFund transactions within the CHESS batch currently pose significant risks to the batch process, the Bank will continue to monitor the use of both services.

Principle 13: Participant default rules and procedures

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

Rating: Observed

ASIC's and the Bank's assessment is that ASX Settlement observes the requirements of Principle 13. ASX Settlement's default management arrangements are described in further detail under the following Key Considerations.

13.1 A securities settlement facility should have default rules and procedures that enable the securities settlement facility to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default.

ASX Settlement does not provide participants with a guarantee against credit or liquidity risk. Nevertheless, the design of the system precludes principal credit exposures arising between participants. ASX Settlement is not exposed to risk as a participant and has no settlement obligations arising from its role as a provider of a settlement facility, including in the event of a default. Settlement occurs on a DvP Model 3 basis, with contemporaneous multilateral net settlement of securities transfers in ASX Settlement and associated funds movements in RITS (see Key Consideration 12.1). Finality of settlement is protected by ASX Settlement's approval as a netting arrangement under the PSNA. The default of a participant in ASX Settlement would not require the SSF to meet obligations on its behalf, although it could alter the obligations of non-defaulting participants if the default resulted in the reconstitution of ASX Settlement's multilateral net batch prior to settlement (see Key Consideration 13.3).

Section 12 of the ASX Settlement Operating Rules sets out the circumstances in which ASX may suspend or impose restrictions on participation. These include events of 'non-compliance', such as: entry or suspected entry into external administration, or the failure to comply with participation requirements; a failure or anticipated failure of a participant's Payment Provider to authorise its net payment obligation; or a failure to comply with legal or regulatory obligations. ASX Settlement maintains documented procedures for dealing with the default of a participant, including back-out procedures to reconstitute the multilateral net batch. The default of a settlement-only participant would be managed by the PIRC, while the default of a settlement participant that is also a participant in ASX Clear would be managed by the ASX Default Management Committee in accordance with ASX Clear's Default Management Framework (see Appendix A1.1, Principle 13). The PIRC is chaired by the GE, Operations, and is made up of senior staff from operational, risk management, compliance and legal departments.

13.2 A securities settlement facility should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.

ASX Settlement's Operating Rules and Procedures provide for the cancellation or suspension of a participant or a Payment Provider in the event that it becomes subject to external administration, or if ASX Settlement reasonably suspects that this may occur. A participant or a Payment Provider is also required to notify ASX Settlement if it, or any other participant or Payment Provider to its knowledge, becomes subject to external administration or where it reasonably suspects that this may occur.

The ASX Settlement Operating Rules and Procedures allow a participant to nominate a new Payment Provider if its current provider is subject to, or is reasonably likely to become subject to, external administration.

13.3 A securities settlement facility should publicly disclose key aspects of its default rules and procedures.

ASX Settlement's Operating Rules and Procedures are published on the ASX public website. These include requirements for participants to give notice of insolvency or the reasonable possibility of insolvency and the rights of ASX Settlement to suspend or terminate participant status in an event of non-compliance.

If a participant is unable to settle its scheduled obligations in the batch, due to a shortfall in either securities or funds, ASX Settlement's Operating Rules allow for all or some of the transactions of the affected participant to be either 'backed out' or settled by means of an offsetting transaction (see Appendix A1.1, Key Consideration 7.4). If the failed transactions relate to a shortfall of securities, these are rescheduled for settlement on the next settlement day. If the failed transactions related to a shortfall of funds, however, ASX Clear would, as part of its default management strategy, consider injecting liquidity to ensure the settlement of novated trades. If this did not occur, ASX Clear would settle novated trades by entering into offsetting transaction arrangements with participants due to deliver securities. These offsetting transactions would be scheduled for settlement on the next settlement day.

ASX Settlement's back-out algorithm is used to identify transactions to be rescheduled or settled by means of offsetting transactions. The algorithm seeks to remove or roll over as few transactions from the batch as possible, maximising settlement values and volumes, while minimising the spillover to other participants. Transactions unrelated to novated settlement obligations would typically be backed out first.

ASX Settlement's back-out arrangements are described in Rule 10.11 of the ASX Settlement Operating Rules, as well as in related Procedures available to participants.

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

ASX conducts regular in-house default management 'fire drills' to test default procedures as they would apply to participants across one or more of the ASX CS facilities. While the focus of the fire drills is on the more complex scenario of a clearing participant default, procedures for managing the default of an ASX Settlement participant are also tested to the extent that clearing participants also participate in ASX Settlement. Settlement-only aspects of default management are less complex, and ASX has determined that its testing of default procedures in the context of a clearing participant default is sufficient to ensure that ASX Settlement's default procedures are practical and effective.

Principle 14: Segregation and portability

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

Rating: Not applicable

Principle 14 is not relevant to securities settlement facilities.

Principle 15: General business risk

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

Rating: Broadly observed

ASIC's and the Bank's assessment is that ASX Settlement broadly observes the requirements of Principle 15. In order to fully observe Principle 15, ASX Settlement should:

- carry out plans to enhance its recovery plan in line with forthcoming CPSS-IOSCO guidance, and ensure that the capital it holds under Key Consideration 15.2 continues to be sufficient to fund the enhanced plan. As ASX Settlement further develops its recovery plan, it should also review and integrate its recapitalisation processes with its broader recovery planning arrangements.

ASX Settlement's management of general business risk is described in further detail under the following Key Considerations.

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

ASX's approach to business risk is consistent with its overall Enterprise Risk Management Policy and Framework (see Principle 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 exchange 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 the Group's general business activities arises in the collection of receivables, which principally comprise fees from market participants, issuers, users of market data and other customers. Mitigants include active collection procedures on trade receivables and 'ageing' of receivable amounts.

- Liquidity risk arises from the Group's time-critical payables, and is mitigated by prudent liquidity management, with forward planning and forecasting of liquidity requirements.
- ASX may be exposed to capital risk if equity in group entities falls below prudent or regulatory minimum levels. 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 this process, ASX identifies new strategic business initiatives, such as the projects that delivered the ASX Collateral and over-the-counter (OTC) derivatives clearing services. These 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 Key Consideration 17.4). Under this framework an initial high-level risk indication is defined at the project concept stage. This is followed by a formal project risk assessment covering both project delivery risks and impacts to business activities. ASX typically conducts a series of workshops involving project staff to discuss risks associated with any planned new service. Prior to the approval of a project for launch/production, ASX prepares an operational readiness summary and conducts a final workshop to discuss possible risks associated with initial launch. This includes consideration of potential failure scenarios and workarounds, procedures for escalation of issues, and help desk and key staff availability.

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

15.2 A securities settlement facility should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity a securities settlement facility should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.

ASX has set aside $232 million for operational and business risk across the four ASX Group CS facilities, $157 million of which has been attributed specifically to operational and business risks across both Austraclear and ASX Settlement. Since ASX has identified constraints to making business risk capital bankruptcy remote within the SSFs, this capital is held at the ASX Group level. Each CS facility has a separate allocation for business risk capital that is explicitly recognised within group-wide capital holdings. These holdings include an additional buffer against potential losses sustained elsewhere in the group. During 2013/14, ASX made amendments to the ASX Group Support Agreement, placing an obligation on ASX to maintain sufficient capital to support ASX Settlement's continued operations in the event of general business losses. These amendments support the legal certainty of ASX Settlement's access to business risk capital as required.

In determining the sufficiency of the $157 million in operational and business risk capital set aside for ASX Settlement and Austraclear, ASX first calculated risk amounts for the individual SSFs. This was based on a methodology in use at other SSFs, fund managers and custodians that applies a capital charge for operational and business risk to the value of securities held in the facility. The correlation is modelled on a percentage basis, with the percentage of required risk resources declining as the level of assets increases – recognising that a significant part of the risk resources required will represent a fixed cost. ASX's application of this methodology results in a 0.79 basis points charge on around $1.5 trillion of securities held in each SSF, giving a required value of risk resources of around $111 million for each of ASX Settlement and Austraclear.

ASX assumes that the two facilities will not both require their full risk funds at the same time. This reflects that the custodial and operational risks that this capital is calibrated to cover are unlikely to result in simultaneous peak losses in both SSFs. ASX has applied a 'square root of the sum of squares' formula to arrive at the figure of $157 million to cover the operational and business risk exposure of the two settlement facilities. The business risk capital held in respect of the SSFs is sufficient to ensure that, even if one SSF were to utilise its full capital allocation of $111 million, sufficient funds would be available to fund the other SSF's recovery plan and meet the single largest uninsured business loss event for that facility. In addition, ASX's general capital buffer is sufficient to ensure that it would remain able to provide $111 million to the second SSF in the event that this was required.

15.3 A securities settlement facility should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, a securities settlement facility should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.

ASX Settlement has developed a plan setting out options for its recovery or wind-down based on its existing Operating Rules, and has commenced work towards enhancing this plan in line with forthcoming CPSS-IOSCO guidance on recovery planning (see Key Consideration 3.4). In calculating the quantum of business risk capital described under Key Consideration 15.2, ASX has sought to ensure access to sufficient liquid net assets to fund operations during the execution of ASX Settlement's recovery plan, or to cover a minimum of six months of current operating expenses.

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

The risk capital for ASX's CS facilities is invested in accordance with the ASX Limited and ASX Operations Pty Limited Investment Mandate. The Investment Mandate specifies investment objectives, responsibilities, approved products and counterparties, and audit and maintenance of the mandate. Approved products are generally highly rated and liquid products such as: cash deposits; bank bills, negotiable certificates of deposit and floating rate notes issued by APRA-approved ADIs; foreign exchange in specified currencies; 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.

15.5 A securities settlement facility should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.

As noted, ASX Limited manages its operational and business risk capital at the group level. The ASX Limited Board monitors the ongoing capital adequacy of the ASX Group as part of its regular capital planning activities. The Board determines the most appropriate means of raising additional capital when needed, giving due consideration to prevailing market conditions and available alternative financing mechanisms. For example, in June 2013, ASX Limited conducted a capital raising by way of a $553 million share entitlement offer, with the bulk of the funds being used to increase the business risk capital of the CS facilities and their pooled financial resources to deal with a participant default. Recapitalisation processes will be reviewed and integrated with broader recovery planning arrangements as ASX Settlement further develops its recovery plan in line with forthcoming CPSS-IOSCO guidance.

Principle 16: Custody and investment risks

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

Rating: Not applicable

ASX Settlement does not have any financial investments, and its participants do not lodge collateral or other assets with the SSF. General business risk capital covering the needs of ASX Settlement is invested at the group level. Arrangements for the investment of those funds are discussed under Principle 15.

ASIC and the Bank have concluded that Principle 16 does not apply to ASX Settlement.

16.1 A securities settlement facility should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.

Not applicable to ASX Settlement.

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

Not applicable to ASX Settlement.

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

Not applicable to ASX Settlement.

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

Not applicable to ASX Settlement.

Principle 17: Operational risk

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

Rating: Observed

ASIC's and the Bank's assessment is that ASX Settlement observes the requirements of Principle 17. ASX Settlement's arrangements for managing operational risks are described in further detail under the following Key Considerations.

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

ASX's operational risk policies and controls have been developed in accordance with ASX's group-wide Enterprise Risk Management Framework (see Key Consideration 3.1). Under this Framework, the ASX Limited Board is responsible for reviewing and overseeing the Group's risk management systems (see Key Consideration 2.6). 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 departments, 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 departments. Under the Enterprise Risk Management Framework, individual departments 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. A dedicated security team has responsibility for assessing both physical and cyber security risks, and is overseen by a Security Steering Committee comprising the Chief Information Officer, head of Internal Audit and other senior executives.

Access to resources

ASX Settlement has arrangements in place to ensure that it has well-trained and competent personnel operating 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 and broader skills matrices, with training provided for identified areas of weakness. ASX Settlement has a formal succession planning and management process in place for key staff. ASX has sought to automate routine operational processes and reporting over recent years, freeing up additional staff resources that would otherwise be devoted to these tasks.

To facilitate rapid recovery in the event of an operational disruption, ASX intends to increase the proportion of operational staff based at its secondary operations site (which is also the primary data centre), to around 30 per cent from the current 20 per cent. In case of a disruption to staffing arrangements at the primary site for staff, the secondary operations centre has capacity to house 65 per cent of all operational staff.[9]

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 Section 2.3.1), under a contractual Support Agreement. In the event that ASX Operations Limited became subject to external administration, to the extent permissible by law, provisions within the Support Agreement provide for ASX Settlement and the other clearing and settlement corporate entities to retain the use of operational resources.

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 CHESS), the PMO rates projects to ensure that 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.

Over recent years, ASX has undertaken work on close to 60 projects, including major projects such as the OTC derivatives clearing service and enhanced client clearing arrangements in ASX Clear (Futures), and the ASX Collateral service. 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. Targeted deadlines for key projects have nevertheless 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.

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

The roles and responsibilities for addressing operational risk are 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

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[9] 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.

Board, the CS Boards, the Audit and Risk Committee, the Enterprise Risk Management Committee and individual departments.

Policies and procedures are the subject of internal and external review. ASX's Internal Audit department 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 considered by external auditors annually.

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

- ISO 31000 – Risk Management Principles and Guidelines is used to benchmark ASX's overarching framework for operational risk management.
- The business continuity framework is benchmarked against the Business Continuity Institute's Good Practice Guidelines 2013, 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. Cyber security strategies are further benchmarked against the Australian Signals Directorate's Strategies to Mitigate Targeted Cyber Intrusions.
- The compliance framework is benchmarked to the AS 3806-2006: Compliance Programs.
- The ASX Fraud Control Policy is benchmarked against AS 8001-2008: Fraud and Corruption Control.

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 Settlement operates a separate test environment for its core system (CHESS) and has a formal, documented change management process. There are also defined procedures for communicating with participants and vendors details of technology upgrade releases, which include regular notices to participants of upcoming changes.

17.3 A securities settlement facility should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.

Availability targets are documented and defined formally for critical services. CHESS is required to meet a minimum availability target of 99.8 per cent; during 2013/14, it was 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 capacity 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 CHESS during 2013/14 was 14 per cent, while peak utilisation was 20 per cent. ASX Settlement considers that it has sufficient technical and human resources to operate CHESS during peak periods, including in the event of operational incidents or system failure.

17.4 A securities settlement facility should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.

ASX Settlement's approach to ensuring scalable capacity adequate to handle increasing stress volumes and to achieve its service level objectives is described under Key Consideration 17.3. As noted above, average capacity utilisation of CHESS during 2013/14 was 14 per cent, peak utilisation was 20 per cent, while CHESS was available 100 per cent of the time over this period.

17.5 A securities settlement facility should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.

Information security policy is implemented using a risk-based decision process, based on ISO 31000, 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, the cost of controls, and the richness and flexibility of services. ASX's 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 March 2014.

Information security policy is tested at a number of levels. This includes penetration testing against the ASX perimeter and vulnerability testing within the perimeter. ASX Settlement performs CHESS security testing on a quarterly basis. ASX operates a suite of controls designed to prevent and detect cyber attacks on its systems, such as denial of service or malware threats. These 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 departmental level. The key systems supporting ASX's clearing and settlement processes are operated within a secure building. Settlement 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 significant technology-based operational incidents are reported to senior management and issues are tracked through to resolution via regular updates to management.

17.6 A securities settlement facility should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the securities settlement facility to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The securities settlement facility should regularly test these arrangements.

Business continuity arrangements

ASX Settlement 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 Settlement policy requires that failover to the backup data centre should occur within two hours. Plans for recovery of key systems apply to both physical and cyber threats to business continuity.

ASX Settlement 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 a primary and a backup data centre, with broadly equivalent operational requirements. Key plant and equipment at the primary data centre are designed to the Uptime Institute Tier 3 standard of concurrent maintainability.[10] The main computer network is connected via point-to-point optical fibre, which ASX operates with its own technology, thereby reducing the potential for outages due to operational problems with the telecommunications provider. All core systems employ multiple servers with spare capacity. Front-end servers handling communications with participants are configured to provide automatic failover across sites. Failover of the more critical data servers is targeted to take place within two hours, but would generally be expected to occur within an hour, under the control of management.

