2010/11 Assessment of Clearing and Settlement Facilities in Australia

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Contents

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1. Introduction and Executive Summary

Under the *Corporations Act 2001*, the Reserve Bank is required to conduct an assessment at least once a year to determine whether licensed clearing and settlement (CS) facilities have complied with the Reserve Bank's *Financial Stability Standards* (FSS) and done all other things necessary to reduce systemic risk. This report presents the Reserve Bank's assessment of licensed CS facilities for 2010/11. There are two licensed central counterparties – ASX Clear Pty Limited (ASX Clear) and ASX Clear (Futures) Pty Limited (ASX Clear (Futures)) – and two licensed securities settlement facilities – ASX Settlement Pty Limited (ASX Settlement) and Austraclear Limited (Austraclear) – that fall within the scope of the FSS. These facilities are all owned by the ASX Group (ASX). All four facilities were found to have complied with the relevant FSS.

The number of trades on the equities and derivatives markets served by the central counterparties increased in 2010/11. However, both the value of cash equities trades and the value of securities processed by the settlement facilities decreased. None of the CS facilities experienced capacity or other problems relevant to the stability of market infrastructure.

For the central counterparties, notwithstanding increased activity, exposure to the risks associated with the potential failure of a clearing participant declined owing to lower market volatility over the period. Nevertheless, the facilities continued to improve their risk and operating frameworks. In particular, the central counterparties made changes in the following areas:

- *Improvements to participant-monitoring arrangements*. A number of enhancements have been made to the capital- and liquidity-monitoring arrangements for ASX Clear and ASX Clear (Futures) participants.
- *System changes to facilitate intraday margin calls on equity derivatives positions*. From September 2010, enhancements to systems have enabled ASX Clear to make intraday calls that reflect changes in participants' positions.
- *Refinement of the treatment of promissory resources*. ASX Clear (Futures) has recognised that promissory resources may not be available on a sufficiently timely basis, if called upon in the manner contemplated by the ASX Clear (Futures) rules. So while they provide some level of additional comfort, the potential delay in receipt of these funds means they should be given less weight in determining the adequacy of ASX Clear (Futures)' default resources under Measure 7 of the relevant FSS. ASX has agreed not to treat those resources as default resources for risk management purposes. Accordingly, ASX has removed the promissory component from calculations of participants' stress-test exposure limits.
- *Improvements to the liquidity requirements of ASX's treasury investment policy*. ASX has modified its liquidity stress tests to be better aligned with worst-case default scenarios, increased the robustness of the threshold it uses to assess whether it holds sufficient liquid assets to meet ordinary requirements, and changed its definition of liquid assets so that it is more focused on market liquidity than investment maturity.

- *Publication of standards and pricing options for the Trade Acceptance Service (TAS)*. In June 2011, ASX published final legal terms together with operational and technical standards and pricing options for the TAS, ahead of Chi-X Australia Pty Ltd (Chi-X) commencing operations.

Progress has also been made in the following areas by the central counterparties, although work in these areas remains under way:

- *Participation requirements*. ASX Clear proposes to increase the minimum 'core capital' requirement for General Participants (specialist third-party clearers) to $20 million from 1 January 2012. ASX Clear also proposes to increase the minimum 'core capital' requirement for Direct Participants to $10 million from 1 January 2013 and in that context it is expected that ASX, in conjunction with the Australian Securities and Investments Commission (ASIC) and the Reserve Bank, will consider developments in the third-party clearing market to determine whether it is appropriate to pursue this timetable for Direct Participants. As noted in the 2008/09 Assessment, ASIC and the Reserve Bank view the depth of the third-party clearing market as an important consideration for ASX Clear's plans to increase capital requirements further.
- *Routine margining of cash equities*. In the 2008/09 Assessment, the Reserve Bank set out the strong case for ASX Clear to introduce margining for cash equities in line with international best practice. Margining is desirable because it provides participants with incentives to manage the risk they bring to the central counterparty. It also provides an additional layer of protection for the central counterparty, reducing reliance on pooled risk resources, use of which in the event of a participant default may carry reputational costs. Over the past year, ASX has continued to work on this proposal by consulting with market participants, industry bodies and clearing participants, and initiating development of a 'futures-style' margining system.
- *Risk calculation*. ASX intends to introduce the CME version of Standard Portfolio Analysis Risk, widely regarded as the industry standard for risk margining, for ASX Clear (Futures) from early 2012 and for ASX Clear from mid 2012. This will place margining for both central counterparties on a common platform.
- *Business continuity arrangements*. ASX currently has redundancy for all key systems. Over the year ASX has been finalising the development of a new operations centre, which is due to open in late 2011. Once the new site becomes fully operational, ASX will implement dual redundancy for all four core systems at both primary and back-up sites (currently only EXIGO, the system operating Austraclear, has this capacity). The Reserve Bank strongly endorses this project, which is consistent with international best practice for systemically important systems.

As noted in last year's assessment, ASX is working towards further improving settlement procedures for cash equities. The objective is to minimise the risk that a participant's inability to settle disrupts settlement across the entire market. These issues were discussed in the Reserve Bank's *Review of Settlement Practices for Australian Equities*.[1] Currently, the cash leg of cash equities is settled in a batch (the Clearing House Electronic Sub-register System (CHESS) batch), which comprises both novated and non-novated transactions. ASX has been in discussions with banks that participate in the CHESS batch, through the Australian Payments Clearing Association, to ascertain the capacity to shorten the 90-minute window in which banks must commit to fund settlement participant positions. In the event that a settlement participant position is not funded, ASX plans to establish an earlier deadline for the back-out of settlement obligations from the CHESS batch (a fuller discussion of default management is provided in Section 6). Setting an earlier deadline will reduce the potential for settlement delay and thus reduce the uncertainty that may affect the market at large in the event that a participant fails to meet its obligations. The Reserve Bank encourages ASX Settlement to engage

1 Reserve Bank of Australia (2008) <http://www.rba.gov.au/payments-system/clearing-settlement/review-practices/index.html>.

in further discussions with its stakeholders to implement these enhancements as soon as practicable and will monitor progress over the period ahead.

The key focus for the assessment of Austraclear remained operational risk management. Although Austraclear experienced a number of operational incidents during the assessment period, of which none caused a system outage, the Reserve Bank is satisfied with both ASX's immediate responses to these incidents, as well as the responses to prevent a recurrence.

Preparation for potential competition between markets for trading in equities in Australia was another important development during the past year. In August 2010, responsibility for market supervision was transferred from ASX to ASIC. With ASIC as the whole-of-market supervisor, streamlined and complete supervision of trading on the market is ensured should any new trading platforms enter the Australian market; in May 2011, the Minister for Financial Services and Superannuation (the Minister) granted Chi-X a licence to operate a financial market in Australia. From 31 October 2011, subject to satisfying certain pre-conditions, Chi-X plans to offer a platform to conduct secondary trading in ASX-listed shares. The TAS will enable trades executed on approved market operators' platforms to be cleared and settled through ASX Clear and ASX Settlement in an equivalent fashion to trades executed on ASX's own market.

As with previous assessments, this year the Reserve Bank conducted a detailed assessment of the licensed CS facilities against one particular measure of the FSS. This year the focus was on Measure 6 of the *Financial Stability Standard for Central Counterparties*, which specifies that default arrangements need to minimise the risks to the central counterparty and its participants in the event of a participant default. It is the Reserve Bank's assessment that the default arrangements of the ASX central counterparties – ASX Clear and ASX Clear (Futures) – comply with the relevant measure of the FSS for Central Counterparties.

The rest of the Assessment is organised as follows. Section 2 introduces the Australian clearing and settlement landscape. Sections 3 and 4 satisfy a requirement under section 25M of the *Reserve Bank Act 1959* for the Payments System Board to report annually to the Minister on material developments in clearing and settlement in Australia and any changes to the FSS. Sections 5 and 6 fulfil the Reserve Bank's statutory obligations under section 823CA of the Corporations Act to report to the Minister, and to ASIC, on its annual assessment of the licensed CS facilities.

The Reserve Bank welcomes ASX's continued efforts towards ensuring its CS facilities contribute to financial stability, and appreciates the open and constructive dialogue between the Reserve Bank and ASX in relation to financial stability matters.

2. Clearing and Settlement in Australia

Two types of clearing and settlement (CS) facilities operate in Australia: central counterparties and securities settlement facilities. Under the *Corporations Act 2001*, these facilities are required to hold a CS facility licence and to comply with the relevant *Financial Stability Standard* determined by the Reserve Bank.

Central Counterparties

A central counterparty interposes itself as the legal counterparty to all purchases and sales via a process known as novation. This involves the replacement of the original contract by separate contracts between the buyer and the central counterparty and between the seller and the central counterparty. These arrangements provide substantial benefits to participants in terms of counterparty risk management as well as greater opportunities for netting of obligations. At the same time, though, they result in a significant concentration of risk in the central counterparty. This risk can crystallise if a participant defaults on its obligations to the central counterparty, since the central counterparty must continue to meet its obligations to the defaulter's original counterparties. Accordingly, it is important that the central counterparty has appropriate risk controls and other measures in place to provide confidence that, in all but the most extreme circumstances, such a default can be accommodated without threatening its solvency or significantly disrupting financial markets or the financial system more generally. It is also important that central counterparties identify and properly control other risks associated with their operations in order to contribute to the stability of the Australian financial system. The objective of the Reserve Bank's *Financial Stability Standard for Central Counterparties* is to ensure that these outcomes are achieved.

The following licensed central counterparties are required to comply with the Standard:

- ASX Clear Pty Limited (ASX Clear), which provides central counterparty services for a range of financial products traded on the ASX market, including cash equities, pooled investment products, warrants, certain fixed income products and equity- and commodity-related derivatives; and
- ASX Clear (Futures) Pty Limited (ASX Clear (Futures)), which provides central counterparty services for derivatives traded on the ASX 24 market, including futures and options on interest rate, equity, energy and commodity products.