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

ASX Settlement 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

[10] 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.

management testing. Since May 2014 these include the use of Twitter to advise stakeholders of market-wide operational or technical incidents. 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 Settlement via the Trade Acceptance Service.

ASX Settlement 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. Live technology tests, where 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.

Participant continuity arrangements

Recognising that effective continuity of operations may depend on the capacity of participants to recover from an operational disruption, business continuity requirements for participants are set out in the ASX Settlement Operating Rules and Procedures, supplemented by additional guidance issued by ASX on 1 July 2014. These 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 Settlement's expectation (set out in guidance) that this would be within two hours, and no more than four hours, following a contingency event for large participants. The targeted recovery time for smaller participants is four hours (and no more than six). These arrangements are reviewed as part of the participant admissions process. If a participant fails to maintain business continuity arrangements consistent with these recovery targets, it may become subject to sanctions or restrictions on its activities. 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. These spot checks examine the participant's governance and processes for resilience and business continuity. If a participant fails to implement any recommendations arising from a check, ASX may impose sanctions.

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 dealing with operational issues is to work collaboratively with the participant to educate them on their obligations. If the matter is serious, ASX may require that the participant address the weakness as a matter of priority.

ASX may also impose conditions on participation or require that the participant appoint an independent expert to assist with the remediation task.

Participants are involved in the contingency testing of ASX Settlement'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 Settlement conducts regular connectivity tests and maintains an external testing environment for system changes.

17.7 A securities settlement facility should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. In addition, a securities settlement facility should identify, monitor, and manage the risks its operations might pose to other FMIs.

Interdependencies with 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 Key Consideration 3.1); as part of its assessments of project-related risks (see Key Consideration 15.1); and through its general monitoring of risks under its risk management framework (see Key Consideration 3.1).

For ASX Settlement, 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 Settlement's operations may be affected for an extended period. This risk is managed in part through technical and business continuity requirements placed on participants, but there are limitations to this approach. As a result, and notwithstanding that there are no contractual relationships between ASX and vendors, ASX has implemented a program to develop stronger direct relationships with key participant vendors. The program supports vendors' knowledge of ASX technical updates through early engagement before system changes are rolled out, 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, in some cases a lack of familiarity with local market practices and conventions. Such factors, if inadequately mitigated, could increase operational risk. ASX is examining options to mitigate these risks. As part of this, ASX Compliance has carried out a spot review of participants' outsourcing arrangements, benchmarking participants against a number of standards, including APRA's outsourcing prudential standard CPS 231. As a follow-up to the review, ASX is developing new guidance on participant outsourcing and has conducted site visits to selected overseas outsourcing providers.

ASX Settlement has an operational interdependence with ASX Clear, with which it shares the CHESS system (Principle 20). Operational risk associated with this interdependence is managed within the context of the ASX Group's operational risk management framework. ASX Settlement does not have significant operational interdependencies with other FMIs.

Dependencies on service and utility 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. ASX also provides the Bank with a list of critical outsourcing arrangements on an annual basis. Issues relating to outsourcing or service provision are escalated as appropriate to executive management via the ASX Technology Vendor Management Group and the relevant operational support area.

ASX assesses the operational performance of its service providers on an ongoing basis against its own operational policies, to ensure that service providers meet the resilience, security and operational performance requirements of the FSS (which align with the Principles). 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.[11] Contractual arrangements with critical service providers require the approval of ASX Settlement before the service provider can itself outsource material elements of its service.

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

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) as well as incident escalation procedures and contacts.

[11] 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.

ASX has developed a set of standard clauses for inclusion in contracts with third-party service providers of critical services to ASX Settlement. Similar clauses are also included in the Support Agreement between ASX Settlement 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 (which align with the Principles). ASX applies these clauses to all new agreements with service providers, and has incorporated them into all of its key existing service agreements.

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 Settlement. 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. The clauses require that providers give the Bank notice of any intention to terminate the agreement as a consequence of ASX Settlement's failure to pay fees, or in the event of the insolvency of ASX Settlement or any other 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 Settlement'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 special resolution regime for FMIs. This was foreshadowed in consultations undertaken by the Council of Financial Regulators and Treasury in 2011 and 2012. ASX Settlement will need to ensure that its arrangements to support continuity of operations in a crisis are appropriately adapted to the proposed FMI resolution regime once finalised.

CPSS and IOSCO have developed a draft Assessment Methodology for the oversight expectations applicable to critical service providers.[12] Once finalised, this Assessment Methodology will provide a framework for considering how to apply the oversight expectations for critical service providers set out in Annex F of the PFMIs.

Disclosure

The nature and scope of ASX Settlement's dependencies on critical service providers are disclosed to participants through: Operating Rules; Guidance Notes; Notices and Bulletins; technical documentation available on the ASX participant website; more general information available on the ASX public website; and in one-on-one meetings with participants, both during the induction process for new participants and on an ongoing basis.

Operational Support

ASX Settlement provides telephone and email support to participants via a helpdesk, which operates from 8 am to 6 pm.

Principle 18: Access and participation requirements

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

[12] The draft Assessment Methodology is available at <http://www.bis.org/publ/cpss115.htm>.

Rating: Observed

ASIC's and the Bank's assessment is that ASX Settlement observes the requirements of Principle 18. ASX Settlement's access and participation requirements are described in further detail under the following Key Considerations.

18.1 A securities settlement facility should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk- related participation requirements.

ASX Settlement has objective and transparent participation requirements, which are detailed in a number of policies and standards under the Settlement Risk Policy Framework. The participation requirements are publicly available and form part of ASX Settlement's 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 2014 ASX Settlement had 78 participants. A further nine participants were active as temporary specialist settlement participants set up to effect corporate actions.

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

ASX Settlement's participation requirements are designed to promote the safety and integrity of the SSF. They cover financial obligations, business and managerial requirements, operational resources and capabilities, and business continuity arrangements. ASX Settlement's participation requirements promote the efficient operation of the facility and do not impose discriminatory or restrictive access constraints such as minimum turnover levels.

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

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

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

18.3 A securities settlement facility should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.

ASX Settlement has wideranging powers to sanction its participants. ASX Settlement may suspend or terminate a participant from the facility in the event of a failure to comply with the Operating Rules and Procedures, or where a Payment Provider fails to authorise a participant's payment for interbank settlement. The action taken in the event of a breach will depend on a number of factors, including the participant's history of compliance and whether the breach implies negligence, incompetence or dishonesty. Where a breach has been identified and the participant has taken appropriate steps to rectify it, ASX Settlement will typically continue to monitor the participant closely for a period of time. Breaches are also referred to ASIC and, in most cases, are investigated by ASX Compliance for formal disciplinary action.

ASX Settlement levies fees on participants that fail to meet securities delivery obligations on the scheduled settlement date (see Key Consideration 12.1). The fee is 0.1 per cent of the value of the settlement obligation, but with a minimum and maximum fee of $100 and $5 000, respectively. Participants are also required to close out any positions remaining unsettled on the fifth day after the trade date (i.e. two days after the scheduled settlement date). ASX Settlement also routinely benchmarks participants' settlement performance. Under this regime, a participant receives a ranking of its settlement performance (based on the value of its trades that have failed to settle) against its market group peers. In addition, under its Operating Rules, ASX Settlement is able to impose monetary penalties of up to $1 million on participants that it deems to be in violation of the Operating Rules.

Principle 19: Tiered participation arrangements

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

Rating: Observed

ASIC's and the Bank's assessment is that ASX Settlement observes the requirements of Principle 19. ASX Settlement's approach to tiered participation arrangements is described in further detail under the following Key Considerations.

19.1 A securities settlement facility should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the securities settlement facility arising from such tiered participation arrangements.

Since ASX Settlement does not assume credit or liquidity risk as principal, the primary risks that could arise from indirect participation are operational. In particular, indirect participation arrangements that concentrated settlement activity within a few direct participants could concentrate operational risk to the facility. ASX Settlement is able to access basic information on indirect participation via the separate participant identifiers (known as PIDs) assigned to trading or clearing participants (in ASX Trade or ASX Clear, respectively) that do not settle directly. ASX Settlement currently considers the risks from concentration of indirect participants to be low.

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

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

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

In general, participation in ASX Settlement is broader and more direct than that in ASX Clear. At end June 2014, there were 78 direct ASX Settlement participants (excluding temporary special-purpose participants), compared with 36 (active) direct participants in ASX Clear. Due to this, and given the vertical integration of the ASX Group, monitoring of tiered participation risks in ASX Clear would also be expected to highlight any such risks that may require further investigation in ASX Settlement (see Appendix A1.1, Principle 19).

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

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

ASX Settlement is not directly exposed to financial risks from indirect participation. Significant operational risks associated with indirect participation at ASX Settlement would be identified and mitigated through the application of ASX's concentration risk monitoring policy, which focuses on participation in ASX Clear (see Key Consideration 17.3).

Principle 20: FMI links

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

Rating: Observed

ASIC's and the Bank's assessment is that ASX Settlement has observed the requirements of Principle 20. ASX Settlement's management of link-related risks is described in further detail under the following Key Considerations.

20.1 Before entering into a link arrangement and on an ongoing basis once the link is established, a securities settlement facility should identify, monitor, and manage all

potential sources of risk arising from the link arrangement. Link arrangements should be designed such that each FMI is able to observe the other principles in this report.

Identifying link-related risks

ASX Settlement maintains one link to another FMI: ASX Clear. A link for the purposes of this principle is any connection that is made to another FMI according to a set of contractual and operational arrangements, irrespective of the complexity or otherwise of the link and whether it is directly with the FMI or through an intermediary. ASX Settlement maintains a link with ASX Clear 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 link to ASX Clear is subject to the same operational risk management framework that applies for all the ASX CS facilities. This addresses operational risks associated with software, infrastructure or network failures and manual processing errors. An incident report is required for any significant technical or operational incident, including an assessment of mitigating actions to reduce the risk of reoccurrence. In addition, six-monthly risk profile assessments are prepared and presented to the Audit and Risk Committee, and an independent system-controls audit is conducted annually.

Managing financial risk

ASX Settlement does not assume any direct financial risks by virtue of its link to ASX Clear.

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

ASX Settlement's link to ASX Clear has its legal basis in the Operating Rules and Procedures of both facilities. The finality of settlements made via these links is supported by the approval of ASX Settlement under Part 3 of the PSNA (see Key Consideration 1.4).

20.3 Linked central securities depositories should measure, monitor, and manage the credit and liquidity risks arising from each other. Any credit extensions between central securities depositories should be covered fully with high-quality collateral and be subject to limits.

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

20.4 Provisional transfers of securities between linked central securities depositories should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.

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

20.5 An investor central securities depository should only establish a link with an issuer central securities depository if the arrangement provides a high level of protection for the rights of the investor central securities depository's participants.

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

20.6 An investor central securities depository that uses an intermediary to operate a link with an issuer central securities depository should measure, monitor, and manage the additional

risks (including custody, credit, legal, and operational risks) arising from the use of the intermediary.

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

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

Key Consideration 20.7 is not relevant to securities settlement facilities.

20.8 Each 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.

Key Consideration 20.8 is not relevant to securities settlement facilities.

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

Key Consideration 20.9 is not relevant to securities settlement facilities.

Principle 21: Efficiency and effectiveness

A securities settlement facility should be efficient and effective in meeting the requirements of its participants and the markets it serves.

Rating: Observed

ASIC's assessment is that ASX Settlement observes the requirements of Principle 21. ASX Settlement's arrangements for ensuring its efficiency and effectiveness are described in further detail under the following Key Considerations.

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

ASX Settlement offers a range of participation options designed to suit market demand, and tailors its participation application process and governance framework to the products, client structure and markets being settled (see Principle 18).

- *General Settlement Participants* can hold, transfer and settle approved financial products in DvP batch settlements, including as settlement agents on behalf of ASX Clear participants, and can establish and maintain participant-sponsored holdings on behalf of clients.
- *Account Participants* can participate in certain aspects of the holding and transfer of approved financial products and establish and maintain participant-sponsored holdings on behalf of clients, but cannot perform DvP batch settlements.

- *Product Issuer Settlement Participants* can settle certain transactions relating to unlisted managed funds, but cannot establish and maintain participant-sponsored holdings.
- *Specialist Settlement Participants* can participate in limited aspects of the holding and transfer of approved financial products, including as an offeror in relation to a takeover scheme or for processing an allocation in DvP batch settlement.

ASX's Code of Practice for cash equities clearing and settlement is intended to address transparency and accessibility in the provision of these services and to formalise avenues for user engagement (Key Consideration 2.7). The Forum established under the Code is also intended to ensure that the ongoing development of ASX Settlement's cash market settlement infrastructure and services meets the needs of users and is consistent with global standards.

ASX has also established a Business Committee and a Technical Committee to support the Forum. The Business Committee is comprised of representatives from ASX, clearing and settlement participants and market platform operators. These representatives have a deep understanding of the clearing and settlement business; for example, at the Chief Operating Officer level. The Business Committee has provided business and operational input on the forward work program of the Forum and has progressed issues of interest to the industry, such as the design of technology solutions (via the Technical Committee) and more flexible participant structures.

The Technical Committee is comprised of relevant technical experts from organisations represented on the Business Committee and back-office system vendors. These key groups help determine the needs of ASX Settlement stakeholders and the technical requirements of service providers and software vendors. This information is then provided to the ASX Settlement Board to inform possible service enhancements.

ASX Settlement undertakes regular customer engagement to supplement its formal user governance arrangements via the Forum. Participant feedback provides an important input for ASX Settlement to assess its performance against efficiency and effectiveness standards, particularly in relation to proposed new services and products, and changes to Operating Rules and Procedures (see Key Consideration 21.2).

ASX Settlement maintains a comprehensive governance and reporting framework that includes:

- transparent processes to operate ASX Settlement, with well-defined controls, underpinned by written policies and procedures
- the maintenance of sufficient resources (financial, technological and human resources) to operate the facility properly and to meet its obligations under its CS facility licence. ASIC concluded that these resources were adequate when preparing its 2013 ASX Group Assessment Report for the Minister[13]
- conflict handling arrangements that are reviewed and adapted to changing circumstances

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[13] ASIC's 2013 *Market Assessment Report: ASX Group*, released 28 July 2014, is available at <https://www.asic.gov.au/asic/asic.nsf/byheadline/Reports?openDocument>.

- processes to monitor and enforce participants' compliance with the Operating Rules (see Key Consideration 18.3)
- liaison processes with ASIC and the Bank
- a continuous improvement program.

ASX Settlement allows transactions executed on other licensed markets to be settled on the same basis as transactions executed on ASX. ASX Settlement's support for other market operators falls into two broad areas, namely:

- the TAS, which provides a mechanism for AMOs, such as Chi-X Australia Pty Ltd, to submit trades to ASX Clear and ASX Settlement for clearing and settlement via CHESS in respect of ASX quoted securities
- the Settlement Facilitation Service, which supports securities not quoted on ASX that are listed and traded on other markets.

Under the Settlement Facilitation Service, ASX Settlement provides settlement arrangements for ALMOs in respect of CHESS-eligible financial products listed on those markets, but which are not listed on ASX. There are two options for these settlement arrangements:

- a Transfer Facilitation Service via which CHESS-eligible, ALMO-listed financial products can be transferred in real-time by ASX Settlement participants using CHESS. Payment is handled bilaterally by participants outside of CHESS
- a DvP Facilitation Service which allows CHESS-eligible, ALMO-listed financial products to be settled on a DvP basis by ASX Settlement participants within the CHESS settlement batch.

ASX Settlement has also put in place arrangements for ALMO-listed issuers to access the following services:

- the ASX Primary Market Facility, which enables issuers to use DvP settlement for certain capital raisings
- a Corporate Actions Service, allowing ASX Settlement to process corporate actions through its settlement facility for CHESS-eligible, ALMO-listed financial products.

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

The ASX Limited Board sets group-level strategic direction and business priorities, including via a three-year strategic plan, which is reviewed on a continuous basis. The ASX Settlement Board sets goals and objectives specific to its settlement service, and governs and reviews ASX Settlement's risk management processes, internal controls and compliance systems. The ASX Settlement Board is also responsible for overseeing the production of the management accounts of ASX Settlement, which are prepared on a quarterly and half-yearly basis, as well as audited full year financial reports and statements. The ASX Settlement Board is also responsible for the management of settlement risks (see Principles 2, 3).

Under the Code, ASX has committed to publishing audited management accounts for the clearing and settlement of cash equities at least annually. ASX published the first such set of accounts for the 2012/13 financial year in August 2013, along with its internal cost allocation and transfer pricing policy. Unaudited half-yearly ASX Settlement management accounts are also released publicly.

In 2013, the ASX Settlement and Austraclear Boards approved ASX's Settlement Risk Policy Framework, which was established to ensure that ASX's settlement facilities continue to meet the FSS, as well as to provide a formal framework for review and development of settlement policy and standards (see Key Consideration 3.1).

ASX Settlement measures its progress against goals and objectives in a number of ways.

- ASX Settlement measures the effectiveness of its services via participant and user feedback. ASX Settlement uses customer engagement and consultative processes described under Key Consideration 21.1 to ensure that it achieves its goals in relation to meeting the requirements of participants.
- ASX Settlement has set availability targets for critical systems such as CHESS (including the Settlement Facilitation Service) and the TAS, which are monitored and reported to relevant governance committees, including the ASX Audit and Risk Committee and the ASX Settlement Board, on a regular basis (see Key Consideration 17.3).
- Senior management report to each meeting of the ASX Settlement Board, and periodically to the Enterprise Risk Management Committee and the Audit and Risk Committee, on the status of ASX Settlement's risk management goals and objectives. Reporting and measurement mechanisms include international benchmarking, risk profiling and analysis, internal audit reviews, regulatory assurance reviews, and periodic analysis and reporting of key system service availability and capacity utilisation metrics (see Principles 3, 15, 17).
- Operating Rules and Procedures, together with other participant communications such as market notices, provide transparency to participants and other stakeholders regarding the operation of the ASX Settlement facility (see Principle 23).

The Audit and Risk Committee has responsibility for considering management reports regarding the effectiveness of ASX Settlement's risk management framework and processes. The Committee is assisted in this area by Internal Audit, Enterprise Risk, and Regulatory Assurance. The Audit and Risk Committee considers reports from these departments on the appropriateness and effectiveness of internal controls, and action taken or proposed in response to assessments conducted by ASIC or the Bank.

21.3 A securities settlement facility should have established mechanisms for the regular review of its efficiency and effectiveness.

In addition to periodic reporting to the CS Boards and relevant committees under ASX Group's corporate governance framework (see Principle 2 and Key Consideration 21.2), relevant Group Executives also report to the CEO on a monthly basis. Metrics contained within these reports include key measures of system availability and capacity utilisation, key settlement statistics such as netting efficiency and settlement efficiency, technical incident reporting, and new issues/admissions/listings. Other issues recorded and measured include the cause and resolution of settlement failures, operational incidents and participant complaints.

The business service availability target for both CHESS and the TAS is 99.80 per cent. Capacity utilisation is continually monitored to maintain capacity headroom of 50 per cent above peak utilisation. The average monthly availability of the TAS between November 2011 and June 2014 was 99.99 per cent; average availability of the TAS was also 99.99 per cent over 2013/14. CHESS has had 100 per cent availability since June 2012. The availability and capacity utilisation performance of CHESS is discussed under Key Consideration 17.3.

In June 2014, ASX released the results of a study comparing the cost of ASX Settlement's cash equities settlement services against an international peer group. The study, undertaken by an independent consultant under the Code, concluded that the fees charged by ASX Settlement for post-trading services were within the range charged by comparable SSFs.

Responsibility for the regular review of ASX Settlement's efficiency and effectiveness is shared between a number of committees and departments within the ASX Group.

- SROCC oversees matters relating to ASX Settlement's fair and effective obligations under its Australian CS facilities licence. Section 821E of the Corporations Act requires ASX Settlement to provide a report to ASIC within three months of the end of its financial year on the extent to which the licensee has complied with the conditions of its licence.
- CALCO oversees the structural integrity and efficient use of liquidity, on-and-off-balance sheet assets, liabilities and the capital resources of the ASX Group, including ASX Settlement.
- As part of its commitment to continuous improvement, the ASX Operations and Risk divisions have adopted a comprehensive suite of policies and procedures to support the governance and internal review of ASX Settlement. These policies and procedures are reviewed on a regular basis (see Principles 2, 3).
- ASX Compliance monitors and enforces participants' compliance with the ASX Settlement Operating Rules. Other departments within ASX Group assist ASX Compliance in monitoring ASX Settlement's performance of its licence obligations.

Principle 22: Communication procedures and standards

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

Rating: Observed

ASIC's assessment is that ASX Settlement observes the requirements of Principle 22. ASX Settlement's approach to communication procedures and standards is described in further detail under the following Key Consideration.

22.1 A securities settlement facility should use, or at a minimum accommodate, internationally accepted communication procedures and standards.

ASX Settlement has procedures in place to determine the impact of and actions required to accommodate changes in internationally accepted communications protocols. ASX Settlement also has processes and procedures for the notification of changes to users and other relevant stakeholders, including system vendors. Notification may take the form of consultation papers, software vendor workshops, notices to clearing participants and settlement participants and bilateral contact with software developers. Each new business requirement is analysed in order to identify the most appropriate means of integrating changes to communication protocols, with a particular focus on standardisation and open connectivity.

ASX Settlement supports the CHESS messaging standard which is an ASX proprietary communication protocol. The use of ASX proprietary messaging for CHESS reflects the primarily domestic orientation of the cash equities settlement service supported by CHESS.

CHESS operates as a computer-to-computer system which relies on an electronic message exchange over publicly available communications networks using proprietary encryption software. CHESS's proprietary software is utilised both at ASX Settlement and within the back-office systems of participants, payment providers and registries.

Although the CHESS messaging format is proprietary and does not follow any particular standard, it was originally developed following a review of communications standards in the finance industry. Elements of those standards were used in the design of the CHESS messaging format (for example, the use of a bitmap structure). Relevant communication standards have evolved significantly since CHESS was first introduced over fifteen years ago; for example, one of the standards on which the original CHESS messaging format was based, ISO 7775, has since been replaced (by ISO 15022 which in turn was recently replaced by ISO 20022).[14] Nevertheless, ASX considers that the CHESS messaging format has continued to achieve its key objectives in the areas of system/messaging capacity, ease of validation, adaptability and functionality.

CHESS is able to accommodate the use of relevant, internationally accepted communications standards via third-party software 'adapters/translators'. These have been developed to convert CHESS proprietary messages into internationally accepted SWIFT message protocols and vice versa. However, this approach is expensive for participants and other market stakeholders and involves contracting third-party software vendors to develop the required translators. Irrespective of preferred messaging standards, many participants also rely on third-party vendors for the back-office systems used to connect to CHESS (see Key Consideration 17.7).

At its August 2013 meeting, the Business Committee expressed support for the introduction of a global messaging standard on the basis that it reduces costs for participants that operate in multiple markets, and which are currently required to either operate a separate back-office system in Australia or use a translator. The Business Committee recommended a move to the ISO 20022 SWIFT messaging protocol, particularly as this would align with the standard used for ASX's ReferencePoint product.[15]

In February 2014, the Business Committee recommended that a move to the new ISO 20022 SWIFT communications protocol be linked to a proposed CHESS replacement initiative. The Technical Committee has provided ASX Settlement with initial feedback on a transition to an

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[14] ISO 20022 is the International Organization for Standardization's standard for financial services messaging. It defines a methodology for the development of financial message standards for financial business processes and transactions. Further information on ISO 20022 can be found at: <http://www.iso20022.org/about_iso20022.page>.

[15] ReferencePoint is an ASX data service providing subscribers with information on a broad range of corporate actions, prices and reference data across the ASX market. Further details are available at: <https://www.asxonline.com/marketinfo/Doco/referencepoint_brochure.pdf>.

ISO 20022-based CHESS replacement with an indicative project timeline of up to three years. The Committee set out a range of options for the replacement of CHESS, options for the deployment of ISO 20022 standard messaging (either independently or in conjunction with the replacement of CHESS) and a potential go-live strategy.

Although ASX Settlement meets the minimum requirements of Principle 22 as they apply to a domestically oriented CCP, a move to ISO 20022 SWIFT standard messaging has the potential to reduce operating costs and increase efficiency for participants once the initial cost of changing standards has been absorbed. Globally active participants could potentially save costs from straight through processing benefits and the removal of redundant local back-office systems. In addition, potential cost savings may also arise from greater competition among back-office system vendors able to utilise standardised connectivity. In the spirit of continuous improvement, ASX Settlement is therefore encouraged to migrate to the ISO 20022 SWIFT messaging standard over the medium term (approximately within the next three years).

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

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

Rating: Observed

ASIC's and the Bank's assessment is that ASX Settlement observes the requirements of Principle 23. ASX Settlement's disclosure of rules, key policies and procedures, and market data is described in further detail under the following Key Considerations.

23.1 A securities settlement facility should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.

ASX Settlement's Operating Rules and Procedures form the basis of all material aspects of the SSF's service to participants. The Operating Rules are disclosed on ASX's public website.[16] The Rules are also posted on the ASX participant website, along with procedures relevant to participants.

To assist participants in their understanding of the risks of participating in ASX Settlement, and for the information of other interested stakeholders, ASX publishes a range of additional material on its public website. Information specific to ASX Settlement includes information about participant requirements, trade and settlement monitoring systems, known software release issues and change requests, 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

16 Available at <http://www.asx.com.au/regulation/rules/asx-settlement-operating-rules.htm>.

the Code of Practice. During 2013/14, ASX redesigned its website, one element of which included centralising links to information required to be disclosed under the Principles.

Specific disclosure requirements are dealt with under Key Considerations 1.3, 2.2, 13.3, 14.4, 16.4, 18.2 and 18.3.

23.2 A securities settlement facility should disclose clear descriptions of the system's design and operations, as well as the securities settlement facility's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the securities settlement facility.

General descriptions of ASX Settlement's system design and operations are available on the ASX public website, including as part of ASX's response to the CPSS-IOSCO Disclosure Framework (see Key Consideration 23.5).[17] The Disclosure Framework document describes the ASX group structure, provides a general description of the CS facilities and their roles, system design and operations, outlines the legal and regulatory framework for clearing and settlement, and provides a description of steps taken by ASX to ensure compliance with the Principles and the corresponding FSS. The ASX public website provides additional information on system design and operations, including a description of the cash market settlement process.

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

All applicants for participation in ASX Settlement 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 Settlement has completed an initial assessment of an application, the applicant is also invited to attend formal 'on boarding' meetings with the Compliance and Operations departments to discuss key areas of importance for participants.

As part of the formal admission process, the applicant must provide supporting evidence of its capacity to comply with the Operating 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 details of participants' arrangements to ensure compliance with the Operating Rules and Procedures.

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

17 Available at <http://www.asx.com.au/documents/regulation/pfmi_disclosure_framework.pdf>.

Where ASX becomes aware or suspects that a participant lacks a satisfactory 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 routine risk monitoring activities or through its regular discussions with participants (see Key Consideration 17.7). Examples of matters that might raise concerns are if a participant had increased settlement fail rates or had a high frequency of technical connectivity issues. If the matter is serious, ASX may require that the participant remediate the weakness. Alternatively ASX may impose conditions on participation, require that the participant appoint an independent expert to assist with the remediation task.

23.4 A securities settlement facility should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The securities settlement facility should provide clear descriptions of priced services for comparability purposes.

A full breakdown of the various fees ASX Settlement charges for the individual services it offers, including available discount and incentive schemes, is published on the ASX website. Fee schedules are available for each CS facility ASX operates.[18] Separate fees are charged for clearing, settlement and ancillary services related to cash market products (e.g. equities, warrants and structured products).

ASX Settlement publishes a description of its priced services and how its fee structure has been calculated in a variety of ways, including on the ASX website, via participant notices, via Guidance Notes and in information brochures.

As a general rule, ASX Settlement publically notifies changes to its fee structure in a timely manner, sometimes with as much as three months' notice. However, the ASX Settlement Operating Rules allow ASX Settlement to make changes to its fee structure at any time, provided the changes are notified in advance to participants.

The Code (see Key Consideration 2.7) requires ASX Settlement to publish fee schedules, in a clear and accessible form, for all clearing and settlement services covered under the Code. The published schedules include a brief description of each service and the applicable terms, conditions and eligibility criteria, of any rebates, revenue-sharing arrangements and discounts applicable to each service.

ASX Settlement also makes available worked examples, tools and other information as appropriate to assist users to anticipate:

- the expected cost impacts of any pricing changes
- the expected cost impacts associated with new products and initiatives
- the impact of discounts, rebates and revenue-sharing arrangements for different user groups and different activity profiles.

In accordance with the Code, ASX Settlement publishes its audited management accounts on an annual basis, together with ASX's full year financial results (see Key Consideration 21.2).

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[18] The ASX Settlement fee schedules are available at: <https://www.asxonline.com/intradoc-cgi/groups/participant_services/documents/information/asx_015359.pdf> and <http://www.asx.com.au/documents/settlement/transfer_service_fee_schedule.pdf>.

ASX Settlement has also committed under the Code to provide non-discriminatory pricing to all customers and potential users. ASX Settlement's fees, including rebates, revenue-sharing arrangements and discounts applicable to the use of these services, do not discriminate between ASX-affiliated and other customers or potential third-party users of its settlement services.

ASX Settlement has distributed a report containing the results of the independent cost benchmarking exercise carried out under the Code (see Key Consideration 21.2) to its customers, stakeholders and the Council of Financial Regulators, and has published the report on the ASX website.

23.5 A securities settlement facility should complete regularly and disclose publicly responses to the CPSS-IOSCO *Disclosure framework for financial market infrastructures*. A securities settlement facility also should, at a minimum, disclose basic data on transaction volumes and values.

ASX has published its response to the CPSS-IOSCO Disclosure Framework, including information describing how its CS facilities observe the applicable Principles. This document was revised during 2013/14, expanding on a previous version that summarised ASX's approach to observance of the Principles with greater detail as to how the CS facilities meet the Principles and corresponding FSS. ASX plans to update this document quarterly and further enhance its disclosure as necessary from time to time.

ASX currently reports basic risk and activity data for the CS facilities via a monthly activity report, as well as through additional data published on both its main website and dedicated website on clearing and settlement of cash equities. The Bank will continue to monitor steps by ASX Settlement to refine and enhance its disclosure.

Principle 24: Disclosure of market data by trade repositories

A trade repository should provide timely and accurate data to relevant authorities and the public in line with their respective needs.

Rating: Not applicable

Principle 24 is not relevant to securities settlement facilities.

A2.2 Austraclear

Austraclear is a wholly owned subsidiary of ASX Settlement Corporation Limited, itself a wholly owned subsidiary of ASX Limited (see 'ASX Group Structure' in Section 2.3.1). It provides settlement and depository services for debt securities, and settlement services for derivatives traded on the ASX 24 market and for margin payments in ASX Clear and ASX Clear (Futures).

Principle 1: Legal basis

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

Rating: Observed

ASIC's and the Bank's assessment is that Austraclear observes the requirements of Principle 1. The legal basis of Austraclear is described in further detail under the following Key Considerations.

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

Legal basis

Austraclear's settlement arrangements for transactions entered into by its participants require a high degree of legal certainty. Key components of the legal framework under which the SSF operates are:

- Austraclear holds a clearing and settlement (CS) facility licence, under Part 7.3 of the *Corporations Act 2001*. This licence is administered by ASIC in consultation with the Bank, with the Minister acting as ultimate decision-maker on licensing matters.
- Austraclear has defined Regulations and Procedures. Under section 822B of the Corporations Act, these Regulations have effect as a contract under seal between: Austraclear and each of its participants; each participant and each other participant; and each participant and each issuer. The Regulations and Procedures set out the rights and obligations of participants and Austraclear, including in the event of default or suspension.
- The finality of settlements undertaken by Austraclear is protected by its approval, and the approval of the Reserve Bank Information and Transfer System (RITS), as a real-time gross settlement (RTGS) system under Part 2 of the PSNA (see Key Consideration 1.4).

The legal basis of Austraclear's activities is reviewed by ASX Legal whenever there are material amendments to the Regulations or Procedures. Two such reviews occurred for Austraclear during 2013/14.