Securities Settlement Facilities

A securities settlement facility provides for the final settlement of securities transactions. Settlement involves transfer of the title to the security and transfer of cash. These functions are linked via appropriate delivery-versus-payment arrangements incorporated within the settlement process. As important financial market infrastructures that are critical to the smooth operation of the financial system, it is important that securities

settlement facilities identify and properly control risks associated with their operation in order to contribute to the stability of the Australian financial system. The objective of the Reserve Bank's *Financial Stability Standard for Securities Settlement Facilities* is to ensure these outcomes are achieved.

The following licensed securities settlement facilities are required to comply with the Standard:

- ASX Settlement Pty Limited (ASX Settlement), which provides for the settlement of equities and warrants traded on the ASX market; and
- Austraclear Limited (Austraclear), which offers securities settlement services for trades in debt securities.

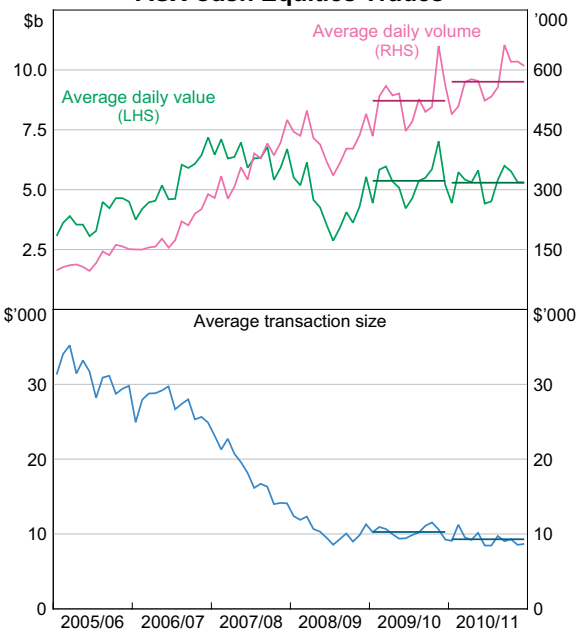
Although ASX Clear, ASX Clear (Futures), ASX Settlement and Austraclear are all part of a single corporate group – ASX – each facility holds an individual CS facility licence.

3. Developments in the Clearing and Settlement Industry in 2010/11

The number of trades on the equities and derivatives markets served by the ASX Group (ASX) central counterparties increased in 2010/11. In the cash equities market, however, the value of trading fell slightly. Volatility in market prices was also lower overall. This lower volatility contributed to a decrease in the margins calculated (but not collected) by ASX Clear Pty Limited (ASX Clear) in respect of cash equities, and that of margins collected by ASX Clear in respect of derivatives. There was a small increase in the initial margins collected by ASX Clear (Futures) Pty Limited (ASX Clear (Futures)) as lower volatility only partially offset the effect of higher trading activity. The value of securities settled by ASX Settlement Pty Limited (ASX Settlement) decreased, reflecting in part the lower value of cash equities traded. The value of debt securities settled by Austraclear Limited (Austraclear) also fell.

There were a number of important regulatory developments in 2010/11. These included a review of the Australian regulatory framework for financial market infrastructures, public consultation on the central clearing of over-the-counter (OTC) derivatives in Australia, and drafting of new principles for financial market infrastructures (FMIs) by the Committee on Payment and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO).

Graph 1
ASX Cash Equities Trades



Source: ASX

Against this backdrop, three new FMIs are looking to begin operation in Australia: Chi-X Australia Pty Ltd (Chi-X), which plans to offer trading in ASX-listed equities, was granted a market licence; a new derivatives market – the Financial and Energy Exchange Limited (FEX) – applied for a market licence to offer trading in commodity, energy and environmental derivatives; and LCH.Clearnet Limited (LCH), a London-based central counterparty, applied for a clearing and settlement (CS) facility licence to clear for FEX.

Activity in the Licensed CS Facilities

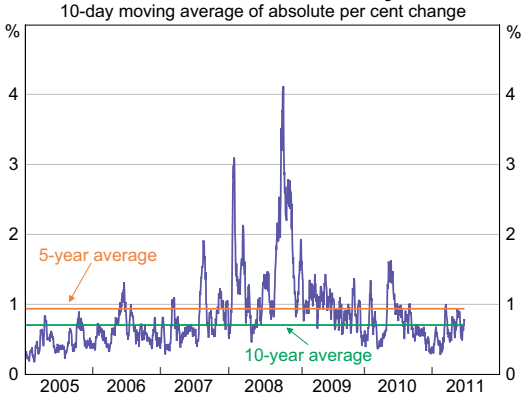
Activity in ASX-operated financial markets was relatively subdued in the second half of 2010 before picking up in the first half of 2011. Overall there was an increase in the volume of transactions processed by the licensed central counterparties in 2010/11, but a decrease in the value of securities processed

by the licensed settlement facilities. Volatility in cash equities prices was slightly lower than that in the previous year, and less than half of that in 2008/09.

In the cash equities market, there was a 9 per cent increase in the average daily number of transactions per month, while the average daily value of transactions fell by 1 per cent (Graph 1). In line with this, the average value of each trade declined to around $9 300 in 2010/11. This is around the same level as seen over the last few years, though it is significantly lower than the average value of each trade five years ago.

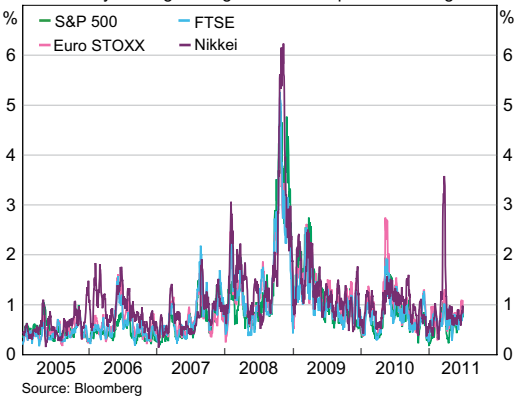
Volatility in cash equities prices was generally quite low over 2010/11, particularly when compared with the periods of turbulence during recent years. Average volatility, as measured by the absolute daily per cent change in the S&P ASX All Ordinaries index, fell from 0.8 per cent in 2009/10 to 0.6 per cent in 2010/11 (Graph 2). In 2008/09, at the height of the global financial turmoil following the collapse of Lehman Brothers, average volatility was 1.5 per cent. While there was a spike in volatility in March 2011 following the Japanese earthquake and tsunami disaster, this was somewhat smaller than that which occurred in May 2010 amidst concerns over public debt levels in some European countries. The March spike was also just a fraction of the size of that seen immediately following the Lehman Brothers collapse in September 2008.

Graph 2
All Ordinaries Volatility
10-day moving average of absolute per cent change



Source: Bloomberg

Graph 3
Global Equities Markets Volatility
10-day moving average of absolute per cent change



Source: Bloomberg

Volatility in the Australian market has broadly mirrored that of global equities markets, but has generally been less pronounced (Graph 3). For example, corresponding spikes in the volatility of the All Ordinaries index have been smaller than those in: the Nikkei index following recent Japanese natural disasters; the Euro STOXX index following the European sovereign debt concerns of mid 2010; and most equities indices following Lehman Brothers' collapse in late 2008.

Trading activity was higher on both ASX derivatives markets. The average daily number of derivatives contracts traded on the ASX market (mainly equity derivatives) increased by 7 per cent.[2] The average daily number of contracts traded on the ASX 24 market grew by 29 per cent, mostly reflecting increased trading of interest rate futures.

In part because of the fall in the value of cash equities trading, the value of securities transactions settled by ASX Settlement decreased by 4 per cent to an average daily value of $8.1 billion. (This fall in settlement values

2 In May 2011, the standard equity option contract size was changed from 1000 shares to 100 shares. The calculation of the 7 per cent growth figure involves an adjusted measure of trading volume in 2010/11 which corrects for the change in contract size. See <http://www.asxgroup.com.au/media/PDFs/ma110706ASX_Group_Monthly_Activity_Report_-_June_2011_-_final.pdf>.

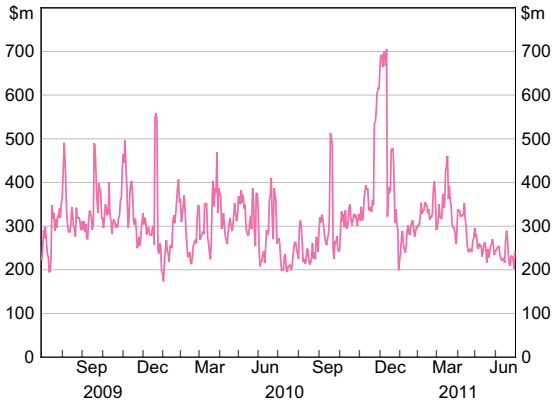
was larger than the 1 per cent fall in traded values because the former includes settlement of non-market transactions and accounts for multilateral netting of clearing participants' obligations.) For debt securities, the average daily value settled through Austraclear decreased by 5 per cent to $39.5 billion. (This value includes outright purchases and sales of securities, and securities transferred as part of repurchase agreements.)

Risk Management in the Licensed Central Counterparties

The market risk associated with closing out novated positions in normal market conditions in the event of a clearing participant default (as measured by margin requirements) was subject to divergent influences in 2010/11. The increased number of transactions processed by the central counterparties was countered by lower volatility in market prices and, in the case of cash equities, lower values traded.

As part of its internal risk management process, ASX Clear currently calculates, but does not collect, margin requirements on cash equities positions through its 'Real Risk' model. (ASX Clear's plans to introduce margining of cash equities are discussed in Section 5.1 of this Assessment.) The Real Risk model quantifies the value at risk to ASX Clear under normal market conditions should it have to close out a defaulting participant's unsettled novated settlement obligations. Average daily notional initial margin requirements calculated by the model decreased by 1 per cent to $311 million in 2010/11 (Graph 4). The average for 2010/11 is inflated by a short period of high notional margin requirements following the initial public offering of QR National in November 2010. ASX noted that this reflected more the current treatment of new stocks in its Real Risk model than a significant increase in actual risk to the central counterparty. ASX Clear's forthcoming cash equities margining model will provide a more tailored treatment of new stocks.