Austraclear admitted ASX Collateral Management Services Pty Limited (ASX Collateral), as a Special Purpose Participant in October 2013. ASX Collateral operates a centralised collateral management service (CCMS) under which exchange of title to debt securities occurs in Austraclear. The legal basis for the operation of the CCMS in Austraclear and the status of ASX Collateral as a Special Purpose Participant is set out in the Austraclear Regulations. Legal arrangements between ASX Collateral and customers of the CCMS (which must be Full Participants) are set out in standard-form Collateral Management Service Agreements

(CMSAs). ASX has obtained a legal opinion in relation to the use of CMSAs that has identified no material legal risks. The standard form CMSAs specify the nature of services that the Collateral Manager provides to users. These agreements are between ASX Collateral and users of the collateral service; Austraclear is not a party to these contracts.

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

Legal entity

Austraclear is a wholly owned subsidiary of ASX Settlement Corporation Limited, which is itself a wholly owned subsidiary of ASX Limited. As a separate legal entity, Austraclear's securities settlement 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.

Austraclear provides settlement services and related depository services for debt securities, and settlement services for derivatives traded on the ASX 24 market and for margin payments in ASX Clear and ASX Clear (Futures), in accordance with the Austraclear Regulations and Procedures. In July 2014 Austraclear expanded the range of its services through the launch of a settlement service for foreign currency payments, initially covering payments denominated in Chinese renminbi (RMB) (see SSF Standard 8). The foreign currency settlement service is designed to operate independently from Austraclear's Australian dollar services. Austraclear's ancillary services do not have a distinct profile from, or pose additional risks to, its activity of operating an SSF.

Rights and interests

The rights and interests of Austraclear, its participants and, where relevant, its participants' customers in securities deposited with Austraclear are defined in Austraclear's Regulations and Procedures (see Principle 11).

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

Section 822A of the Corporations Act establishes a framework to prescribe the matters that must be dealt with in the Regulations and those that may be considered under the Procedures. Rule changes are subject to a ministerial disallowance process.

Austraclear's Regulations and Procedures are supplemented with explanatory material, published on the ASX public website and the ASX restricted participant website, to support participants' (and prospective participants') understanding of the risks they face through participation in the system. Publicly available material includes high-level descriptions of Austraclear's operations and settlement process, the Austraclear system (including test system), business continuity arrangements, classes of Austraclear participant, technical documentation, and fees and charges.

There is a clear process for changing Austraclear's Regulations and Procedures. Proposed rule changes may be submitted informally to ASIC. In consultation with the Bank, ASIC will consider the changes and advise ASX of any regulatory concerns. Once such concerns are satisfactorily addressed, ASIC will invite formal submission of the proposed changes, which triggers a 28-day 'disallowance' period, during which the Minister may choose to disallow the 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. If changes to the Regulations are not disallowed by the Minister, they are notified to participants via the ASX website.

1.3 A securities settlement facility should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.

The legal basis for the activities of Austraclear and the facility's protection as an approved RTGS system under the PSNA – see also Key Consideration 1.4 – are described on the ASX public website in its Disclosure Framework document, which sets out in detail how each CS facility meets the requirements of each Principle within the *Principles for Financial Market Infrastructures* (PFMIs) developed by the Committee on Payment and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO) (see Key Consideration 23.2).[1]

ASX, on behalf of Austraclear, submits an Annual Group Licence Report to ASIC and the Bank. This report sets out the legal basis for the CS facilities' activities under their licence obligations, and is used by ASIC in the preparation of ASIC's Market Assessment Report for the ASX Group.

Austraclear may seek independent legal opinions on relevant legal matters relating to significant new services, including any implications that their introduction may have for the legal basis of existing functionality. These opinions may, in some circumstances, be shared with participants or other stakeholders for their information, particularly to demonstrate that new Regulations will have the intended legal effect. For example, in assessing the legal basis of its foreign currency settlement service ASX sought external legal advice regarding the extension of finality protections under Part 2 of the PSNA to transactions settled under the new service.

1.4 A securities settlement facility should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the securities settlement facility under such rules and procedures will not be voided, reversed, or subject to stays.

Settlement finality

The finality of Austraclear's settlement process is protected by:

- its approval as an RTGS system under Part 2 of the PSNA. This approval protects the finality of payments or securities settlements made through Austraclear in the event of a participant entering external administration (see Key Consideration 8.1).
- the approval of RITS as an RTGS system under Part 2 of the PSNA (see Principle 9). This approval protects payments between participants that are 'Participating Banks' from being voided in the case of a Participating Bank entering external administration.

1 Available at <http://www.asx.com.au/documents/regulation/pfmi_disclosure_framework.pdf>.

Enforceability of ASX rules while under external administration

ASX Legal has analysed the legal enforceability of Austraclear's Regulations upon the SSF's entry into external administration, and has identified no material legal risk to enforceability.

1.5 A securities settlement facility conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.

Although Austraclear's operations are based in Australia, participants of Austraclear include subsidiaries and branches of entities that are based in foreign countries. Austraclear's Regulations are governed by Australian law and require that all of its 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 risk.

Principle 2: Governance

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

Rating: Observed

ASIC's and the Bank's assessment is that Austraclear observes the requirements of Principle 2. Austraclear's governance arrangements are described in further detail under the following Key Considerations.

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

The high-level objectives of Austraclear are set out in the CS Boards' Charter, which is available on the ASX website. The objectives prioritise on the Boards' responsibilities in the area of risk management and, in particular, Austraclear's responsibility for complying with the Bank's Financial Stability Standards (FSS), which are aligned with stability-related requirements of the Principles.

Austraclear's objectives recognise the public interest. These objectives are reflected in the ASX Limited Board Charter, which provides that the Board has a responsibility to oversee the conduct of the 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 (dealing with licensing of CS facilities). These include that Austraclear, to the extent that it is reasonably practicable to do so, comply with relevant FSS and do all (other) things necessary to reduce systemic risk arising from 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 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.

Austraclear'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 Key Consideration 2.7). Consultations and responses to consultations are made available on the ASX website. In addition, the ASX Group has disclosure obligations under the Corporations Act and Listing Rules which it manages in accordance with those laws and rules.

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

The governance arrangements of Austraclear are documented on its public website. This documentation includes the Charters of the ASX Limited Board, the CS Boards (including that of Austraclear), 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 settlement facilities; namely the Managing Director and CEO, 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 the CPSS-IOSCO Principles; group and business structure, including an organisational chart showing senior group executives; and risk management policies (in summary form).

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

Ultimate responsibility for the oversight of risks faced by Austraclear lies with the ASX Limited Board and the Austraclear Board. The ASX Limited Board is responsible for the overall business strategy of the ASX Group, and oversight of enterprise risk management policy. The ASX Limited Board Charter delegates certain responsibilities to the Austraclear Board, including the review and oversight of Austraclear's settlement-related risk, and its compliance with the FSS. The CS Boards' Charter elaborates on other roles and responsibilities of the Austraclear 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. The Austraclear Board meets regularly (seven times in 2013/14) and receives detailed reports on Austraclear's business and operations, risk management and financial performance.

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 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. If there is a real possibility of a material conflict of interest and duty on a matter subject to vote 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 contain suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board member(s).

At the end of 2013/14, the ASX Limited Board had eight members, comprising the ASX CEO and seven 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 Austraclear Board comprises one executive director (the ASX CEO) and six non-executive directors. During 2013/14, one non-executive director resigned and two new directors were appointed. Three of the non-executive directors, including the Chair, 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. During 2013/14 ASX made changes to the composition of the CS Boards. Previously, all four CS Boards shared common directors; now, the ASX Clear (Futures) and Austraclear Boards share common directors, but two of these directors do not serve on the ASX Clear or ASX Settlement Boards. This change was made primarily for business reasons, but also supports ASX's conflict handling arrangements (see below under 'Group structure').

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 the ASX 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 the ASX website.

Selection, succession planning and training for ASX Limited and CS 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 Austraclear 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 on the recommendation of the Remuneration Committee at regular 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 which 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 may take advice from an external remuneration consultant. The process involves benchmarking against a group of peer companies. The last fee review took place at the end of 2013 following changes to relevant governance and regulatory arrangements. The revised fees took effect on 1 January 2014.

Group structure

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 and the Principles. ASX considers that there is limited potential for shared directorships to create conflicts between ASX's group-wide commercial interests and the risk management function of the CS facilities. More broadly, it considers that conflicts between directors' roles on the CS Boards and the ASX Limited Board are unlikely given the distinct roles the separate entities perform, and in view of group-wide arrangements to manage matters such as operations and compliance. If a conflict were to arise, a director sitting on multiple CS Boards would be expected to make decisions in the best interests of each facility.

The restructuring of the CS Boards to reduce the number of common directors between each of the CS facilities and ASX Limited further limits the potential for conflict. Two directors will now be able to form a quorum of the Austraclear Board, allowing matters that raise potential conflicts of interest to be considered and voted on without the involvement of directors that are also on the ASX Limited Board.

2.5 **The roles and responsibilities of management should be clearly specified. A securities settlement facility's management should have the appropriate experience, mix of skills and integrity necessary to discharge their responsibilities for the operation and risk management of the securities settlement facility.**

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 Group Executive, Operations (GE, Operations). The Managing Director and CEO has responsibility for the overall operational and business management and profit performance of ASX, while the GE, Operations is responsible for the overall settlement risk management of the CS facilities and for ensuring that the SSFs meet regulatory obligations placed on them. The GE, Operations has a direct reporting line to the CS Boards.

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 GE, Operations. The CS Boards provide input on the setting of Key Performance Indicators and may review the performance outcomes for the CRO and the GE, Operations.

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 Human Resources to identify and manage the development of high potential staff according to individual and business needs. Succession and contingency planning is conducted for Group Executives, General Managers and other key staff.

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

ASX has a documented risk management framework, which is described under Key Consideration 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 policies and standards. The Boards consider these policies and standards at a concurrent meeting; where the policy or standard is relevant to more than one facility, the Boards of those facilities would simultaneously determine whether to approve the policy or standard. If the policy requirements under consideration differ across facilities, the Boards of each relevant facility would separately determine whether to approve the policy or standard (during the concurrent meeting). Board feedback is incorporated before risk policies and standards are approved.

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

- Detailed reporting to the CS Boards occurs quarterly on the implementation of 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. The ASX Settlement Risk Policy Framework, which provides a formal structure for the development, governance and review of settlement risk policies and standards, was approved by the CS Boards in November 2013. The ASX Settlement Risk Policy Framework will be reviewed annually. ASX are currently in the process of formally documenting the policies and standards referenced in the Framework. The Bank will continue to monitor the implementation of those policies and standards.

- 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 departments, 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 departments.
- Individual departments 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 department 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 Clearing and Settlement Operations and Settlement Services departments have responsibilities relevant to the management of settlement risks that are defined in ASX's Settlement Risk Policy Framework.

Directors are entitled to obtain independent advice. The 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.

Internal audit

ASX maintains an internal audit plan that provides for a three-to-five year review cycle of key operational and risk management processes, and internal control mechanisms that are governed by ASX's Enterprise Risk 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 the ASX public website.

The Internal Audit department is a separate department within ASX that reports to the CRO for administrative purposes, and the Audit and Risk Committee and Managing Director and CEO for audit purposes. The Internal Audit department's reporting structure also includes reports to the CS Boards and ASX Compliance Board. Internal Audit's 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 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 department 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 such audit was carried out in 2011, with the next assessment scheduled for October/November 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.[2] 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.

2.7. The board should ensure that the securities settlement facility's design, rules, overall strategy and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.

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

The views of participants and other stakeholders are sought through formal and informal means. Austraclear routinely conducts stakeholder consultations when considering major changes to existing services or new service offerings, such as the introduction of ASX Collateral. Participants' views may also be gathered through the induction program for new participants, as well as ongoing participant liaison and compliance checks. During 2013/14, Austraclear formed an Advisory Committee to provide an additional formal structure for user feedback on Austraclear's design, operation and the development of its forward work plan. The Advisory Committee is made up of representatives from eight of Austraclear's major participants, and representatives from the Bank and the Australian Financial Markets Association. The first quarterly meeting of the Advisory Committee took place on 31 March 2014.

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2 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.

Principle 3: Framework for the comprehensive management of risks

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

Rating: Broadly observed

The Bank's assessment is that Austraclear broadly observes the requirements of Principle 3. In order to fully observe Principle 3, Austraclear should:

- implement plans to enhance its recovery plan consistent with forthcoming CPSS-IOSCO guidance on recovery planning.

Austraclear's risk management framework is described in further detail under the following Key Considerations.

3.1 A securities settlement facility should have risk-management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the securities settlement facility. Risk-management frameworks should be subject to periodic review.

Identification of risk

ASX's high-level framework for risk management is described in its Enterprise Risk Management Policy. 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 Key Consideration 2.6).[3] 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

[3] 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.

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 2013/14, ASX adopted an updated and formalised settlement risk policy framework to better align both it and related governance structures with the requirements of the Principles embedded in the FSS. The Settlement Risk Policy Framework sets out a comprehensive set of settlement-related risk policies to support the risk management approach of ASX's SSFs, including Austraclear. These policies govern more granular internal standards, which in turn govern detailed procedures for the management of settlement-related risks. The structure of policies, standards and procedures reflects the requirements of the FSS. ASX will be continuing work to finalise and update the policies and standards covering all relevant aspects of the FSS, which it aims to complete over 2014/15. The Bank will continue to monitor the progress made in this work.

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

- *The CS Boards*. Each CS facility has a board (see Key Consideration 2.3 and 'ASX Group Structure' in Section 2.3.1), which shares members with the other ASX CS facilities, has oversight of the Settlement 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 Settlement Risk Policy Committee (SRPC)*. The SRPC was formed in November 2013, to review and approve clearing risk policies and standards prior to submission to the CS Boards. The SRPC is chaired by the GE, Operations and includes the ASX Group Legal Counsel, General Manager of Clearing and Settlement Operations and the General Manager of Settlement Services. It will meet as needed when settlement policy matters arise.
- *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 settlement risk policies related to developments in 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 SSF Risk, Operations and Compliance Committee (SROCC)*. SROCC is chaired by the GE, Operations and is made up of senior managers and executives from the settlement 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 risk, operational or compliance risk, and manage settlement risk. The SROCC currently meets on a monthly basis.
- *The Participant Incident Response Committee (PIRC)*. The PIRC is responsible for coordinating ASX's response to a settlement participant incident, and provides input into policy determinations and settings as necessary in response to such incidents. The PIRC is chaired by the GE, Operations, and is made up of senior staff from operational, risk

management, compliance and legal departments. Meetings of the PIRC are convened as required to address an actual or potential participant incident.

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 PricewaterhouseCoopers in 2011 and the next review is scheduled for the second half of 2015.

Previously, the Enterprise Risk Management Policy was reviewed by the Audit and Risk Committee approximately every three years, with the committee informed of material changes in the interim. Following the most recent review in August 2013, future reviews will be conducted on a two year cycle.

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

Austraclear may apply sanctions to, or place additional requirements on, participants that fail to comply with its Regulations. Participants may ultimately be required to seek alternative settlement arrangements.

3.3 A securities settlement facility should regularly review the material risks it bears from and poses to other entities (such as other financial market infrastructures, settlement banks, liquidity providers, and service providers) as a result of interdependencies, and develop appropriate risk-management tools to address these risks.

Austraclear 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 Key Consideration 3.1), and its processes for identifying risks associated with new activities. In the case of new products and services, ASX undertakes risk assessments when undertaking an expansion of its activities or in the event of material changes to its business. Risk assessments are built into ASX's project management framework (see Key Considerations 15.1, 17.4).

For instance, ASX has identified potential risks to its operational activities arising from participants outsourcing their back-office processing offshore. Austraclear has also identified interdependencies with service providers, notably Clearstream Banking S.A. (Clearstream) for key components of the ASX Collateral service. Austraclear's response to these interdependencies is outlined in Key Consideration 17.4.

Interdependencies with ASX Clear and ASX Clear (Futures) for the settlement of margin and other payment obligations are managed within the context of ASX Group's broader risk management framework (see Principle 20).