Graph 4
ASX Clear: Notional Initial Margin for Cash Equities



Source: ASX

The average of daily margins (both initial and mark-to-market) collected by ASX Clear on derivatives positions fell 22 per cent in 2010/11, to $866 million (top panel of Graph 5). As these positions are mainly in equity options, the lower margin requirements appear to have been driven mainly by the lower volatility in equities prices.

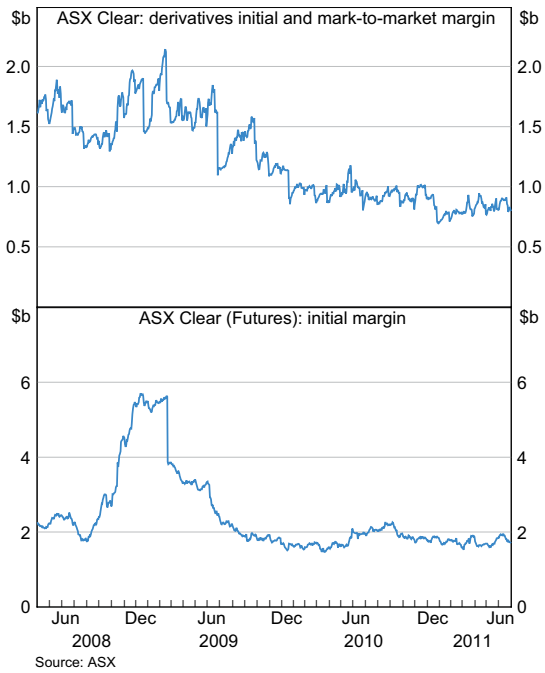
The average of daily initial margins collected by ASX Clear (Futures) increased by 3 per cent to $1.8 billion (bottom panel of Graph 5). Despite the strong growth in trading activity on the ASX 24 market, this relatively small increase in margins in part reflects the fact that margin rates on the most commonly traded interest rate futures contracts were at generally lower levels when compared to the previous year; the margin rate on a contract is largely determined by the recent volatility in its price.

Regulatory Developments

In early April 2011, the Treasurer asked the Council of Financial Regulators ('the Council') to provide advice on measures which could be introduced to ensure that Australia's regulatory framework for FMIs continues to protect Australia's interests. A working group, chaired by the Treasury, comprising representatives of the

Australian Prudential Regulation Authority, the Australian Securities and Investment Commission (ASIC) and the Reserve Bank has been established to consider the adequacy of oversight, powers of direction and crisis-management arrangements for market operators and clearing and settlement facilities. The Council working group anticipates issuing a consultation paper seeking stakeholder views in the spring of 2011.

Graph 5
Margins



Source: ASX

At the same time as this review, the Council agencies continue to assess global developments in OTC derivatives markets and consider appropriate policy responses. In June 2011, the Reserve Bank, on behalf of the Council agencies, issued a discussion paper *Central Clearing of OTC Derivatives in Australia*.[3] The paper describes the evolving global landscape for OTC derivatives and central clearing, as well as the Australian market for OTC derivatives, and presents a range of considerations that need to be weighed if central clearing in the domestic market is to be established. This work is required in part because of the substantial reforms in this area underway in many offshore jurisdictions. Along with these international developments, the interests of the Australian agencies also reflect a commitment by the G20 group of countries (of which Australia is a member) to undertake significant reforms to strengthen OTC derivatives markets. In particular, these countries committed to see all standardised OTC derivatives transactions centrally cleared by the end of 2012.

Ahead of making recommendations to the Government on this matter, the Council is seeking feedback on the views and propositions set out in the paper. Written submissions were sought from interested parties by 1 September with the Council agencies continuing to consult with stakeholders over the remainder of 2011.

Along with increased global regulation of OTC derivatives markets, another significant global regulatory development is CPSS and IOSCO's impending introduction of revised standards for FMIs. In March 2011, CPSS and IOSCO released for consultation a draft of a single set of Principles for FMIs, which is intended to replace the three existing sets of standards.[4] The new principles reflect lessons learnt from the financial crisis and other contemporary developments, such as the prospective new regulatory environment for OTC derivatives. CPSS and IOSCO are reviewing the comments received during the consultation process, with the aim of releasing a final report and set of principles in early 2012. They propose that relevant authorities include the new principles in their legal and regulatory frameworks by end 2012. Upon release of the final principles, the Reserve Bank will consider whether any changes need to be made to the *Financial Stability Standards*. It is anticipated that FMIs that fall within the ambit of the new principles will not be required to comply immediately.

3 Available at <http://www.rba.gov.au/publications/consultations/201106-otc-derivatives/pdf/201106-otc-derivatives.pdf>.

4 The three existing sets of standards are: 'Core Principles for Systemically Important Payment Systems' (CPSS, 2001); 'Recommendations for Securities Settlement Systems' (CPSS and IOSCO, 2001); and 'Recommendations for Central Counterparties' (CPSS and IOSCO, 2004).

New Financial Market Infrastructure

Chi-X, which plans to offer trading in ASX-listed equities, was granted a market licence by the Minister for Financial Services and Superannuation on 4 May 2011. This followed the finalisation by ASIC in late April of the regulatory framework for competition between markets trading equities.[5] Upon launching, Chi-X's trades will be cleared and settled through ASX's Trade Acceptance Service. However, Chi-X's market licence permits clearing and settlement to be conducted by any CS facility licensee approved for the purpose.

A new derivatives exchange, FEX, has also applied for a market licence. FEX plans to offer trading in commodity, energy and environmental derivatives, and has approached LCH to provide CS services. LCH is a London-based central counterparty that clears equities and derivatives for a number of exchange-traded and OTC markets overseas. It is regulated and supervised by the UK's Financial Services Authority (FSA). In order to clear for FEX, however, LCH must be licensed in Australia. The *Corporations Act 2001* provides for an alternative licensing process for facilities that are overseas based and are operating under a regulatory regime sufficiently equivalent to the Australian regime.[6] LCH's application is being considered under that process. If LCH is granted a licence it will be exempt from the Reserve Bank's *Financial Stability Standard for Central Counterparties* (the Standard provides for this exemption) so long as the Reserve Bank receives documentary evidence from the FSA that LCH complies with the FSA's regulations. The effect of this is that the Reserve Bank's annual assessment of CS facilities would not necessarily assess in detail LCH against each of the measures of the relevant *Financial Stability Standards* (FSS) (as it does for the ASX CS facilities). However the annual assessment must still contain an assessment of whether LCH has done all other things necessary to reduce systemic risk (as required of all CS facilities by the Corporations Act).[7] The Reserve Bank will rely largely upon information provided by the FSA (LCH's direct overseer) and will seek to assess LCH on an equivalent basis to domestic facilities undertaking equivalent activities.

5 'ASIC Market Integrity Rules (Competition in Exchange Markets) 2011', available at <http://www.asic.gov.au/asic/ASIC.NSF/byHeadline/Market%20integrity%20rules>.

6 While 'sufficient equivalence' is not defined in the Corporations Act, the Reserve Bank has nominated the aspects of a foreign regulatory regime that it considers in making an assessment of equivalence. These are available at <http://www.rba.gov.au/payments-system/clearing-settlement/standards/overseas-equivalence.html>.

7 The Reserve Bank's detailed assessment against the FSS normally overlaps this requirement.

4. The Financial Stability Standards

The *Corporations Act 2001* provides that the Reserve Bank may determine *Financial Stability Standards* (FSS) to ensure that clearing and settlement (CS) facilities promote overall stability in the financial system. The Standards for central counterparties and securities settlement facilities are discussed in detail in Appendix A. The Standards are supplemented by a set of detailed measures that the Reserve Bank considers relevant for that assessment (see Appendix B). These measures align with accepted international principles as set out by the Committee on Payment and Settlement Systems and International Organization of Securities Commissions.

The Standards and measures comprehensively cover matters relevant to the assessment of systemic risks arising from the activities of licensed facilities. As such, in assessing these facilities' compliance with the Standards, the Reserve Bank also fulfils its obligation under the Corporations Act to assess whether a facility is 'doing all other things necessary to reduce systemic risk'.

The Corporations Act provides for an alternative regulatory regime for overseas CS facilities granted a licence under section 824B(2). Currently, there are no CS facilities licensed under that section. The section allows the Reserve Bank to rely to a large extent on the relevant overseas regulatory authority, so long as that authority's regulatory regime is sufficiently equivalent to that applying in Australia. However, the Minister may decide that licensing under the alternate regime for overseas facilities is not appropriate – irrespective of sufficient equivalence – and that the facility will require a domestic licence and so be under the direct oversight of the Australian Securities and Investment Commission and the Reserve Bank. For example, where a prospective overseas CS facility is considered to be serving a particularly large or systemically important market in Australia, the Reserve Bank expects to assess the facility in full against the FSS.

Section 25M(1)(a)-(c) of the *Reserve Bank Act 1959* requires that the Payments System Board describe any new standards for CS facilities determined during the year and any variations or revocations of existing standards.

No new standards for CS facilities were determined by the Reserve Bank under section 827D(1) of the Corporations Act during the year to June 2011. No existing standards were varied or revoked.

5. Assessment of CS Facilities against the Financial Stability Standards

The Reserve Bank monitors licensed clearing and settlement (CS) facilities' compliance with the *Financial Stability Standards* (FSS) on an ongoing basis and reports on its assessment annually, covering the year to end June. All four ASX licensees report financial information to the Reserve Bank quarterly, with the two central counterparties also reporting detailed risk-management information, including outcomes of stress tests. These reporting requirements are supplemented by a regular dialogue with the licensees on issues relevant to compliance, and by data on activity, exposures and operational performance.