3.4 A securities settlement facility should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. A securities settlement facility should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, a securities settlement facility should also provide relevant authorities with the information needed for purposes of resolution planning

Austraclear has developed a basic recovery plan that identifies scenarios that could threaten its ongoing provision of critical settlement services and sets out how it would respond to such scenarios on the basis of its existing powers under its Regulations and Procedures. The recovery plan sets out the likely sequence of actions that ASX would take under each identified recovery scenario, and analyses the advantages and disadvantages of tools available to Austraclear to respond to such scenarios.

Austraclear has commenced work to develop a more comprehensive recovery plan in line with forthcoming CPSS-IOSCO guidance on recovery planning, expected to be published in late 2014. As part of this process, ASX will consider whether there is a need for enhancements to the Austraclear Regulations to address non default-related losses in light of the forthcoming guidance.

Principle 4: Credit risk

A securities settlement facility should effectively measure, monitor and manage its credit exposures to participants and those arising from its payment, clearing and settlement processes. A securities settlement facility should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. 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 sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the 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 to the central counterparty in extreme but plausible market conditions.

Rating: Not applicable

Austraclear does not extend credit to participants or provide a settlement guarantee. Accordingly, Austraclear does not assume credit risk as principal. Austraclear's use of a DvP settlement mechanism ensures that participants do not face credit risks arising from Austraclear's settlement processes (see Principle 12).

The Bank has concluded that Principle 4 does not apply to Austraclear.

4.1 A securities settlement facility should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing, and

settlement processes. Credit exposures may arise from current exposures, potential future exposures, or both.

Not applicable to Austraclear.

4.2 A securities settlement facility should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk management tools to control these risks.

Not applicable to Austraclear.

4.3 A payment system or securities settlement facility should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a deferred net settlement payment system or deferred net settlement securities settlement facility in which there is no settlement guarantee, but where its participants face credit exposures arising from its payment, clearing and settlement processes, such a financial market infrastructure should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.

Not applicable to Austraclear.

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 Principle 5 on collateral and Principle 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.

Key Consideration 4.4 is not relevant to securities settlement facilities.

4.5 A central counterparty should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A 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 total financial resources. 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.

Key Consideration 4.5 is not relevant to securities settlement facilities.

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.

Key Consideration 4.6 is not relevant to securities settlement facilities.

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

Not applicable to Austraclear.

Principle 5: Collateral

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

Rating: Not applicable

Since Austraclear does not assume credit risk as principal (see Principle 4), it does not collect collateral from participants.

The Bank has concluded that Principle 5 does not apply to Austraclear.

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

Not applicable to Austraclear.

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

Not applicable to Austraclear.

5.3 **In order to reduce the need for procyclical adjustments, a securities settlement facility should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.**

Not applicable to Austraclear.

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

Not applicable to Austraclear.

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

Not applicable to Austraclear.

5.6 **A securities settlement facility should use a collateral management system that is well designed and operationally flexible.**

Not applicable to Austraclear.

Principle 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: Not applicable

Principle 6 is not relevant to securities settlement facilities.

Principle 7: Liquidity risk

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

Rating: Observed

The Bank's assessment is that Austraclear observes the requirements of Principle 7. Austraclear's arrangements to minimise liquidity risk for its participants are described in further detail under the following Key Considerations.

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

Austraclear conducts its securities settlements on a DvP Model 1 basis in real time (see Key Consideration 12.1). By using such a settlement mechanism, Austraclear minimises the liquidity impact of a participant default on other participants. Only the bilateral counterparties to securities trades struck over the counter with the defaulted participant would face a direct liquidity impact. Such counterparties would be able to manage their liquidity risk within their proprietary frameworks for counterparty risk management.

7.2 A securities settlement facility should have effective operational and analytical tools to identify, measure and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.

Since Austraclear does not assume liquidity risk as principal, and its use of DvP Model 1 settlement limits the liquidity impact of a participant default on non-defaulting participants, there are no relevant settlement and funding flows for Austraclear to measure and monitor.

7.3 A payment system or securities settlement facility, including one employing a deferred net settlement mechanism should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate, intraday or multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.

Since Austraclear does not assume liquidity risk as principal it does not need to maintain liquid resources to cover payment obligations.

7.4 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.

Key Consideration 7.4 is not relevant to securities settlement facilities.

7.5 For the purpose of meeting its minimum liquid resource requirement, a securities settlement facility's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If a securities settlement facility has access to routine credit at the central bank of issue, the securities settlement facility may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.

Since Austraclear does not assume liquidity risk as principal it does not maintain liquid resources to cover payment obligations in stressed scenarios (see Key Consideration 7.3).

7.6 **A securities settlement facility may supplement its qualifying liquid resources with other forms of liquid resources. If the securities settlement facility does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if a securities settlement facility does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. A securities settlement facility should not assume the availability of emergency central bank credit as a part of its liquidity plan.**

Since Austraclear does not assume liquidity risk as principal it does not maintain liquid resources to cover payment obligations in stressed scenarios (see Key Consideration 7.3).

7.7 **A securities settlement facility should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the securities settlement facility or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. A securities settlement facility should regularly test its procedures for accessing its liquid resources at a liquidity provider.**

Since Austraclear does not assume liquidity risk as principal it does not maintain liquid resources to cover payment obligations in stressed scenarios (see Key Consideration 7.3).

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

Austraclear does not assume liquidity risk as principal.

7.9 **A securities settlement facility should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. A securities settlement facility should have clear procedures to report the results of its stress tests to appropriate decision-makers at the securities settlement facility and to use these results to evaluate the adequacy of, and adjust, its liquidity risk management framework. In conducting stress testing, a securities settlement facility should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the securities settlement facility, include all entities that might pose material liquidity risks to the securities settlement facility (such as settlement banks, nostro agents, custodian banks, liquidity providers and linked financial market infrastructures), and where appropriate, cover a multiday period. In all cases, a securities settlement facility should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.**

Since Austraclear does not assume liquidity risk as principal it does not maintain liquid resources to cover payment obligations in stressed scenarios (see Key Consideration 7.3).

7.10 A securities settlement facility should establish explicit rules and procedures that enable the securities settlement facility to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the securities settlement facility's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

Since Austraclear does not assume liquidity risk as principal, it does not need rules and procedures to address a liquidity shortfall.

Principle 8: Settlement finality

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

Rating: Observed

The Bank's assessment is that Austraclear observes the requirements of Principle 8. Austraclear's arrangements for ensuring finality of settlements are described in further detail under the following Key Considerations.

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

The point at which settlement is final is defined in the Austraclear Regulations. In the case of transactions involving the transfer of a security, settlement is final when Austraclear has made the appropriate amendments to the security records of the participants involved in the transaction. In the case of transactions involving an AUD cash payment, the cash element of the transaction is settled and may not be unwound when a message is received from RITS that the cash transfer has been made. Upon receipt of the RITS confirmation, Austraclear will update the cash record of the participant. The cash record is a record of the day's flow of debits and credits against each participant's nominated account that allows participants to limit the amount of their funds made available for settlement of transactions.[4]

For foreign currency cash payments, the transaction is settled and may not be unwound once Austraclear has received settlement instructions from the paying participant that satisfy cash record limit checks with its participating bank.

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

The finality of Austraclear's settlement process is ensured by its approval under Part 2 of the PSNA. In addition, the payments between participants that are 'Participating Banks' are protected by virtue of the approval of RITS as an RTGS system under Part 2 of the PSNA. With this approval, a payment executed in RITS at any time on the day on which a RITS participant enters external administration has the same standing as if the participant had gone into external administration on the next day. Accordingly, in the event of insolvency all transactions settled on the day of the insolvency are irrevocable and cannot be unwound.

Since the protection of the PSNA covers any exchange of assets, it extends to delivery-versus-delivery (DvD) settlement of substitutions generated by ASX Collateral. The point of finality in the case of collateral substitutions is identical to other obligations settled in Austraclear.

8.2 A securities settlement facility should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. A large-value payment system or securities settlement facility should consider adopting RTGS or multiple-batch processing during the settlement day.

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

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

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

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

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

Principle 9: Money settlements

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

Rating: Observed

The Bank's assessment is that Austraclear observes the requirements of Principle 9. Austraclear's money settlement arrangements are discussed in further detail under the following Key Considerations.

The description of money settlement arrangements in this Principle draws a distinction between 'money settlement agents' – the entities whose assets are used to settle the ultimate payment obligation – and 'settlement banks', which maintain accounts with the money settlement agent to settle their own obligations or those of other participants.

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

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

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

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

During 2013/14, all money settlements in Austraclear were effected using central bank money.

In July 2014 Austraclear began offering a foreign currency settlement service, initially supporting the settlement of payments in RMB. Settlement of these payment transactions is effected in commercial bank money across the books of the Bank of China (Sydney branch).

9.3 If a securities settlement facility settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, a securities settlement facility should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. A securities settlement facility should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.

Settlement is in central bank funds. Since not all Austraclear participants are eligible to hold an ESA, Austraclear rules provide for those participants to nominate a Participating Bank (an ESA holder that agrees to act on behalf of a participant as settlement agent). A Participating Bank in Austraclear must be approved by the Australian Prudential Regulation Authority

(APRA) as an authorised deposit-taking institution (ADI) for the purpose of carrying out banking business within Australia, and be a member of RITS with an ESA. Participating Banks must also satisfy Austraclear's general participation requirements, which cover matters such as operational capacity, financial standing, and business continuity arrangements (see Principle 18).

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

Austraclear is similarly not directly exposed to credit or liquidity risks from Bank of China in respect of its new settlement service for RMB payments. To act as a foreign currency settlement bank, a bank must be licensed by APRA. In considering a bank's application to be a foreign currency settlement bank, Austraclear considers factors such as the bank's creditworthiness, operational reliability and capacity, business continuity management and business integrity and operations. Business continuity requirements are set out in the Austraclear Regulations.

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

Austraclear does not conduct money settlements on its own books.

9.5 A securities settlement facility's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the securities settlement facility and its participants to manage credit and liquidity risks.

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

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

Principle 10: Physical deliveries

A securities settlement facility 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

Austraclear does not settle obligations requiring physical delivery.

The Bank has concluded that Principle 10 does not apply to Austraclear.

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

Not applicable to Austraclear.

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

Not applicable to Austraclear.

Principle 11: Central securities depositories

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

Rating: Observed

ASIC's and the Bank's assessment is that Austraclear observes the requirements of Principle 11. Austraclear's arrangements for its central securities depository activities are described in further detail under the following Key Considerations.

11.1 A central securities depository should have appropriate rules, procedures, and controls, including robust accounting practices, to safeguard the rights of securities issuers and holders, prevent the unauthorised creation or deletion of securities, and conduct periodic and at least daily reconciliation of securities issues it maintains.

Austraclear employs a range of controls to ensure the integrity of securities it holds. It maintains dual redundancy and a synchronous data update model which ensures that securities holding data are consistent across primary and backup data centres (see Principle 17). Austraclear produces a daily report that reconciles opening and closing balances of holdings to transactions. This report is used to identify if a holding has not been accurately updated.

Annual audits of Austraclear's system controls are conducted by an external auditor and the resulting report is published on the ASX website. These audits assess controls over transaction processing, as well as change management, security protocols, data system operations and disaster recovery planning. The auditor's opinion is provided under the Australian Government Auditing and Standards Board standard ASAE 3402 – Assurance Report on Controls at a Service Organisation. ASX Internal Audit performs an additional risk-based audit of key Austraclear functions on a rolling three-year cycle.

Austraclear's Regulations identify title for three different classes of securities: dematerialised securities; non-paper securities and Euroentitlements; and paper securities.

- Dematerialised securities are electronic securities that are registered in the Austraclear system rather than externally. They include electronic certificates of deposit, electronic promissory notes and electronic bank-accepted bills of exchange. A dematerialised security is held by a participant as a 'chose in action'. This legal structure imposes rights and obligations that replicate the rights and obligations of a negotiable instrument.

- Non-paper securities and Euroentitlements are electronic securities that are not registered within the Austraclear system. Non-paper securities include Commonwealth Government securities (CGS), registrable state and semi-government securities, and corporate debt. Euroentitlements are claims to investment-grade AUD-denominated European securities that are deemed acceptable by Austraclear and are deposited in an account that Austraclear maintains at Clearstream. The entitlements remain within Austraclear and transfer of title occurs across these accounts, rather than offshore. In the case of non-paper securities and Euroentitlements, Austraclear holds title for the participant as nominee, while the participant retains beneficial title.

- Paper securities are negotiable instruments and include some certificates of deposit, promissory notes and bills of exchange. Austraclear holds these securities for the participant as bailee. The participant retains legal and beneficial title.

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

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

The new account structure introduced in July 2013 to support the CCMS includes new Collateral Accounts to hold securities that have been given as collateral by way of outright transfer (Transferred Collateral Accounts) or security interest (Secured Collateral Accounts). These new accounts are used only by users of the CCMS (who must be Full Participants) and are controlled by the Collateral Manager as their agent. A collateral receiver may re-use securities held by it in a Transferred Collateral Account (unless re-use has been restricted by agreement between the collateral giver and collateral receiver), but only within the CCMS and through the Collateral Manager as its agent. The collateral receiver may also instruct the Collateral Manager to transfer the securities to another account for sale or repo outside of the Collateral Management System, but only on condition that equivalent replacement securities are transferred into the Collateral Account.

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

The transfer of title to securities in the Austraclear system is effected by electronic book entry. Transfers of dematerialised securities are transfers of contractual rights within the Austraclear system. Non-paper securities are transferred through the passing of beneficial title from the seller to the buyer. Paper securities are transferred through updates to participants' security records. Austraclear also uses 'allonges' which maintain the negotiability of paper securities. Austraclear retains legal title in the relevant registry. Settlement occurs via a DvP process in real time. The Austraclear Regulations and Procedures also provide for the transfer of securities free-of-payment, where required.

In the event of Austraclear's insolvency, the rules and arrangements for title within Austraclear provide assurance that participants' securities would be immune from claims by Austraclear's creditors. Austraclear is not counterparty to any transactions settled in its system.

11.2 A central securities depository should prohibit overdrafts and debit balances in securities accounts.

Austraclear does not maintain cash accounts, removing the possibility of overdrafts or the extension of credit by Austraclear. All transactions are settled across the ESAs of Participating Banks.

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

11.3 A central securities depository should maintain securities in an immobilised or dematerialised form for their transfer by book entry. Where appropriate, a central securities depository should provide incentives to immobilise or dematerialise securities.

The securities maintained in Austraclear are either paper, non-paper or dematerialised (see Key Consideration 11.1). Paper securities are immobilised and held by Austraclear as bailee for the holder.

11.4 A central securities depository should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.

Austraclear's Regulations require that Austraclear provide safe keeping for paper securities, and do all that is in its power to replace the security if it becomes lost, stolen, destroyed or damaged. If Austraclear was liable to a participant due to the loss or destruction of a paper security, its liability could extend to the face value of the security.

Austraclear has identified potential custody risks arising from negligence, misuse of assets, fraud, poor administration, or inadequate recordkeeping. Operational controls to mitigate these risks include segregation of duties, access restrictions and authorisation checks.

Austraclear is covered by the ASX Group general and professional indemnity insurance policies for civil liabilities arising from its central securities depository activities. Where losses are the result of employee wrongdoing or a computer manipulation, Austraclear is covered by the ASX Group comprehensive Crime Policy. The Austraclear Regulations also include specific warranties and indemnities limiting potential liabilities arising from custody risk.

11.5 A central securities depository should employ a robust system that ensures segregation between the central securities depository's own assets and the securities of its participants and segregation among the securities of participants. Where supported by the legal framework, the central securities depository should also support operationally the

segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings.

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

11.6 A central securities depository should identify, measure, monitor, and manage its risks from other activities that it may perform; additional tools may be necessary in order to address these risks.

Austraclear offers paying agent services to issuers of debt securities. This service is governed under a service agreement and documented terms and conditions, which are available on the ASX public website. The service is subject to the same operational risk framework that is applied across all ASX facilities (see Principle 17). Austraclear's liability from this activity is limited under the service agreement. Austraclear does not provide a centralised securities lending facility or act as a principal in securities lending transactions.