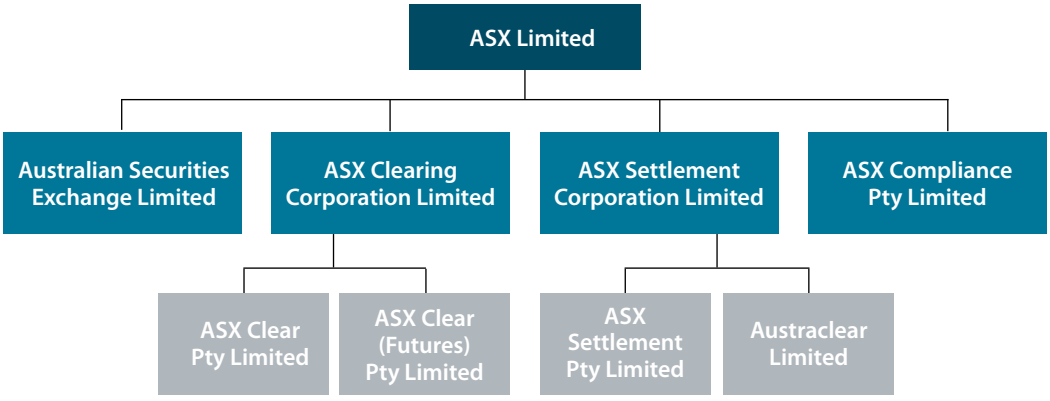
The assessments that follow describe the key developments over the year to end June 2011 for each facility and consider the implications of these developments for each facility's compliance with the relevant Standard. All four facilities were found to comply with the relevant Standards.

Details of the information that the Reserve Bank has used to assess each facility against the relevant measures are presented in Appendix B, which builds on material included in prior Assessments.

Governance

All four CS facilities are part of the ASX Group (ASX). In the ASX corporate structure, the two central counterparties are subsidiaries of ASX Clearing Corporation Limited (ASXCC), while the two securities settlement facilities are subsidiaries of ASX Settlement Corporation Limited (Figure 1). ASX Compliance Pty Limited (ASX Compliance) provides compliance and enforcement services to the CS facilities.

Figure 1



The ASX Limited Board, which is accountable to ASX shareholders, is responsible for overseeing the processes for identifying significant risks to ASX and ensuring that appropriate and adequate control, monitoring and

reporting mechanisms are in place. In addition, the ASX Limited's Board assigns certain responsibilities to subsidiaries within the group, including the boards of the four CS facilities (the CS Boards), which are responsible for managing the clearing and settlement risk of their respective central counterparties, and compliance with the FSS. Despite ASX devoting human resources to the proposed takeover by Singapore Exchange Limited, this activity had no effect on the CS facilities' compliance with the FSS.

Within ASX's management structure, the office of the Chief Risk Officer (CRO) is responsible for ensuring that ASX identifies, analyses and effectively manages the risks inherent in all its activities. All functional areas within ASX Group with responsibility for central counterparty financial risk management (among other things) report to the CRO, who in turn reports directly to the Chief Executive Officer. These functional areas are: the Clearing Risk Policy unit; the Clearing Risk Management unit; the Enterprise Risk unit; the Internal Audit unit; and the Portfolio Risk Manager. The CRO is not responsible for any other functions, and none of the units within the CRO's portfolio have a revenue or profit objective.

Participant Monitoring

Monitoring of clearing participants is conducted predominantly by the Clearing Risk Management unit, which covers both central counterparties. Within Clearing Risk Management, Capital Monitoring is responsible for monitoring, assessing and investigating matters relating to financial requirements. Capital Monitoring was relocated to Clearing Risk Management in December 2010; prior to that it sat within ASX Compliance.[8] In addition, Clearing Risk Management monitors day-to-day developments regarding, among other things, risk profiles, open positions and settlement of obligations to the central counterparties. It is also responsible for determining and reviewing internal credit ratings (ICRs) of participants, drawing on information provided by participants in their regular financial returns to Capital Monitoring.

It was noted in previous Assessments that during 2008/09 ASX reviewed a number of aspects of its capital- and liquidity-monitoring arrangements and had set in train a number of projects to deliver enhancements. This work continued in 2010/11, with some parts finalised during the year:

- Spot checks continued to be conducted on the accuracy of participants' financial returns. As well as random spot checks, targeted checks are triggered by other factors such as two or more historical inaccuracies in a participant's returns.
- A self-assessment program for participants has commenced, which is designed to ensure that participants are facing the correct regulatory capital requirements. This involves participants certifying that they are completing the returns appropriate for the range of business activities that they undertake.

During the assessment period ASX also conducted spot checks on participants' business continuity management. These are triggered if a participant has been experiencing operational problems, and include examination of governance and processes.

Effective participant monitoring is crucial to a central counterparty's ability to measure and assess the risks brought to it by its participants. As a result of this monitoring, ASX identified an instance of non-compliance with ASX Settlement Pty Limited's (ASX Settlement) risk-control requirements. As required by Measure 2c of the *Financial Stability Standard for Securities Settlement Facilities*, ASX was able to suspend the participant, which it chose to do. The Reserve Bank welcomes the enhancements that have been made to ASX's participant-monitoring framework.

8 In August 2011, the Australian Securities and Investments Commission (ASIC) took over responsibility for supervising capital monitoring of market-only participants (i.e. trading participants that are not clearing participants) on Australia's domestic licensed markets. As a result of this change in responsibilities, ASX Markets Supervision was renamed ASX Compliance.

Harmonisation and Linking of Central Counterparty Activity

Since the merger of the Australian Stock Exchange and SFE Corporation in 2006, ASX Clear Pty Limited (ASX Clear) and ASX Clear (Futures) Pty Limited (ASX Clear (Futures)) have continued to operate as separate central counterparties. ASX has made progress in implementing the initiatives it outlined in September 2009, aimed at harmonising and linking the activities of the two central counterparties. These initiatives have the potential to reduce ASX's fixed costs, simplify arrangements for clearing participants that use both central counterparties, and allow margin offsets across the two central counterparties.

These initiatives include the migration of the margining methodology at both central counterparties to the CME version of the Standard Portfolio Analysis of Risk (SPAN) margining system. The initial stage of this project involved bringing ASX Clear's margining system, the Theoretical Intermarket Margin System (TIMS), into ASX's in-house Derivatives Clearing System (DCS). This was completed in September 2010. The replacement of OMX RIVA SPAN with CME SPAN as ASX Clear (Futures)' margining system is expected to occur in early 2012, followed by the introduction of CME SPAN at ASX Clear in mid 2012.

Upon the implementation of CME SPAN, ASX will look to introduce margin offsets between the two central counterparties.

The Reserve Bank welcomes these practical measures and encourages ASX to further harmonise, where appropriate, the risk management practices of the two central counterparties and to continue to update the rulebooks of the central counterparties to reflect current risk management practices and expectations.

ASXCC and the Composition of Risk Resources

ASXCC manages the investment of all assets held by ASX Clear and ASX Clear (Futures) (including margins and other risk resources), as well as the central counterparties' funding and capital-management processes.

Within the ASX corporate structure, ASX Limited provides loans to ASXCC which in turn lends to the two central counterparties ($70 million to ASX Clear (Futures) and $75 million to ASX Clear). These funds, which are fully drawn down, would be called upon in the event of a clearing participant default, should all of a defaulting participant's margin and paid-up contributions, and the central counterparties' own capital, be depleted. In ASX Clear (Futures), the next tier of default resources to be called would be non-defaulting participant contributions ($120 million less any defaulting participant contributions already used). The next tier of default resources to be called is funded by a $250 million loan facility ASXCC has with a commercial bank, which funds further subordinated loans to the central counterparties ($150 million to ASX Clear (Futures) and $100 million to ASX Clear). The commercial bank loan facility is principal-reducing, which means that to the extent that the subordinated loans funded by the bank loan are applied towards a clearing participant default loss, the bank loan would not need to be repaid.

ASXCC has renewed the current commercial bank loan agreement for four years commencing August 2011. The terms of the agreement are essentially the same, with the loan able to be used to cover the default of a clearing participant, although ASX has removed its option to use the funds to cover the default of an investment counterparty (i.e. the loan will only be able to be used to cover the default of a clearing participant).

In December 2010, ASXCC became the controlling entity of treasury portfolios relating to ASX Clear and ASX Clear (Futures). As part of this ASXCC opened an Exchange Settlement (ES) account at the Reserve Bank in November 2010, to replace the ES accounts held by ASX Clear and ASX Clear (Futures), which were shut down

in January 2011. During the year ASXCC also conducted a test of the systems it uses to access the Reserve Bank's overnight repo facility.

In line with the treasury investment policy endorsed by both CS Boards, ASXCC invests both cash margin collected and pooled risk resources in high-quality assets. The policy contains minimum liquidity requirements calibrated with reference to liquidity needs to meet the central counterparties' payment obligations to all clearing participants in the normal course of business (the 'ordinary liquidity requirement') and their obligations in the event of a participant default. To assess whether ASXCC holds sufficient liquid resources to cover a default it conducts liquidity stress tests, which are based on each central counterparty's capital stress tests (discussed in Sections 5.1 and 5.2). ASXCC's total liquidity requirement is calibrated to allow for the possibility that both central counterparties simultaneously experience default related stress.

In November 2010, ASX improved the liquidity requirements of its treasury investment policy by:

- introducing a worst-case assumption in the ASX Clear (Futures) liquidity stress tests, wherein a default happens prior to receipt of the previous day's variation margin payments owed by the defaulter, or after variation margin payments owed to the defaulter have been paid;
- explicitly requiring that the equivalent of the cash margin posted by the largest clearing participant in each central counterparty be invested in liquid assets;
- requiring that the ordinary liquidity requirement be sufficient to cover the maximum margin obligations over the last year[9]; and
- changing the definition of liquid assets to focus more on market liquidity considerations rather than the maturity of investments.[10]

Default Arrangements

These developments are discussed in the detailed assessment of ASX's default arrangements presented in Section 6 of this Assessment.

Business Continuity Arrangements

Over the year ASX has been finalising the development of a new operations centre, which is due to open in late 2011. ASX plans to have at least 10 per cent of operational staff permanently located at this site within 12 months of it becoming fully operational. This will facilitate rapid recovery in the event of a disruption (the new site will have the capacity to house 65 per cent of all operational staff). The new site will become ASX's primary site for IT infrastructure and ASX will retain its current backup site – ASX will be capable of running all systems on a continuous basis from either its primary site or its backup site. Once the new site becomes fully operational, ASX will implement dual redundancy for all four core clearing and settlement systems at both sites (currently only EXIGO, Austraclear Limited (Austraclear) operating system has this capacity).