Principle 12: Exchange-of-value settlement systems

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

Rating: Observed

The Bank's assessment is that Austraclear observes the requirements of Principle 12. Austraclear's arrangements for exchange-of-value settlements are described in further detail under the following Key Considerations.

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

Austraclear eliminates principal risk by ensuring that the settlement of securities delivery obligations occurs if and only if associated payment obligations are settled. It does so by settling securities transactions on a DvP Model 1 basis. This entails that: there is a simultaneous transfer of cash and securities obligations between the buyer and seller on an item-by-item basis in real time; final settlement occurs if and only if both of the linked transfers are completed successfully; and if one transfer fails, the linked transfer will also be cancelled.

Settlement instructions submitted to Austraclear by ASX Collateral are executed on an individual gross basis (as for securities transactions). In the case of collateral substitutions, the settlement mechanism requires that finality is achieved only when both linked securities deliveries have been successfully completed – that is, settlement occurs on a DvD basis. The system design further provides for the grouping of linked transactions to accommodate chains of substitutions where collateral has been re-used.

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

By volume, DvP settlements accounted for around 53 per cent of total settlements during 2013/14, and one-way cash transfers account for around 46 per cent. There were also a small number of DvD settlements related to the ASX Collateral service and free-of-payment securities transfers – each less than 1 per cent of total volumes. By value, DvP settlements predominate, accounting for 79 per cent of total transfers in the year to end June 2014.

Principle 13: Participant default rules and procedures

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

Rating: Observed

ASIC's and the Bank's assessment is that Austraclear observes the requirements of Principle 13. Austraclear's default management arrangements are described in further detail under the following Key Considerations.

13.1 A securities settlement facility should have default rules and procedures that enable the securities settlement facility to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default.

The default of a participant in Austraclear does not require the SSF to meet obligations on its behalf; nor does it create additional obligations for non-defaulting participants. Steps taken by Austraclear to manage a participant default are therefore largely procedural in nature. Participant defaults may result from insolvency events or a failure to comply with the requirements of the Austraclear Regulations, and are dealt with under Regulations 3.10 to 3.14 and under the ASX Enforcement and Appeals Rulebook. Austraclear maintains an internal checklist setting out actions to be taken by relevant business units within ASX in managing a participant default. The default of an Austraclear participant would be managed by the PIRC. The PIRC is chaired by the GE, Operations, and is made up of senior staff from operational, risk management, compliance and legal units.

In the event that a default involved a user of ASX Collateral, the intent of default rules and procedures would be to preserve contractual default arrangements set out in Principal Agreements. These arrangements entitle the collateral receiver to treat collateral held as owned on an outright basis, and include clauses permitting either counterparty to terminate a future obligation to return collateral or cash where the other counterparty has suffered an event of default.

Upon notification of a default under a Principal Agreement, ASX Collateral would act as the collateral receiver's agent and, upon instructions from the collateral receiver, instruct

Austraclear to transfer collateral held from the receiver's Collateral Account to its Source Account or Austraclear trading account.

Nothing in the arrangements requires ASX Collateral to enquire into the validity of any matters in connection with Principal Agreements, including in relation to actions taken in a default event. Any dispute over actions taken would be a matter for parties to the Principal Agreement. ASX Collateral is not a party to the Principal Agreement and its role as agent is strictly limited. Equally, Austraclear is not party to the Principal Agreement; Austraclear's role in the process would be to act on the instructions of ASX Collateral. Nevertheless, the Austraclear Regulations provide an indemnity to Austraclear against any loss or claim arising from its actions in accordance with instructions from ASX Collateral.

13.2 A securities settlement facility should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.

Austraclear's Regulations and Procedures provide for the cancellation or suspension of a participant or Participating Bank that becomes subject to external administration, or where there is a reasonable suspicion that this may occur. A participant or a Participating Bank is also required to notify Austraclear if it becomes subject to external administration or where it reasonably suspects that this may occur. Similar powers and requirements apply to Foreign Currency Settlement Banks from July 2014.

There is no restriction within the Austraclear Regulations and Procedures on a participant changing its Participating Bank, including the case where that Participating Bank is insolvent.

13.3 A securities settlement facility should publicly disclose key aspects of its default rules and procedures.

Austraclear's Regulations and Procedures are published on the ASX public website. These include a requirement for a participant to give notice of insolvency or the reasonable possibility of insolvency and the right of Austraclear to suspend or terminate participant status in a default event.

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

ASX conducts regular in-house default management 'fire drills' to test default procedures as they would apply to participants across one or more of the ASX CS facilities. These fire drills focus on the more complex scenario of a clearing participant default and only relate to Austraclear in that they involve the declaration of default. Other procedural steps related to a default of an Austraclear participant are not covered, but these are carried out in practice from time to time to a greater degree than for the other ASX facilities that have a narrower participation base (see below). Since neither Austraclear nor its participants is exposed to financial obligations created by the default of a participant in respect of Austraclear transactions (a participant may be impacted by the default of another participant if it has outstanding unsettled bilateral transactions with the defaulting participant, but these exposures would not be generated within Austraclear), the management of a settlement-only participant default situation is generally procedural in nature. Austraclear has on occasion needed to employ its default management procedures, most recently to address the appointment of an external administrator to a participant in July 2013. Since the participant provided agency settlement services for other Austraclear participants, Austraclear's management of the default included facilitating a transition to alternative arrangements for participants reliant on these agency services for settlement.

Principle 14: Segregation and portability

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

Rating: Not applicable

Principle 14 is not relevant to securities settlement facilities.

Principle 15: General business risk

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

Rating: Broadly observed

ASIC's and the Bank's assessment is that Austraclear broadly observes the requirements of Principle 15. In order to fully observe Principle 15, Austraclear should:

- carry out plans to enhance its recovery plan in line with forthcoming CPSS-IOSCO guidance, and ensure that the capital it holds under Key Consideration 2 continues to be sufficient to fund the enhanced plan. As Austraclear further develops its recovery plan, it should also review and integrate its recapitalisation processes with its broader recovery planning arrangements.

Austraclear's management of general business risk is described in further detail under the following Key Considerations.

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

ASX's approach to business risk is consistent with its overall Enterprise Risk Management Policy and Framework (see Principle 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 exchange 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 the Group's general business activities arises in the collection of receivables, which principally comprise fees from market participants, issuers, users of market data and other customers. Mitigants include active collection procedures on trade receivables and 'ageing' of receivable amounts.
- Liquidity risk arises from the Group's time-critical payables, and is mitigated by prudent liquidity management, with forward planning and forecasting of liquidity requirements.
- ASX may be exposed to capital risk if equity in group entities falls below prudent or regulatory minimum levels. 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 this process, ASX identifies new strategic business initiatives, such as the projects that delivered the ASX Collateral and over-the-counter (OTC) derivatives clearing services. These 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 Key Consideration 17.4). Under this framework an initial high-level risk indication is defined at the project concept stage. This is followed by a formal project risk assessment covering both project delivery risks and impacts to business activities. ASX typically conducts a series of workshops involving project staff to discuss risks associated with any planned new service. Prior to the approval of a project for launch/production, ASX prepares an operational readiness summary and conducts a final workshop to discuss possible risks associated with initial launch. This includes consideration of potential failure scenarios and workarounds, procedures for escalation of issues, and help desk and key staff availability.

Following launch, the risks of a new activity are captured in 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 requirements related to new projects.

15.2 A securities settlement facility should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity a securities settlement facility should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.

ASX has set aside $232 million for operational and business risk across the four ASX Group CS facilities, $157 million of which has been attributed specifically to operational and business risks across both Austraclear and ASX Settlement. Since ASX has identified constraints to making business risk capital bankruptcy remote within the SSFs, this capital is held at the ASX Group level. Each CS facility has a separate allocation for business risk capital that is explicitly recognised within group-wide capital holdings. These holdings include an additional buffer against potential losses sustained elsewhere in the group. During 2013/14, ASX made amendments to the ASX Group Support Agreement, placing an obligation on ASX to maintain sufficient capital to support Austraclear's continued operations in the event of general business losses. These amendments support the legal certainty of Austraclear's access to business risk capital as required.

In determining the sufficiency of the $157 million in operational and business risk capital set aside for Austraclear and ASX Settlement, ASX first calculated risk amounts for the individual SSFs. This was based on a methodology in use at other SSFs, fund managers and custodians that applies a capital charge for operational and business risk to the value of securities held in the facility. The correlation is modelled on a percentage basis, with the percentage of required risk resources declining as the level of assets increases – recognising that a significant part of the risk resources required will represent a fixed cost. ASX's application of this methodology results in a 0.79 basis points charge on around $1.5 trillion of securities held in each SSF, giving a required value of risk resources of around $111 million for each of Austraclear and ASX Settlement.

ASX assumes that the two facilities will not both require their full risk funds at the same time. This reflects that the custodial and operational risks that this capital is calibrated to cover are unlikely to result in simultaneous peak losses in both SSFs. ASX has applied a 'square root of the sum of squares' formula to arrive at the figure of $157 million to cover the operational and business risk exposure of the two settlement facilities. The business risk capital held in respect of the SSFs is sufficient to ensure that, even if one SSF were to utilise its full capital allocation of $111 million, sufficient funds would be available to fund the other SSF's recovery plan and meet the single largest uninsured business loss event for that facility. In addition, ASX's general capital buffer is sufficient to ensure that it would remain able to provide $111 million to the second SSF in the event that this was required.

15.3 A securities settlement facility should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, a securities settlement facility should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.

Austraclear has developed a plan setting out options for its recovery or wind-down based on its existing Operating Rules, and has commenced work towards enhancing this plan in line with forthcoming CPSS-IOSCO guidance on recovery planning (see Key Consideration 3.4). In calculating the quantum of business risk capital described under Key Consideration 15.2, ASX has sought to ensure access to sufficient liquid net assets to fund operations during the execution of Austraclear's recovery plan, or to cover a minimum of six months of current operating expenses.

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

The risk capital for ASX's CS facilities is invested in accordance with the ASX Limited and ASX Operations Pty Limited Investment Mandate. The Investment Mandate specifies investment objectives, responsibilities, approved products and counterparties, and audit and maintenance of the mandate. Approved products are generally highly rated and liquid products such as: cash deposits; bank bills, negotiable certificates of deposit and floating rate notes issued by APRA-approved ADIs; foreign exchange in specified currencies; 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.

15.5 A securities settlement facility should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.

As noted, ASX Limited manages its operational and business risk capital at the group level. The ASX Limited Board monitors the ongoing capital adequacy of the ASX Group as part of its regular capital planning activities. The Board determines the most appropriate means of raising additional capital when needed, giving due consideration to prevailing market conditions and available alternative financing mechanisms. For example, in June 2013, ASX Limited conducted a capital raising by way of a $553 million share entitlement offer, with the bulk of the funds being used to increase the business risk capital of the CS facilities and their pooled financial resources to deal with participant default. Recapitalisation processes will be reviewed and integrated with broader recovery planning arrangements as Austraclear further develops its recovery plan in line with forthcoming CPSS-IOSCO guidance.

Principle 16: Custody and investment risks

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

Rating: Observed

ASIC's and the Bank's assessment is that Austraclear observes the requirements of Principle 16. Austraclear's arrangements for managing custody and investment risks are described in further detail under the following Key Considerations.

16.1 A securities settlement facility should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.

Austraclear has funds from retained earnings that are invested in cash or other high-quality liquid assets; it does not use custodians to invest these funds (see Key Consideration 16.4).

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

Austraclear has custody of participants' securities deposited in the Austraclear system. For details of these custodial arrangements and arrangements to safeguard the integrity of securities held in Austraclear, see Principle 11. Austraclear does not hold other assets of participants.

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

Under the terms of the Austraclear Investment Mandate, funds held by Austraclear must be invested in cash, or bank bills or certificates of deposit issued by APRA-regulated ADIs. As these assets are highly liquid and invested with large Australian banks, Austraclear has prompt access to its assets when required. Austraclear does not use custodians to hold its assets or participants' assets.

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

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

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

Austraclear is exposed to investment risk on funds from contributions and retained earnings. These funds, currently around $10 million, are small relative to the total funds held by ASX Limited at the group level to cover general business risk and are invested predominantly in cash. The Investment Mandate for Austraclear funds requires that liquidity be maintained so that it can meet its liabilities in a timely fashion. Investment products are limited to a small set of low risk and highly liquid AUD-denominated products, with large Australian banks as counterparties. Hard limits are set on maximum instrument maturity (180 days) and weighted average maturity (60 days).

Principle 17: Operational risk

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

Rating: Observed

ASIC's and the Bank's assessment is that Austraclear observes the requirements of Principle 17. Austraclear's arrangements for managing operational risks are described in further detail under the following Key Considerations.

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

ASX's operational risk policies and controls have been developed in accordance with ASX's group-wide Enterprise Risk Management Framework (see Key Consideration 3.1). Under this framework, the ASX Limited Board is responsible for reviewing and overseeing the Group's risk management systems (see Key Consideration 2.6). 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 departments, 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 departments. Under the Enterprise Risk Management Framework, individual departments 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. A dedicated security team has responsibility for assessing both physical and cyber security risks, and is overseen by a Security Steering Committee comprising of the Chief Information Officer, head of Internal Audit and other senior executives.

Access to resources

Austraclear has arrangements in place to ensure that it has well-trained and competent personnel operating EXIGO. 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 and broader skills matrices, with training provided for identified areas of weakness. Austraclear has a formal succession planning and management process in place for key staff. ASX has sought to automate routine operational processes and reporting over recent years, freeing up additional staff resources that would otherwise be devoted to these tasks.

To facilitate rapid recovery in the event of an operational disruption, ASX intends to increase the proportion of operational staff based at its secondary operations site (which is also the primary data centre), to around 30 per cent from the current 20 per cent. In case of a disruption to staffing arrangements at the primary site for staff, the secondary operations centre has capacity to house 65 per cent of all operational staff.[5]

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 Section 2.3.1), under a contractual Support Agreement. In the event that ASX Operations Limited became subject to external administration, to the extent permissible by law, provisions within the Support Agreement provide for Austraclear and the other clearing and settlement corporate entities to retain the use of operational resources.

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 EXIGO), the PMO rates projects to ensure that 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

[5] 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.

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.

Over recent years, ASX has undertaken work on close to 60 projects, including major projects such as the OTC derivatives clearing service and enhanced client clearing arrangements in ASX Clear (Futures), the ASX Collateral service and Austraclear's foreign currency settlement service. 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. Targeted deadlines for key projects have nevertheless 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.

A key project for Austraclear during 2013/14 has been an initiative to bring EXIGO development support in house. Austraclear has managed the additional resource implications of this 'insourcing' project through the recruitment of additional developers and the secondment of a senior developer from the vendor. Delivery of the project has nevertheless been delayed until January 2015, from an original target date of late 2014, in part due to the diversion of some resources to other projects such as ASX Collateral and the foreign currency settlement service. ASX has taken steps to ensure the availability of EXIGO development support from the current service provider for the additional period.

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

The 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 departments.

Policies and procedures are the subject of internal and external review. ASX's Internal Audit department 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 considered by external auditors annually.

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

- ISO 31000 – Risk Management Principles and Guidelines is used to benchmark ASX's overarching framework for operational risk management
- The business continuity framework is benchmarked against the Business Continuity Institute's Good Practice Guidelines 2013, 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. Cyber security

strategies are further benchmarked against the Australian Signals Directorate's Strategies to Mitigate Targeted Cyber Intrusions.

- The compliance framework is benchmarked to the AS 3806-2006: Compliance Programs.
- The ASX Fraud Control Policy is benchmarked against AS 8001-2008: Fraud and Corruption Control.

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

The 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. Austraclear operates a separate test environment for its core system (EXIGO) and has a formal, documented change management process. There are also defined procedures for communicating with participants and vendors details of technology upgrade releases, which include regular notices to participants of upcoming changes.