Under its Business Continuity Management Policy, ASX requires that redundancy arrangements for all four core systems will be available within two hours of interruption. Should a switch to its backup site be necessary, ASX policy is to have an additional tier of redundancy arrangements in place within 24 hours to meet the contingency of a further interruption.

9 The ordinary liquidity requirement had been based on a 99 per cent confidence interval of margin obligations over the past year.

10 In doing so, ASX removed the requirement that assets must mature within 14 days as it does not consider this a relevant restriction.

The Reserve Bank strongly endorses these enhancements, which are consistent with international best practice for systemically important systems.

Summary of Developments in 2010/11

The Assessment highlights a number of important developments across the CS facilities during the period under review. These include:

- *Improvements to participant-monitoring arrangements*. ASX implemented a number of changes to its capital- and liquidity-monitoring arrangements applicable to ASX Clear and ASX Clear (Futures) participants, including a new system for the lodgement of participants' capital returns. ASX also conducted spot checks on participants' business continuity management.
- *Improvements to the liquidity requirements of ASX's treasury investment policy*. ASX has modified its liquidity stress tests to be better aligned with worst-case default scenarios, increased the robustness of the threshold it uses to assess whether it holds sufficient liquid assets to meet ordinary requirements, and changed its definition of liquid assets.

The Assessment also identifies a number of areas of ongoing developments that the Bank will continue to monitor. These include:

- *Risk calculation*. ASX intends to introduce CME SPAN, widely regarded as the industry standard for risk margining, for ASX Clear (Futures) from early 2012 and for ASX Clear from mid 2012. This will place both central counterparties' risk management on a common platform.
- *Business continuity planning*. ASX plans to have its new operations centre completed by the end of 2011 to facilitate availability of redundancy arrangements for all four of its core systems. The Reserve Bank welcomes this and will monitor progress over the period ahead.

5.1 ASX Clear

Background

ASX Clear provides central counterparty services for a range of financial products traded on the ASX market, including cash equities, pooled investment products, warrants, certain debt products and equity- and commodity-related derivatives. Through a process known as novation, ASX Clear becomes counterparty to every eligible trade, managing the associated risk by applying a range of risk-management tools.

The rights and obligations of ASX Clear and its participants are set out in the ASX Clear Operating Rules and Procedures. Under section 822B of the *Corporations Act 2001*, these rules constitute a contract under seal between ASX Clear and each of its participants, as well as between participants. The netting arrangements contained in the ASX Clear Operating Rules and Procedures are further protected under Part 5 of the *Payment Systems and Netting Act 1998*. This provides certainty for the netting process in the event of the insolvency of an ASX Clear participant.

ASX Clear applies three layers of risk-management protections:

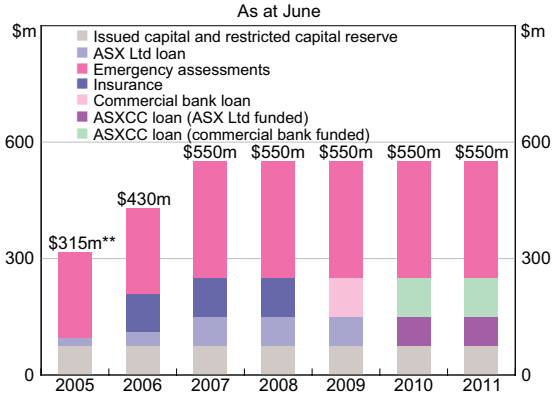
- *Participation requirements and ongoing monitoring.* ASX Clear Direct Participants clearing cash equities or derivatives are required to hold at least $5 million in 'core capital'. ASX intends to increase the requirement to $10 million over time. While capital is only a proxy for the overall financial standing of a participant, minimum capital requirements offer comfort that a participant has adequate resources to withstand an unexpected shock, perhaps arising from operational or risk-control failings.
- *Margining and other collateralisation of exposures by participants.* Margins are routinely collected from participants in respect of derivatives exposures, but not currently for cash equities. Where exceptionally large or concentrated exposures in either derivatives or cash equities are identified through stress testing, calls are made under the Contributions and Additional Cover (CAC) regime. The margins and other collateral posted by a defaulting participant would be drawn on first by ASX Clear in the event of a default.
- *The maintenance of pooled risk resources.* Finally, ASX Clear has access to pooled risk resources of $550 million to meet losses arising from a participant default in extreme but plausible market conditions. Of these additional resources, $250 million are fully paid up and comprise $3.5 million of own equity, $71.5 million paid into a restricted capital reserve from the National Guarantee Fund (NGF) in 2005, and subordinated loans totalling $175 million provided by ASXCC. These paid-up funds can be supplemented by 'emergency assessments' of up to $300 million, which surviving clearing participants must pay within a reasonable timeframe in the event of a participant default.

At the end of the assessment period, ASX Clear had 48 participants, including 18 Australian-owned brokers, 20 subsidiaries of foreign banks and brokers, seven subsidiaries of Australian-owned banks, and three specialist clearers. Seven participants resigned their membership during the period, while no new participant joined.

Adequacy of ASX Clear's Risk Resources

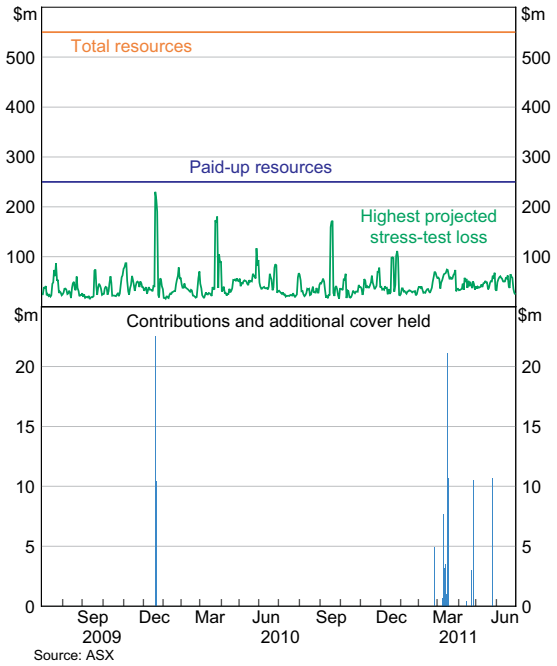
The risk resources available to ASX Clear to meet losses arising in the event of participant default comprise any margin or other collateral collected from the defaulting participant, and ASX Clear's pooled risk resources. Having risen significantly between 2005 and 2007, the aggregate value of ASX Clear's pooled risk resources has remained at $550 million over the past five years (Graph 6). ASX Clear's risk resources comprise $250 million of paid-up resources and $300 million of committed promissory resources.

Graph 6
ASX Clear: Risk Resources*



* The order of the bars reflects the order of application, starting from the bottom and working upward
** An additional $15m was available from ASX Clear's retained earnings
Source: ASX

Graph 7
ASX Clear: Highest Projected Stress-test Losses



Source: ASX

In order to assess the adequacy of its risk resources, ASX Clear compares its available resources against the largest loss given the default of a participant under a range of extreme but plausible (stress-test) scenarios. In May 2010, a change was made to the 'market-up' stress test by raising the across-the-board price increase of this scenario to 10 per cent, compared with 7 per cent previously. This more stringent stress test was adopted shortly after prices declined consistently over a period of 10 days. In response to this episode, Clearing Risk Management thought it prudent to allow for the possibility of a more substantial rise in prices given the potential for the market to rapidly bounce back from such a decline. During the 2010/11 assessment period several other minor changes were made to the stress-test scenarios, as part of ASX Clear's annual review of stress-test parameters.

ASX Clear calls for CAC whenever a participant's potential stress-test losses on its cash equities and derivatives positions exceed a stress-test exposure limit (STEL). STELs are linked to participants' ICRs (as determined by ASX). Highly rated (A- and B-rated) participants are eligible for discounts on the additional collateral called. However, these discounts have not been applied by Clearing Risk Management since a breach of the Exponentially Weighted Moving Average (EWMA) Monitor (a daily risk measure that compares an EWMA against historical volatility of the SPI 200) occurred in April 2010. As B- or lower-rated participants have STELs that are less than ASX Clear's paid-up risk resources, CAC can be called even when stress-test exposures do not exceed these resources.

Comparison of potential stress-test losses with the level of available risk resources offers some guidance as to the resilience of the central counterparty to a participant default in extreme market conditions (Graph 7). During the assessment period, there were 14 days on which two participants' stress-test exposures exceeded their internal credit rating-based STELs, resulting in CAC being called. One participant had CAC called due in part to a build up in positions following the Japanese earthquake and tsunami. The second participant had CAC called on six consecutive days due to an accumulation of short equity option positions.

Cash Equities Margining

In the 2009/10 assessment period, ASX engaged with stakeholders regarding enhancements to ASX Clear's risk controls, including the introduction of routine margining by ASX Clear in the cash equities market. After further consultation with market participants, industry bodies and clearing participants over the current assessment period, ASX has begun development of a 'futures-style' margining system, which will: continue to margin option exercises under the current derivatives margining approach (to reduce spikes in cash equity market margin calls); will not have a house/client split (because no client funds will be held in the account); and will not have mandatory pass-through of margin to clients (though it is possible that participants will choose to do so). Additionally, the system will allow for a more tailored treatment for stocks considered 'illiquid' or with limited price history (e.g. initial public offerings), and will allow for integration of margining and settlement of low exercise price options (LEPOs).

ASX has held workshops with participants on these issues, with discussions focusing on how best to implement the project. ASX expects the project to be implemented after CME SPAN is in use at ASX Clear, with the introduction of end-of-day margining by the end of 2012 and intraday margining in early 2013.

The Reserve Bank welcomes ASX Clear's progress towards introducing margining in the cash equities market. In the 2008/09 Assessment, the Reserve Bank set out the strong case for margining of cash equities – it provides participants with incentives to manage the risk they bring to the central counterparty, and provides an additional layer of protection for the central counterparty, reducing its reliance on pooled risk resources, use of which (in the event of a participant default) may carry reputational costs. Furthermore, margining of cash equities (or an equivalent collateralisation of potential losses in normal market conditions) is the usual practice in other markets; introducing it at ASX Clear will bring the central counterparty more into line with international best practice.

Derivatives Margining

ASX Clear's Derivatives Intraday Risk Quantification (DIRQ) project went live on 20 September 2010. The DIRQ project involved two system enhancements: allowing ASX Clear to make intraday margin calls that reflect sizeable intraday changes in participants' positions, where previously intraday calls only reflected changes in prices; and the migration of margin-setting calculations from an outsourced system, TIMS, to ASX Clear's in-house DCS. As discussed under 'Harmonisation and Linking of Central Counterparty Activity' above, this is the first step towards replacing both central counterparties' derivatives margining systems with CME SPAN.

In addition, since 6 September 2010 ASX Clear now settles house and client exchange traded options margin payments separately on a gross basis in Austraclear. As a result, margin flows and risk protections are a little higher as there is no offset between house and client margins.

Participation Requirements

Starting 1 July 2010, ASX Clear's minimum 'core capital' requirement for Direct Participants increased from $2 million to $5 million (and to $10 million for General Participants, which may act as third-party clearers). Most clearing participants affected by these changes have chosen to inject capital; others have chosen to use third-party clearers. One participant has chosen to clear trades through its parent, which meets the minimum capital requirements.

ASX Clear originally intended to further increase the minimum capital requirement for Direct Participants to $10 million from 1 January 2012; however, due to the limited development of third-party clearing services, ASX has deferred the proposed implementation to 1 January 2013. ASX will review the intended timetable in late 2011, to include an assessment of progress on third-party clearing and the implementation of cash equity margining. However, ASX intends to proceed with the increase in General Participants' minimum capital requirement to $20 million from 1 January 2012. ASX has held informal discussions with the affected participants, as well as ASIC and the Reserve Bank, both of which will contribute to advice to the Minister on this proposed rule change. As noted in recent Assessments, ASIC and the Reserve Bank view depth in the third-party clearing market as being an important consideration in ASX Clear's planning for further increases to capital requirements for Direct Participants. During the assessment period there was one new entrant to the third-party clearing market, CBA Equities Limited (an existing Direct Participant), and one participant, Berndale Securities Limited, exited from this role.

Currently there are no Authorised Deposit-taking Institution (ADI) clearing participants clearing cash equities or exchange-traded options on ASX Clear. Prior to October 2007, the Securities Exchanges Guarantee Corporation (SEGC) could effectively impose unlimited levies on ASX Clear participants to restore shortfalls arising in the NGF. The potentially unlimited liability that this might generate for participants was in conflict with the Australian Prudential Regulation Authority's (APRA) prudential standards, which generally prevent ADIs from entering into arrangements with unlimited liability. However, in October 2007 the *Corporations (National Guarantee Fund Levies) Amendment Bill 2007* was passed, imposing a *per annum* cap on levies payable to SEGC, removing the conflict between APRA's requirements and clearing participation obligations. The necessary rule changes to allow ADIs to become ASX Clear participants are now being considered by ASX.

Operational Performance

ASX Clear's core systems are DCS and Clearing House Electronic Sub-register System (CHESS). Developments in respect of CHESS are considered in the assessment of ASX Settlement in Section 5.4. DCS experienced no outages during the assessment period, resulting in complete availability. The target for DCS to be available is 99.8 per cent of the time. Although there were some unsuccessful logins early on the morning of 11 February 2011 due to a hardware problem with the core switch (discussed in Section 5.3), the impact on DCS was minimal as there were no impending settlement deadlines, and ASX decided against transferring DCS to the backup site. Average capacity utilisation of DCS in 2010/11 was 14 per cent, while peak utilisation was 30 per cent, in accordance with its policy that peak utilisation does not exceed 50 per cent of capacity.

As well as monthly connectivity and procedural checks, ASX conducts business continuity tests of its key systems over two-year cycles. The business continuity testing program for 2010 and 2011 was finalised in early 2010, with DCS tested from 7 to 11 March 2011, this did not reveal any problems.

Trade Acceptance Service

In the previous assessment period, ASX announced the creation of a trade acceptance service (TAS) in response to the prospect of new trade execution facilities for ASX-listed financial products entering the Australian market. The TAS allows trades executed on approved market operators' (AMO) platforms to be cleared and settled through ASX Clear and ASX Settlement, respectively. In May 2011, ASX published pricing options for the TAS, also clarifying that an AMO will be free to use the services of other clearing houses at the same time as using the TAS; in June 2011 ASX published finalised legal terms together with operational and technical standards,

and relevant operating rule changes were also finalised. The TAS will enable trades originating from AMOs to be submitted to ASX Clear and ASX Settlement using CHESS, ASX's integrated clearing and settlement system for cash equities. Upon validation, trades will be novated and netted on the same basis as trades originating from the ASX market.

ASX is making the TAS available under a published set of contractual terms of service. Each AMO will be required to periodically certify that it has complied with the standards in the previous quarter. Any failure to comply must be notified immediately to ASX Clear and ASX Settlement, and may trigger suspension. This arrangement is similar to that required of ASX Clear clearing participants. In assessing the implications of ASX offering a trade acceptance service, the key consideration for the Reserve Bank was that the CS facilities' risk controls be unaffected. Given this, the Reserve Bank cannot see any reason why the current TAS arrangement would affect the compliance of ASX Clear and ASX Settlement with the relevant FSS.

In May 2011, the Minister granted Chi-X Australia Pty Ltd (Chi-X) a licence to operate as an AMO. Chi-X expects to begin operating on 31 October 2011 using the TAS.

Summary

It is the Reserve Bank's assessment that ASX Clear complied with the *Financial Stability Standard for Central Counterparties* during the assessment period.

The Assessment highlights a number of important developments during the period under review. These include:

- *Implementation of the DIRQ project*. The project, which went live in September 2010, involved: system enhancements to enable ASX Clear to make intraday calls reflecting sizable changes in participants' positions; and the migration of TIMS to a replica within DCS.
- *Publication of standards and pricing options for the TAS*. In May 2011, ASX published standards and pricing options for the TAS, ahead of Chi-X entering the market.

The Assessment also identifies a number of areas for further attention during the forthcoming period, including:

- *Routine margining of cash equities*. The Reserve Bank welcomes ASX Clear's progress on introducing routine margining of cash equities. It will continue discussions with ASX regarding the refinement and implementation of the proposal during the next assessment period, with the expectation that this will have commenced by the end of 2012.
- *Participation requirements*. ASX Clear proposes to increase the minimum 'core capital' requirement for General Participants (specialist third-party clearers) to $20 million from 1 January 2012. ASX Clear also proposes to increase the minimum 'core capital' requirement for Direct Participants to $10 million from 1 January 2013 and in that context it is expected that ASX, in conjunction with ASIC and the Reserve Bank, will consider developments in the third-party clearing market in determining whether it is appropriate to pursue this timetable.

5.2 ASX Clear (Futures)

Background

ASX Clear (Futures) provides central counterparty services for derivatives traded on the ASX 24 market.

ASX Clear (Futures) operates within a sound legal framework, based on its Operating Rules and Procedures. Under section 822B of the Corporations Act, these rules constitute a contract under seal between ASX Clear (Futures) and each of its participants, as well as between participants. Among other things, the rules set out the rights and obligations of ASX Clear (Futures) and each of its participants in respect of ASX Clear (Futures)' provision of central counterparty services. The netting arrangements contained in the ASX Clear (Futures) Operating Rules and Procedures are further protected under Part 5 of the Payment Systems and Netting Act. This provides certainty for the netting process in the event of the insolvency of an ASX Clear (Futures) participant.

Given the concentration of counterparty risk in a central counterparty, effective risk-management processes are crucial. ASX Clear (Futures) manages the risk associated with the potential for a participant default through a range of measures:

- *Participation requirements and ongoing monitoring.* ASX Clear (Futures) participants are required to hold at least $5 million in net tangible assets (NTA). Over time, ASX Clear (Futures) plans to implement a further increase in this NTA requirement to $10 million, with a higher requirement for those clearing for third parties.
- *Margining and other collateralisation of exposures by participants.* ASX Clear (Futures) levies margin on all derivatives products to cover any losses potentially arising should a participant default in normal market conditions. ASX Clear (Futures) also calls for Additional Initial Margins (AIMs) from participants when individually large or concentrated exposures are identified, including through stress testing.
- *The maintenance of pooled risk resources.* Should margin and other collateral collected from a defaulting participant prove insufficient to meet its obligations, ASX Clear (Futures) has access to pooled risk resources in a Clearing Guarantee Fund (CGF). The aggregate value of the CGF is currently $400 million, calibrated to ensure coverage in extreme but plausible market conditions. The CGF includes $370 million of paid-up funds: $30 million in ASX Clear (Futures)' own capital; a $70 million subordinated loan from ASXCC, in turn funded by a subordinated loan from ASX Limited; participant commitments of $120 million; and a further subordinated loan from ASXCC of $150 million, funded in turn by a commercial bank loan. In addition, ASX Clear (Futures) may call on participants for up to $30 million in promissory commitments, although it cannot rely on the timeliness of these funds, as the ASX Clear (Futures)' Operating Rules and Procedures set out that payment could potentially be made a significant time after a participant default.

At the end of June 2011, ASX Clear (Futures) had 15 participants, predominantly large foreign banks and their subsidiaries.

Adequacy of ASX Clear (Futures)' Risk Resources

The risk resources available to ASX Clear (Futures) to meet losses arising in the event of a participant default comprise any initial margin or other collateral (e.g. AIMs) collected from the defaulting participant, and pooled risk resources held in the CGF.