17.3 A securities settlement facility should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.

Availability targets are documented and defined formally for critical services. EXIGO is required under its Step-in and Service Agreement with the Bank to meet a minimum availability target of 99.9 per cent; during 2013/14, EXIGO was available 99.96 per cent of the time, with two incidents causing outages:

- On 13 September 2013, settlement messages in EXIGO were suspended for 42 minutes due to a database conflict. A workaround has been developed for this issue, which will be addressed as part of the EXIGO insourcing project.
- On 7 October 2013, participants were unable to connect to EXIGO for a period of 46 minutes, due to the expiration of a security certificate used for verification. Procedures for updating certificates have now been updated.

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 capacity 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 EXIGO during 2013/14 was 22 per cent, while peak utilisation was 35 per cent. Austraclear considers that it has sufficient technical and human resources to operate EXIGO during peak periods, including in the event of operational incidents or system failure.

17.4 A securities settlement facility should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.

Austraclear's approach to ensuring scalable capacity adequate to handle increasing stress volumes and to achieve its service level objectives is described under Key Consideration 17.3. As noted above, average capacity utilisation of EXIGO during 2013/14 was 22 per cent, peak utilisation was 35 per cent, while EXIGO was available 99.96 per cent of the time over this period.

17.5 A securities settlement facility should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.

Information security policy is implemented using a risk-based decision process, based on ISO 31000, 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, the cost of controls, and the richness and flexibility of services. ASX's 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 March 2014.

Information security policy is tested at a number of levels. This includes penetration testing against the ASX perimeter and vulnerability testing within the perimeter. Austraclear performs EXIGO security testing on a quarterly basis. ASX operates a suite of controls designed to prevent and detect cyber attacks on its systems, such as denial of service or malware threats. These 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 departmental level. The key systems supporting ASX's clearing and settlement processes are operated within a secure building. Settlement 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 significant technology-based operational incidents are reported to senior management and issues are tracked through to resolution via regular updates to management.

17.6 A securities settlement facility should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to

enable the securities settlement facility to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The securities settlement facility should regularly test these arrangements.

Business continuity arrangements

Austraclear 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. Austraclear policy requires that failover to the backup data centre should occur within two hours. Plans for recovery of key systems apply to both physical and cyber threats to business continuity.

Austraclear 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 a primary and a backup data centre, with broadly equivalent operational requirements. Key plant and equipment at the primary data centre are designed to the Uptime Institute Tier 3 standard of concurrent maintainability.[6] The main computer network is connected via point-to-point optical fibre, which ASX operates with its own technology, thereby reducing the potential for outages due to operational problems with the telecommunications provider. All core systems employ multiple servers with spare capacity. Front-end servers handling communications with participants are configured to provide automatic failover across sites. Failover of the more critical data servers is targeted to take place within two hours, but would generally be expected to occur within an hour, under the control of management.

Disruption to participants in such circumstances would be mitigated by the high degree of redundancy in front-end system components. In most circumstances, these would be expected to maintain communications with participants' systems and queue transactions until the data servers were reactivated. The integrity of transactions would be supported by: queuing messages until they could be processed; storing all transactions in the database with unique identifiers, thereby preventing the loss or duplication of transactions; and synchronising database records between the primary and backup data centres. Furthermore, in the event that a significant part of a system or an operational site failed, Austraclear has contingency arrangements to activate an additional tier of 'cold' redundancy arrangements (either by converting test systems into production systems or rebuilding systems from readily available hardware) within 24 hours to meet the contingency of any further service interruption. Austraclear 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. Since May 2014 these include the use of Twitter to advise stakeholders of market-wide operational or technical incidents. 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

[6] 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.

communication and external communication to emergency services, the market, industry and media.

Austraclear 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. Live technology tests, where 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. Under the terms of Austraclear's Step-in and Service Agreement with the Bank, Austraclear is also required to take part in annual connectivity tests between the Austraclear and RITS systems.

Participant continuity arrangements

Recognising that effective continuity of operations may depend on the capacity of participants to recover from an operational disruption, business continuity requirements for participants are set out in the Austraclear Regulations and Procedures, supplemented by additional guidance issued by ASX on 1 July 2014. These require participants to maintain adequate business continuity arrangements that are appropriate to the nature and size of their business as a participant. The Regulations specify that participants must have arrangements that allow for the recovery of usual operations. It is Austraclear's expectation (set out in guidance) that this would be within two hours, and no more than four hours, following a contingency event for large participants. The targeted recovery time for smaller participants is four hours (and no more than six). Where a participant also acts as a foreign currency settlement bank, it is subject to additional operational resilience requirements reflecting its critical role in the operation of the foreign currency settlement service. These arrangements are reviewed as part of the participant admissions process. If a participant fails to maintain business continuity arrangements consistent with these recovery targets, it may become subject to sanctions or restrictions on its activities. 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. These spot checks examine the participant's governance and processes for resilience and business continuity. If a participant fails to implement any recommendations arising from a check, ASX may impose sanctions.

The Regulations and Procedures also require more broadly that participants have facilities, procedures and personnel that are adequate to meet technical and performance requirements. ASX's preferred approach to dealing with operational issues is to work collaboratively with the participant to educate them on their obligations. If the matter is serious, ASX may require that the participant address the weakness as a matter of priority. ASX may also impose conditions on participation, or require that the participant appoint an independent expert to assist with the remediation task.

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

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

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

17.7 A securities settlement facility should identify, monitor, and manage the risks that key participants, other financial market infrastructures, and service and utility providers might pose to its operations. In addition, a securities settlement facility should identify, monitor, and manage the risks its operations might pose to other financial market infrastructures.

Interdependencies with 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 Key Consideration 3.1); as part of its assessments of project-related risks (see Key Consideration 15.1); and through its general monitoring of risks under its risk management framework (see Key Consideration 3.1).

For Austraclear, ASX has identified risks relating to its operational activities arising from participants outsourcing their back-office processing offshore. 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 in some cases a lack of familiarity with local market practices and conventions. Such factors, if inadequately mitigated, could increase operational risk. ASX is examining options to mitigate these risks. As part of this, ASX Compliance has carried out a spot review of participants' outsourcing arrangements, benchmarking participants against a number of standards, including APRA's outsourcing prudential standard CPS 231. As a follow-up to the review, ASX is developing new guidance on participant outsourcing and has conducted site visits to selected overseas outsourcing providers.

Dependencies on service and utility 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. ASX also provides the Bank with a list of critical outsourcing arrangements on an annual basis. Issues relating to outsourcing or service provision are escalated as appropriate to executive management via the ASX Technology Vendor Management Group and the relevant operational support area.

ASX assesses the operational performance of its service providers on an ongoing basis against its own operational policies, to ensure that service providers meet the resilience, security and operational performance requirements of relevant domestic and international standards. 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.[7] Contractual arrangements with critical service providers require the approval of Austraclear before the service provider can itself outsource material elements of its service. Austraclear's dependencies on service providers include:

- *SWIFT.* Participants are able to use the SWIFT messaging service to submit settlement instructions to Austraclear. This makes Austraclear reliant on interactions with SWIFT for the processing of transactions from participants using this service. In the event of a SWIFT failure, Austraclear would revert to manual processing of SWIFT payments.

- *RITS and foreign currency settlement banks.* As the cash leg of all AUD DvP and payment only transactions occur over RITS, transactions, the failure of RITS would potentially prevent settlement in EXIGO. However, ASX has prepared business plans that contemplate EXIGO continuing to operate independently. Steps taken to address interdependencies with Foreign Currency Settlement Banks acting as commercial bank money settlement agents for foreign currency payments are described under Key Consideration 9.3; operational arrangements for foreign currency settlements are designed not to affect the settlement of Australian dollar transactions.

- *ASX Collateral/Clearstream.* Austraclear also has interdependencies with ASX Collateral. Particularly since access to securities held in collateral accounts in Austraclear would be impaired in the event of an operational disruption to ASX Collateral services, ASX Collateral is required to deliver an equivalent standard of resilience to that of Austraclear. This extends to the outsourced services provided by Clearstream. In terms of architecture, system capacity, recovery time, and availability targets, ASX Collateral and Clearstream are designed to operate to a similar standard to that of Austraclear. In addition, the Service Level Agreement between ASX Operations Pty Limited and Clearstream requires that Clearstream provide 'round the clock' operational and technical support via its network of operational centres, with the support during Australian operational hours provided primarily by Clearstream's Singapore centre.

- *Utilities and service providers.* All other Austraclear operational functions are performed within ASX. However, external suppliers are used for utilities, hardware maintenance, operating system and product maintenance and support, and certain security-related specialist independent services.

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

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

  - Primary and backup data centres are connected to different electricity grids and telecommunication exchanges.
  - Each data centre has backup power generators with capacity to run the site at full load for 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) as well as incident escalation procedures and contacts.
- *IT licensing and support*. Austraclear has a key dependence on a third-party vendor for IT licensing, support and maintenance services for its core EXIGO system. During 2011/12, Austraclear commenced an insourcing project to take over EXIGO's third-level operational and software support (requiring expert knowledge of the core system) from the third-party vendor. This project has the potential to significantly reduce operational risk by giving Austraclear control over future development of the system in terms of both the nature and timing of future enhancements. The project will improve operational risk by significantly simplifying the system through the removal of unused components. It should also improve the timeliness of Austraclear's responses to operational incidents, given the current reliance on 24-hour support across different time zones for highly technical matters. ASX has recruited developers for this project and a senior developer from the third-party vendor has been seconded to Sydney during the development phase. As a contingency, ASX also has the option to extend existing support arrangements for as long as required; this has been exercised to cover delays caused by the temporary diversion of resources to other projects. The project is now expected to be completed in early 2015 (see Key Consideration 17.4).

ASX has developed a set of standard clauses for inclusion in contracts with third-party service providers of critical services to Austraclear. Similar clauses are also included in the Support Agreement between Austraclear 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 (which align with the Principles). ASX applies these clauses to all new agreements with service providers, and has incorporated them into all of its key existing service agreements.

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 Austraclear. In the event that the Bank concluded that the terms of the service provider agreement did not meet FSS requirements, the clauses require the service provider to negotiate acceptable new terms with ASX in good faith. These clauses require that providers give the Bank notice of any intention to terminate the agreement as a consequence of Austraclear's failure to pay fees, or in the event of the insolvency of Austraclear or any other

ASX entity. This is intended to give the Bank an opportunity to take action to remedy the breach or otherwise ensure continued service provision.

The resilience, security and operational performance of SWIFT, which Austraclear relies upon for messaging, is primarily overseen by the SWIFT Oversight Group (OG), comprising the G10 central banks and chaired by the National Bank of Belgium (NBB). In 2012, the NBB established the SWIFT Oversight Forum (SOF) to include 12 additional central banks, including the Bank, in the oversight process. Through its membership of the SOF, the Bank is able to access information relevant to SWIFT oversight. To support its oversight activities, the OG has set proprietary minimum standards – the High-level Expectations (HLEs) – against which SWIFT is assessed. In its capacity as a member of the SOF, the Bank receives SWIFT's annual self-assessment against the HLEs.

Austraclear'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 special resolution regime for FMIs. This was foreshadowed in consultations undertaken by the Council of Financial Regulators and Treasury in 2011 and 2012. Austraclear will need to ensure that its arrangements to support continuity of operations in a crisis are appropriately adapted to the proposed FMI resolution regime once finalised.

CPSS and IOSCO have developed a draft Assessment Methodology for the oversight expectations applicable to critical service providers such as SWIFT, based on the HLEs.[8] Once finalised, this Assessment Methodology will provide a framework for considering how to apply the oversight expectations for critical service providers set out in Annex F of the PFMIs.

ASX Collateral

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

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

Resilience requirements imposed on ASX Collateral apply equally to ASX Collateral's outsourced arrangements with Clearstream. Clearstream's reliability targets for its CmaX system are broadly equivalent to those of Austraclear. Specifically, they require 99.8 per cent

8 The draft Assessment Methodology is available at <http://www.bis.org/publ/cpss115.htm>.

availability and capacity utilisation of no more than 20 per cent. Clearstream can scale its service to cover 15 times the current average production load by the straightforward upgrade of existing hardware, and additional capacity can be obtained by adding servers and tuning software. Clearstream's resilience standards are broadly equivalent to those of Austraclear, including the use of geographically separated underground data centres with security huts, managed firewalls, anti-virus and anti-malware protection for email, and data encryption.

Clearstream is subject to oversight under several regimes. In particular, the Central Bank of Luxembourg performs periodic assessments of Clearstream against applicable standards. These assessments evaluate Clearstream's operational risk management framework for its collateral management service (i.e. not specifically the ASX iteration). Additional assessments, from the point of view of user requirements, are carried out by the Eurosystem on a near-annual basis. None of these various assessments have identified significant issues with Clearstream's operation of its services. Clearstream is also subject to periodic examination by international assessors.

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

Disclosure

The nature and scope of Austraclear's dependencies on critical service providers are disclosed to participants through: Regulations; Guidance Notes; Notices and Bulletins; technical documentation available on the ASX participant website; more general information available on the ASX public website; and in one-on-one meetings with participants, both during the induction process for new participants and on an ongoing basis.

Operational Support

Austraclear provides telephone and email support to participants via a helpdesk, which operates from 7am to 7:30pm (9:30pm during daylight saving time).

Principle 18: Access and participation requirements

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

Rating: Observed

ASIC's and the Bank's assessment is that Austraclear observes the requirements of Principle 18. Austraclear's access and participation requirements are described in further detail under the following Key Considerations.

18.1 A securities settlement facility should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other financial market infrastructures, based on reasonable risk- related participation requirements.

Austraclear has objective and transparent participation requirements, which are detailed in a number of policies and standards under the Settlement Risk Policy Framework. The participation requirements are publicly available and form part of Austraclear's Regulations and Procedures. The Regulations and Procedures provide for an appeals process should an application for participation be rejected or a participant's access be terminated.

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

At the end of June 2013, Austraclear had 847 participants.

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

Austraclear's participation requirements cover operational capacity, financial standing and business continuity arrangements. Austraclear's participation requirements promote the efficient operation of the facility and do not impose discriminatory or restrictive access constraints such as minimum turnover levels.

Participation requirements for Special Purpose Participants that are Collateral Managers are based on requirements for other categories of participants and may be justified in terms of the safety of Austraclear and the market it serves. Specific business continuity requirements for Collateral Managers reflect the potential critical functionality of such infrastructure.

Under the Regulations and Procedures, Austraclear must be satisfied that a potential participant has (or will have) the relevant managerial, operational and financial capacity and appropriate complementary business continuity arrangements in place to enable it to meet its ongoing obligations. In addition, an applicant for special purpose participation as a Collateral Manager is required to have an Australian Financial Services Licence covering the activities that it will conduct as a Collateral Manager.

Additional requirements that apply to participants that are Foreign Currency Settlement Banks are described under Key Consideration 9.3.

18.3 A securities settlement facility should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.

Austraclear has wide-ranging powers to sanction its participants. Austraclear may suspend or terminate a participant's authority to settle transactions in the event of a default, or in the event of a breach of the Regulations and Procedures that may have an adverse effect on the SSF. The action taken in the event of a breach will depend on a number of factors, including the participant's history of compliance and whether the breach implies negligence, incompetence or dishonesty. Where a breach has been identified and the participant has taken appropriate steps to rectify it, Austraclear will typically continue to monitor the participant closely for a period of time. Breaches are also referred to ASIC and, in most cases, are investigated by ASX Compliance for formal disciplinary action.

Principle 19: Tiered participation arrangements

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

Rating: Observed

ASIC's and the Bank's assessment is that Austraclear observes the requirements of Principle 19. Austraclear's approach to tiered participation arrangements is described in further detail under the following Key Considerations.

19.1 A securities settlement facility should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the securities settlement facility arising from such tiered participation arrangements.

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

Austraclear currently considers the risks from concentration of indirect participants to be low.

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

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

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

In general, participation in Austraclear is direct, reflecting the profile of the wholesale OTC debt market that it serves. At end June 2014 there were 847 direct Austraclear participants.

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

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

Austraclear is not directly exposed to financial risks from indirect participation, and its exposure to operational risks from indirect participants is limited by the bilateral nature of settlement between its participants and its relatively broad participation base. Austraclear would only be expected to face material risks from indirect participation were the nature of its participation base or activities to change significantly.