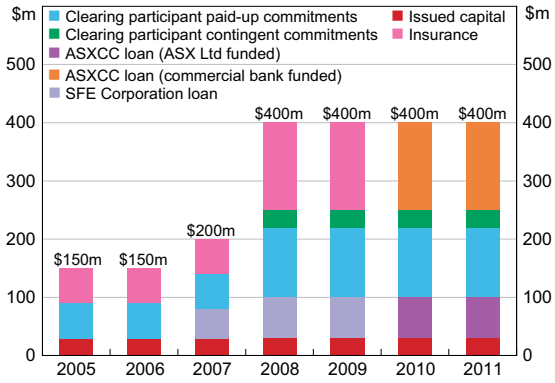
ASX Clear (Futures) calculates total initial margin requirements across each participant's portfolio using the OMX RIVA version of the internationally accepted SPAN methodology. Margin setting policy (i.e. the means by which SPAN parameters are used and determined) is reviewed annually; following this year's review, several minor amendments were made to internal processes.

Preparations are underway for the replacement of the current OMX RIVA SPAN methodology with CME SPAN, with implementation planned for early 2012. The CME SPAN methodology is widely regarded as the international standard, and its introduction is expected to improve risk estimation and attribution at ASX Clear (Futures). As discussed under Harmonisation and Linking of Central Counterparty Activity, above, its introduction is also part of broader efforts to harmonise the operations of the two central counterparties.

The value of ASX Clear (Futures)' risk resources was unchanged throughout the assessment period, comprising $370 million paid-up funds and $30 million promissory participant commitments (Graph 8). ASX Clear (Futures) has recently changed rules clarifying that the promissory commitments would be called upon after the commercial bank-funded subordinated ASXCC loan in the event of a default. It has also removed the promissory commitments from its STEL calculation, in recognition of the potential delay in receipt of these resources. As a result, any stress-test exposures above the level of paid-up resources result in collection of additional collateral.

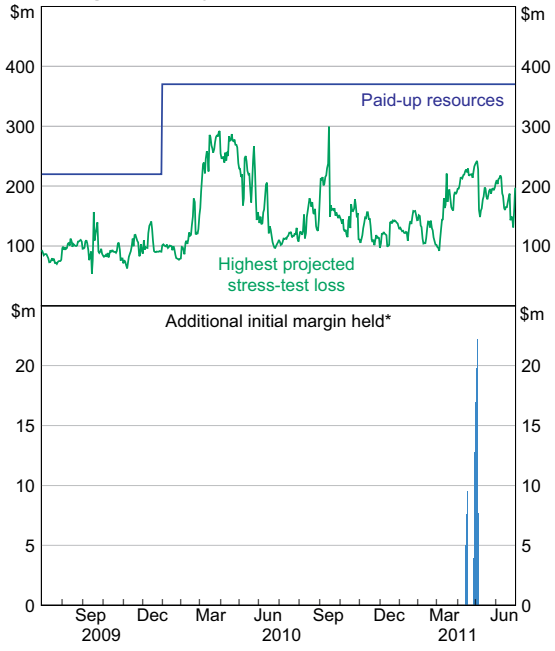
Exposures in excess of STELs were identified on several days in April and May 2011, resulting in STEL AIMs being collected from one C-rated participant (bottom panel of Graph 9). In addition, a small capital-based position limit (CBPL) AIM call was made late in the period to cover a participant's portfolio that exceeded its CBPL. Overall, the utilisation of AIMs during the period was low, suggesting that the level of initial margin rates has been well calibrated, and that the size of ASX Clear (Futures)' CGF has remained sufficient to prevent an over reliance on variable resources.

Graph 8
ASX Clear (Futures): Risk Resources*
As at June



* The order of the bars reflects the order of application, starting from the bottom and working upward
Source: ASX

Graph 9
ASX Clear (Futures): Highest Projected Stress-test Losses



* This does not include additional initial margin called based on capital-based position limits
Source: ASX

Comparison of potential stress-test losses with the level of available risk resources offers some guidance as to the resilience of ASX Clear (Futures) to a participant default in extreme market conditions. During 2010/11, the stress-test exposure of the participant with the highest potential loss was typically well below the value of the paid-up component of the CGF (top panel of Graph 9).

In May 2010, the SPI 200 future 'up' stress-test scenario was strengthened, with prices across the board now increasing in this scenario by 14.5 per cent, compared with 9.5 per cent previously. This change was adopted towards the end of May 2010 following an episode of declining prices over a period of 10 days. In response, Clearing Risk Management thought it prudent to allow for the possibility of a more substantial rise in prices given the potential for the market to rapidly bounce back from such a decline. The change to this scenario has remained in place during the 2010/11 assessment period. In addition, the annual review of stress-test parameters in November 2010 resulted in a number of parameter changes, mostly small decreases to the magnitude of price movements used in the equity futures scenarios and small increases to the magnitude of price movements used in the interest rate futures scenarios.

Operational Performance

ASX Clear (Futures)' core system is the SECUR system. SECUR recorded 100 per cent system availability in 2010/11, with average capacity utilisation of 23 per cent and peak utilisation of 40 per cent. This met the minimum availability target of 99.8 per cent and the capacity headroom target of 100 per cent above peak utilisation. Following a breach of the capacity headroom target in 2009/10, a change was implemented in the June 2011 quarter to ensure SECUR has sufficient capacity.

ASX conducts business continuity tests of its key systems over two-year cycles. The most recent testing for the SECUR system was carried out in February 2011, and revealed no problems.

Summary

It is the Reserve Bank's assessment that ASX Clear (Futures) complied with the Financial Stability Standard for Central Counterparties during the assessment period.

The Assessment highlights a number of important developments since the previous Assessment. In particular, ASX Clear (Futures) has recognised that promissory resources – though legally callable – may not be available on a sufficiently timely basis, if called upon in the manner contemplated by the ASX Clear (Futures)' rules. So while they provide some level of additional comfort, the potential delay in receipt of these funds means that they should be given less weight in determining the adequacy of ASX Clear (Futures)' default resources under Measure 7 of the relevant FSS. Accordingly, ASX has agreed to remove the promissory component from calculations of participants' STELs. The Reserve Bank considers this to be a welcome improvement to ASX Clear (Futures)' risk framework.

5.3 ASX Settlement

Background

ASX Settlement operates the securities settlement facility for cash equities and warrants traded on the ASX market.

ASX Settlement operates within a sound legal framework, based on its Operating Rules and Procedures. Under section 822B of the Corporations Act, these rules constitute a contract under seal between ASX Settlement and each of its participants, as well as between participants. Among other things, the rules set out the rights and obligations of ASX Settlement and each of its participants, including in the event of default or suspension. ASX Settlement's netting arrangements are approved under Part 3 of the Payment Systems and Netting Act. This provides certainty for the netting process in the event of the insolvency of an ASX Settlement participant or a payment provider.

ASX Settlement's securities settlement system is CHESS. Settlement risk in CHESS is mitigated by the use of a Model 3 delivery-versus-payment (DVP) mechanism, whereby settlement of securities transfers and associated cash payments occurs in a multilateral net batch at around noon each day, with interbank cash payments made across ES accounts in the Reserve Bank's real-time gross settlement (RTGS) system, the Reserve Bank Information and Transfer System (RITS). Securities title is updated upon confirmation of cash settlement from RITS.

Improvements to the Batch-settlement Model

The Reserve Bank's Review of Settlement Practices for Australian Equities recommended a number of potential enhancements to the functioning of the batch-settlement model following the significant delays to the completion of settlement in January 2008. In September 2009, after consultation with industry participants, ASX announced that it would implement a number of improvements. As part of this, since 6 September 2010 ASX has eliminated netting between house and client margin payments. As a result, margin flows are a little higher. ASX reports that the transition to separate gross settlement was smooth.

ASX plans to implement the following:

- *Amendments to the LEPO expiry settlement process*. ASX plans to implement a permanent solution to manage the risk around the LEPO expiry by settling securities delivered at expiry at the prevailing stock price, rather than the nominal $0.01 option strike price, as part of its cash equity margining project.[11]
- *Amendments to the formal agreements between payment providers and ASX Settlement*. ASX has been engaging with the Australian Payments Clearing Association to align the minimum standards for payment providers (i.e. those settling payment obligations on behalf of settlement participants) in these agreements with current market practice.[12] ASX is focusing on reducing the authorisation time frame, and increasing certainty around the rollover to the next day of any payments not completed by a particular time.
- *An earlier deadline for the back out of settlement obligations*. ASX Settlement is reviewing its Operating Rules and Procedures to ensure that, in the event that a payment provider is unwilling or unable to authorise

11 ASX has implemented a temporary solution involving ASX Clear withholding all outward margin payments until it has been confirmed that the CHESS batch has settled.

12 Current market practice is outlined in the following participant bulletin: <https://www.asxonline.com/intradoc-cgi/groups/clearing_and_settlement/documents/communications/asx_027540.pdf>.

a settlement obligation by the earlier deadline, ASX can back out settlement obligations (although some flexibility will be retained in the event of operational problems). Had such an earlier prescribed deadline been in place in January 2008, the back out of the troubled participant's settlement obligations and the recalculation of the batch could have been accelerated, reducing the overall length of the settlement delay, and mitigating the uncertainty that affected the market at large.

- *Increasing ASX Settlement's powers to facilitate same-day settlement of backed-out settlement obligations*. Since the incidence of batch recalculation could increase once an earlier deadline for the back out of settlement obligations has been imposed, ASX Settlement is considering seeking rules-based powers to require and facilitate the intraday settlement of certain backed-out settlement obligations. This proposal is being considered as part of a broader review of current settlement models.

The Reserve Bank will continue to monitor developments in this area in the next assessment period.

Operational Performance

ASX Settlement's key system, CHESS, achieved a high level of operational reliability during the period, with one outage; availability over the year was 99.96 per cent. There was one minor operational incident involving CHESS during the assessment period. The incident related to an issue with the core switch, resulting in some unsuccessful logins. ASX responded by switching CHESS to the backup site, resulting in a 30 minute outage. ASX extended settlement cut off by 30 minutes and there were no delays to settlements or increases in failures of settlements. Capacity utilisation averaged 15 per cent during the assessment period, peaking at 20 per cent, both of which were lower than in 2009/10, reflecting an increase in the capacity of CHESS over the year. Accordingly, ASX Settlement met both its targets of minimum availability of 99.8 per cent and capacity of 100 per cent above peak utilisation.