Principle 20: FMI links

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

Rating: Observed

ASIC's and the Bank's assessment is that Austraclear observes the requirements of Principle 20. Austraclear's management of link-related risks is described in further detail under the following Key Considerations.

20.1 Before entering into a link arrangement and on an ongoing basis once the link is established, a securities settlement facility should identify, monitor, and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that each financial market infrastructure is able to observe the other principles in this report.

Identifying link-related risks

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

- *ASX Clear*. This link supports AUD funds transfers related to margin payments. Cash transfers are entered into Austraclear by ASX Clear, and then matched in Austraclear against the respective clearing participants' cash settlement instructions. Regular margin collections, which make up the majority of cash transfers in ASX Clear, are submitted to Austraclear by ASX Clear's margin and collateral systems, while intraday margin collections are entered manually.
- *ASX Clear (Futures)*. This link supports AUD funds transfers in relation to margin payments, lodgement of AUD-denominated non-cash collateral, and settlement of 90-day bank bill futures. As for ASX Clear, cash transfers are entered into Austraclear by ASX Clear (Futures), and then matched in Austraclear against the respective clearing participants' cash settlement instructions. Regular margin collections, which make up the majority of cash transfers, are submitted to Austraclear by ASX Clear (Futures)' margin and collateral systems, while intraday margin collections are entered manually. AUD-denominated non-cash collateral is lodged via a collateral lodgement form. This needs to be received by ASX Clear (Futures) the day prior to the collateral being needed to cover margin, with the security being transferred to ASX Clear (Futures) via a free-of-payment trade in Austraclear. Settlement of 90-day bank bill futures takes place in Austraclear according to procedures set out in ASX 24's Operating Rules and

Procedures. Sellers and buyers who are not full participants of Austraclear must appoint a full participant to act as their settlement agent.

- *Clearstream*. This link relates to Euroentitlements managed in Austraclear (see Key Consideration 11.1). Austraclear is a participant in Clearstream. A participant that has a Eurobond holding in Clearstream may choose to lodge that security in Austraclear, by transfer to Austraclear's Clearstream account. Participants with Eurobond holdings in Euroclear may also transfer securities to Austraclear's Clearstream account via a separate link maintained between Euroclear and Clearstream. Once available in the Austraclear system, arrangements for sales and purchases of the security are as for other debt securities. Withdrawals of Euroentitlements from the Austraclear system are processed in a similar way to deposits, with Austraclear on request transferring the securities from its account in Clearstream to the participant's account with either Clearstream or Euroclear.

Managing operational risk

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

Clearstream's operational risk management arrangements are overseen by the Central Bank of Luxembourg (Banque Centrale du Luxembourg, BCL). BCL performs periodic assessments of Clearstream against applicable standards.

Managing financial risk

Austraclear does not assume any direct financial risks from its links to other FMIs.

20.2 A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the financial market infrastructures involved in the link.

Austraclear's links to ASX Clear and ASX Clear (Futures) have their legal basis in the Regulations, Operating Rules and Procedures of the three facilities. The finality of settlements made via these links is supported by the approval of Austraclear under Part 2 of the PSNA (see Key Consideration 1.4).

Austraclear's link to Clearstream has a legal basis in a contract between the two FMIs, and the system rules of Clearstream's international central securities depository. As noted under Key Consideration 20.1, Clearstream is regulated by BCL in accordance with international standards.

20.3 Linked central securities depositories should measure, monitor, and manage the credit and liquidity risks arising from each other. Any credit extensions between central securities depositories should be covered fully with high-quality collateral and be subject to limits.

Austraclear does not extend credit to Clearstream.

20.4 Provisional transfers of securities between linked central securities depositories should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.

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

20.5 An investor central securities depository should only establish a link with an issuer central securities depository if the arrangement provides a high level of protection for the rights of the investor central securities depository's participants.

ASIC will discuss with Austraclear its arrangements to protect the rights of participants in relation to Euroentitlements.

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

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

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

Key Consideration 20.7 is not relevant to securities settlement facilities.

20.8 Each 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.

Key Consideration 20.8 is not relevant to securities settlement facilities.

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

Key Consideration 20.9 is not relevant to securities settlement facilities.

Principle 21: Efficiency and effectiveness

A securities settlement facility should be efficient and effective in meeting the requirements of its participants and the markets it serves.

Rating: Observed

ASIC's assessment is that Austraclear observes the requirements of Principle 21. Austraclear's arrangements for ensuring its efficiency and effectiveness are described in further detail under the following Key Considerations.

21.1 A securities settlement facility should be designed to meet the needs of its participants and the markets it serves, in particular, with regard to choice of a clearing and settlement

arrangement; operating structure; scope of products cleared, settled, or recorded; and use of technology and procedures.

Austraclear offers four classes of participation, tailored to the needs of different participants (see Principle 18):

- *Full Participant*s can access the complete range of Austraclear products and services, and can carry out transactions with all other participant classes. They can also maintain multiple sub-accounts.
- *Associate Participant*s can perform many of the same functions as Full Participants, but can only deal with Full Participants.
- *Special Purpose Participant*s can access Austraclear for specific purposes only. They include CCPs, exchanges, regulatory bodies and other entities approved by Austraclear such as energy market participants. In recent years Austraclear has added two new categories of Special Purpose Participant: Collateral Managers and Foreign Currency Settlement Banks.
- *Public Trust Participant*s can perform the same functions as a Full Participant, but these transactions must be performed on behalf of a nominated trust.

Austraclear offers settlement and depository services for fixed income securities, discount securities, energy products and property conveyancing. Austraclear also offers an AUD cash transfer service via RITS, and in July 2014 launched a Foreign Currency Settlement Service (see Key Considerations 9.2, 9.3). Austraclear's depository function is described in more detail under Principle 11. Related entities offer a range of ancillary services, including registry and issuing and paying agency services, and ASX Collateral.

Austraclear has established the Austraclear Advisory Committee as a formal mechanism for determining the requirements of its participants and broader users (see Key Consideration 2.7).

Austraclear maintains a comprehensive governance and reporting framework that includes:

- transparent processes to operate Austraclear, with well-defined controls, underpinned by written policies and procedures
- the maintenance of sufficient resources (financial, technological and human resources) to operate the facility properly and to meet its obligations under its CS facility licence. ASIC concluded that these resources were adequate when preparing its 2013 ASX Group Assessment Report for the Minister[9]
- Austraclear conflict handling arrangements that are reviewed and adapted to changing circumstances
- processes to monitor and enforce participants' compliance with the Regulations
- liaison processes with ASIC and the Bank
- a continuous improvement program.

[9] ASIC's 2013 *Market Assessment Report: ASX Group*, released 28 July 2014, is available at <https://www.asic.gov.au/asic/asic.nsf/byheadline/Reports?openDocument>.

Austraclear maintains Regulations for its facility. These govern matters including participation, eligibility and capital requirements (where applicable), control and safe-keeping of securities, record keeping, business continuity arrangements and daily settlement management (see Principle 1).

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

The ASX Limited Board sets group-level strategic direction and business priorities, including via a three-year strategic plan which is reviewed on a continuous basis. The Austraclear Board sets goals and objectives specific to its settlement service, including a business plan that is reviewed annually. The Austraclear Board also governs and reviews Austraclear's risk management processes, internal controls and compliance systems. In addition, the Austraclear Board is responsible for reviewing the management accounts of Austraclear, which are prepared on a quarterly basis, as well as audited full year financial reports and statements. The Austraclear Board is also responsible for the management of settlement risks (see Principles 2, 3).

In 2013, the ASX Settlement and Austraclear Boards approved ASX's Settlement Risk Policy Framework, which was established to ensure that ASX's settlement facilities continue to meet the FSS, as well as to provide a formal framework for review and development of settlement policy and standards (see Key Consideration 3.1).

Austraclear measures its progress against goals and objectives in a number of ways.

- Austraclear measures the effectiveness of its services via participant and user feedback. Austraclear uses customer engagement and consultative processes described under Key Consideration 21.1 to ensure that it achieves its goals in relation to meeting the requirements of participants.
- Senior management reviews the status of Austraclear's goals and objectives on a regular basis and reports to each meeting of the Austraclear Board, and periodically to the Enterprise Risk Management Committee and the Audit and Risk Committee on progress towards meeting these goals and objectives. Reporting and measurement mechanisms include risk profiling and analysis, internal audit reviews, regulatory assurance reviews, and periodic analysis and reporting of key system service availability and capacity utilisation metrics (see Principles 3, 15, 17).
- Regulations and Procedures, together with other participant communications such as market notices, provide transparency to participants and other stakeholders regarding the operation of the Austraclear facility (see Principle 23).

The Audit and Risk Committee has responsibility for considering reports regarding the effectiveness of Austraclear's risk management framework and processes. The Committee is assisted in this area by Internal Audit, Enterprise Risk, and Regulatory Assurance. The Audit and Risk Committee considers reports from these departments regarding the appropriateness and effectiveness of internal controls, and action taken or proposed in response to assessments conducted by ASIC or the Bank.

21.3 A securities settlement facility should have established mechanisms for the regular review of its efficiency and effectiveness.

In addition to periodic reporting to the CS Boards and relevant committees under ASX Group's corporate governance framework (see Principle 2), relevant Group Executives also report to the CEO on a monthly basis. Metrics contained within these reports include key measures of system availability and capacity utilisation, key settlement statistics, technical incident reporting, and new issues and admissions. Other issues recorded and measured include the cause and resolution of settlement failures, operational incidents and participant complaints.

Availability targets are documented and defined formally for critical services. The Austraclear System (also known as EXIGO) is required under its Step-in and Service Agreement with the Bank to meet a minimum availability target of 99.9 per cent, while Austraclear targets capacity headroom of at least 50 per cent above peak recorded values. The availability and capacity utilisation performance of EXIGO is discussed under Key Consideration 17.3.

Responsibility for the regular review of Austraclear's efficiency and effectiveness is shared between a number of committees and departments within the ASX Group.

- SROCC oversees matters relating to Austraclear's fair and effective obligations under its Australian CS facilities licence. Section 821E of the Corporations Act requires Austraclear to provide a report to ASIC within three months of the end of its financial year on the extent to which the licensee has complied with the conditions of its licence.
- CALCO oversees the structural integrity and efficient use of liquidity, on-and-off-balance sheet assets, liabilities and the capital resources of the ASX Group, including Austraclear.
- As part of its commitment to continuous improvement, the ASX Operations and Risk divisions have adopted a comprehensive suite of policies and procedures to support the governance and internal review of Austraclear. These policies and procedures are reviewed on a regular basis (see Principles 2, 3).
- ASX Compliance monitors and enforces participants' compliance with the Austraclear Regulations. Other departments within ASX Group assist ASX Compliance in monitoring Austraclear's performance of its licence obligations.

The Austraclear business plan is reviewed annually. Customer feedback, from regular customer engagement, also provides a regular review of Austraclear's efficiency and effectiveness.

Principle 22: Communication procedures and standards

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

Rating: Observed

ASIC's assessment is that Austraclear observes the requirements of Principle 22. Austraclear's approach to communication procedures and standards is described in further detail under the following Key Consideration.

22.1 A securities settlement facility should use, or at a minimum accommodate, internationally accepted communication procedures and standards.

Austraclear has procedures in place to determine the impact of and actions required to accommodate changes in internationally accepted communication protocols. Austraclear also has processes and procedures for the notification of changes to users and other relevant stakeholders. Notification may take the form of consultation papers, software vendor workshops, notices to participants and bilateral contact with software developers. Each new business requirement is analysed in order to identify the most appropriate means of integrating changes to communication protocols, with a particular focus on standardisation and open connectivity.

Austraclear's core system, EXIGO, supports the SWIFT Message Protocol, an internationally accepted communications standard. Participants can also access Austraclear via an internet connection or via a secure private network (ANNI).

The ASX Collateral service provides a secure internet interface, 'ASXCOL+' that can be accessed via a secure Virtual Private Network environment or over the internet. Customers can use ASXCOL+ to manage collateral lodged in Austraclear and related exposures.

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

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

Rating: Observed

ASIC's and the Bank's assessment is that Austraclear observes the requirements of Principle 23. Austraclear's disclosure of rules, key policies and procedures, and market data is described in further detail under the following Key Considerations.

23.1 A securities settlement facility should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.

Austraclear's Regulations and Procedures form the basis of all material aspects of the SSF's service to participants. The Regulations and Procedures are disclosed on the ASX public website.[10]

To assist participants in their understanding of the risks of participating in Austraclear, and for the information of other interested stakeholders, ASX publishes a range of additional material on its public website. Information specific to Austraclear includes information about participant requirements, SWIFT message protocols, trade and settlement monitoring systems, known software release issues and change requests, 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. During 2013/14, ASX redesigned its website, one element of which included centralising links to information required to be disclosed under the Principles.

[10] Available at <http://www.asx.com.au/regulation/rules/austraclear-regulations.htm>.

Specific disclosure requirements are dealt with under Key Considerations 1.3, 2.2, 13.3, 14.4, 16.4, 18.2 and 18.3.

23.2 A securities settlement facility should disclose clear descriptions of the system's design and operations, as well as the securities settlement facility's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the securities settlement facility.

General descriptions of Austraclear's system design and operations are available on the ASX public website, including as part of ASX's response to the CPSS-IOSCO Disclosure Framework (see Key Consideration 5).[11] The Disclosure Framework document describes the ASX group structure, provides a general description of the CS facilities and their roles, system design and operations, outlines the legal and regulatory framework for clearing and settlement, and provides a description of steps taken by ASX to ensure compliance with the Principles and the corresponding FSS. The ASX public website provides additional information on system design and operations and will be updated once the EXIGO insourcing project is complete.

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

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

As part of the formal admission process, the applicant must provide supporting evidence of its capacity to comply with the rules. This is reviewed and discussed with the applicant prior to approving admission. When reviewing the submissions, ASX will make enquiries of participants about their risk assessments, the design of the controls to mitigate those risks, and details of participants' arrangements to ensure compliance with the Operating Rules and Procedures.

Where ASX becomes aware or suspects that a participant lacks a satisfactory understanding of the Regulations 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 routine risk monitoring activities or through its regular discussions with participants (see Key Consideration 17.7). An example of a matter that might raise concerns would be if a participant had a high frequency of technical connectivity issues. 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.

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[11] Available at <http://www.asx.com.au/documents/regulation/pfmi_disclosure_framework.pdf>.

23.4 **A securities settlement facility should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The securities settlement facility should provide clear descriptions of priced services for comparability purposes.**

A full breakdown of the various fees Austraclear charges for the individual services it offers, including available discount and incentive schemes, is published on the ASX website. Fee schedules are available for each CS facility ASX operates.[12]

Austraclear publishes a description of its priced services and how its fee structure has been calculated via its Schedule of Fees and in notices to users.

Austraclear publicly announces changes to its fee structure via notices to users. The Austraclear Regulations allow Austraclear to determine the manner in which fees and any other amounts payable to Austraclear are to be paid.

23.5 **A securities settlement facility should complete regularly and disclose publicly responses to the CPSS-IOSCO *Disclosure framework for financial market infrastructures*. A securities settlement facility also should, at a minimum, disclose basic data on transaction volumes and values.**

ASX has published its response to the CPSS-IOSCO Disclosure Framework, including information describing how its CS facilities observe the applicable Principles. This document was revised during 2013/14, expanding on a previous version that summarised ASX's approach to observance of the Principles with greater detail as to how the CS facilities meet the Principles and corresponding FSS. ASX plans to update this document quarterly and further enhance its disclosure as necessary from time to time.

ASX currently reports basic risk and activity data for the CS facilities via a monthly activity report. The Bank will continue to monitor steps by Austraclear to refine and enhance its disclosure.

Principle 24: Disclosure of market data by trade repositories

A trade repository should provide timely and accurate data to relevant authorities and the public in line with their respective needs.

Rating: Not applicable

Principle 24 is not relevant to securities settlement facilities.

[12] The Austraclear fee schedules are available at: <https://www.asxonline.com/intradoc-cgi/groups/participant_services/documents/information/asx_037923.pdf>, <http://www.asx.com.au/documents/settlement/Austraclear-Issue-Administration-Fee-Schedule.pdf>, and <http://www.asx.com.au/documents/professionals/fee_schedule_acsl.pdf>.