ASX conducts business continuity tests of its key systems over two-year cycles. Testing was conducted for CHESS in March 2011, as part of the formal testing program for 2010 and 2011. This testing did not reveal any problems.

Trade Acceptance Service

As discussed in Section 5.1 of this Assessment, ASX published standards and pricing options for the TAS in May 2011, which will allow trades executed on AMOs' platforms to be cleared and settled through ASX Clear and ASX Settlement respectively.

Summary

It is the Reserve Bank's assessment that ASX Settlement complied with the *Financial Stability Standard for Securities Settlement Facilities* during the assessment period.

The Reserve Bank welcomes the enhancements to ASX Settlement's settlement arrangements, including eliminating netting between house and client margin payments. The Reserve Bank encourages ASX Settlement to implement the other identified enhancements as soon as practicable and will monitor progress over the period ahead.

5.4 Austraclear

Background

Austraclear operates a securities settlement facility for debt securities trades, including government bonds and repos.

Austraclear operates within a sound legal framework, based on its Regulations and Procedures. Under section 822B of the Corporations Act, these have effect as a contract under seal between Austraclear and each of its participants, as well as between participants. Among other things, the rules set out the rights and obligations of Austraclear and each of its participants, including in the event of default or suspension. The finality of settlements undertaken by Austraclear is reinforced by its approval as a RTGS system under Part 2 of the Payment Systems and Netting Act. This approval protects the finality of payments made through Austraclear should a participant enter external administration.

Austraclear addresses settlement risk by the use of a Model 1 DVP mechanism, involving settlement of individual transactions on a gross basis. The interbank cash leg is paid through the Reserve Bank's RTGS system, RITS, with simultaneous transfer of securities title in Austraclear.

Operational Risk Management

EXIGO is the core system used by Austraclear. Since mid 2008, Austraclear has been responsible for first- and second-level operational support of EXIGO. This includes business continuity arrangements, and computer-system support not involving changes to system components or underlying source code. Previously, this support was provided by NASDAQ OMX, which continues to provide third-level and software support. During the previous assessment period, a new agreement was finalised to extend this support beyond 2013.

The EXIGO system was available 100 per cent of the time in 2010/11, above the 99.9 per cent target stipulated in Austraclear's 'Step-in and Service Agreement' with the Reserve Bank. Average capacity utilisation of 22 per cent was within its normal range, and peak capacity utilisation was 36 per cent. After capacity utilisation peaked above 50 per cent of total capacity in the previous assessment period, ASX will increase EXIGO's capacity as part of the system development discussed below.

There were two minor operational incidents involving EXIGO during the assessment period. The first was caused by excessive memory usage in load-balancing hardware due to an accumulation of uncleared messages, and resulted in unsuccessful logins for a small number of users for about half an hour. After a similar incident occurred in early 2007, ASX increased the frequency of reboots to every two months; a reboot was scheduled to be conducted shortly after the recent incident. ASX now checks the memory usage daily, and will implement a permanent solution with the upcoming Austraclear system upgrades (discussed below). The second incident, related to an issue with the core switch, resulted in some unsuccessful logins in the early morning (this incident corresponded to the CHESS incident discussed in Section 5.3). The issue was found to be a hardware problem which has now been resolved.

ASX responded to the incidents described above quickly and effectively in order to minimise disruption to Austraclear settlement activity.

System Development

During the year ASX continued work on the Austraclear System Enhancement project, which will deliver the largest set of functional improvements to Austraclear users since the system's introduction in 2006.

The project has been split into two parts: part 1 primarily covers user enhancements, while part 2 is focused on internal operational enhancements. The improvements to user functionality are based on feedback received by ASX via the Austraclear Help Desk, industry working groups and other stakeholders. They cover trade management, trade input, corporate action reporting, market repo trade enhancements and straight-through processing. Testing for part 1 of the project was conducted in quarter 2 2011, with implementation scheduled for later in the year.

Summary

It is the Reserve Bank's assessment that Austraclear complied with the Financial Stability Standard for Securities Settlement Facilities during the assessment period. There were a small number of minor operational incidents, but the Reserve Bank is satisfied with both ASX's immediate responses to the situations, as well as the follow-up action to prevent reoccurrence.

6. Special Topic: Default Arrangements

The key function of a central counterparty is to ensure that clearing participants are not exposed to principal or market risk on cleared positions should another clearing participant default on its obligations. In normal circumstances, the central counterparty has a net position of zero in the products it is clearing, since all its positions *vis-á-vis* counterparties – i.e. clearing participants – are offsetting. However, in the event that a clearing participant defaults on its obligations to the central counterparty, the central counterparty must continue to meet its obligations, and assumes market risk on these positions until they are closed out or otherwise offset.

The central counterparty's capacity to manage these potential exposures, and its procedures for responding to a default, can have important implications for the broader financial system. This is because any disturbance to the smooth functioning of a central counterparty is likely to have implications for the market and participants that it serves. Therefore, it is crucial that a central counterparty has sufficient resources and default management procedures to continue to operate both during and after a default event.

For this reason, the *Financial Stability Standard for Central Counterparties* sets out requirements (Measure 6 – Default arrangements) that seek to ensure that the central counterparty can manage the default of a clearing participant:

> *The CS facility licensee as operator of the central counterparty must ensure that it has clear rules and procedures to deal with the possibility of a participant being unable to fulfil its obligations to the central counterparty. The arrangements for dealing with a default must ensure that in this scenario timely action is taken by the central counterparty and the participants in the central counterparty, and that risks to the central counterparty and its participants are minimised. In meeting this requirement, the CS facility licensee as operator of the central counterparty must:*
>
> *(a) require its participants to inform it immediately if they:*
>
> *(i) become subject to external administration, or have reasonable grounds for suspecting that they will become subject to external administration; or*
>
> *(ii) have breached, or are likely to breach, a risk-control requirement of the central counterparty; and*
>
> *(b) have the ability to close out, or otherwise deal with a participant's open contracts in order to appropriately control risk if a participant:*
>
> *(i) becomes subject to external administration; or*
>
> *(ii) breaches a risk-control requirement of the central counterparty.*

Guidance to the Measure specifies that it is aimed at avoiding any systemic disturbance that may arise from the default of a clearing participant.

In the current assessment period, the Reserve Bank undertook a detailed assessment against Measure 6, on default arrangements, for the two licensed central counterparties. It is the Reserve Bank's assessment that ASX Clear Pty Limited (ASX Clear) and ASX Clear (Futures) Pty Limited (ASX Clear (Futures))' default arrangements satisfy the requirements of this Measure.

The ASX central counterparties, ASX Clear and ASX Clear (Futures), have put in place a common default management framework.[13] This Section describes and assesses the default arrangements.

Default Management: Procedures and Governance

Measure 6 of the Financial Stability Standards for Central Counterparties requires that the central counterparty has clear rules and procedures to deal with the default of a participant. Given the often rapid nature of a default event, well-tested procedures that set out key decision points and lines of responsibility are crucial for enabling a default to be managed in a timely fashion, and in such a way that minimises the impact on the central counterparty, other clearing participants and the market more broadly. Well-documented procedures can also minimise the risk of legal challenge to any actions taken by the central counterparty during the management of a default. Notwithstanding this, it is appropriate that a degree of flexibility is retained in the procedures to enable the default to be managed in a manner that is best suited to the specific circumstances and market conditions.

The ASX central counterparties have put in place a 'default management framework' (DMF), applicable to both ASX Clear and ASX Clear (Futures), to assist in the management of a clearing participant default. The DMF is based on high-level principles regarding the management of a default that have been approved by the clearing and settlement (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 ASX central counterparties, clearing participants and the market. This is consistent with requirements under the *Financial Stability Standards* (FSS). The DMF is supported by the Operating Rules and Procedures of each central counterparty.

The DMF covers each stage of a default, from the identification of a default event, to the management of the defaulter's positions, real-time monitoring of financial solvency, and financial offset and reconciliation. It is intended to be flexible, rather than prescriptive, and can be developed and adapted as needed. It therefore identifies the key decision points at each stage of the process.

The DMF also 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 entity 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.

The DMF further outlines how the ASX Group (ASX) will communicate with internal and external stakeholders during a default event. Broadly, communications will be handled by the DMC, assisted by ASX's Media and Communications unit. General advice to participants will be made primarily through existing communications channels (e.g. the e-mailed market notices and circulars); and through the ASX website.

The DMF is reviewed on an annual basis, or more frequently as needed. The effectiveness of the DMF is regularly tested. In-house default management 'fire drills', conducted each calendar year, test a hypothetical default of a participant, and follow through the entire default management process. The tests ensure that relevant ASX

13 Some differences arise because of factors such as the nature of the products that each central counterparty clears.

personnel are familiar with the default management process, and identify areas where the DMF should be updated.[14]

Legal framework

The procedures that are set out in the DMF relate to the exercise of powers established by the Operating Rules and Procedures of ASX Clear and ASX Clear (Futures). *The Corporations Act 2001* provides legislative backing to the Operating Rules and Procedures of the central counterparties, stating that they have effect as a contract under seal between the central counterparty and its participants. The Corporations Act also protects these contractual obligations in the event of insolvency of a clearing participant.

In addition, ASX Clear and ASX Clear (Futures) have been approved as 'netting markets' under the *Payment Systems and Netting Act 1998*, which means that netting of novated obligations undertaken by the CS facilities cannot be unwound if a participant becomes insolvent. Nevertheless, under the current legal framework, the insolvency of a participant may affect the manner in which the ASX central counterparties may manage the default – this is discussed in more detail below.

Establishment of a Default

For any central counterparty, identification of an actual or potential default by a clearing participant is not only a trigger for the default management process but a crucial component of effective risk management. Ultimately, the inability of a clearing participant to meet its obligations will be confirmed at the point where that participant fails to settle those obligations (e.g. via margin calls or meeting delivery or payment obligations).

To facilitate early identification of an inability of a clearing participant to meet its obligations, central counterparties typically establish, through their contract-based rules, a range of events that may signal a default, or potential default, that must be notified to the central counterparty. These events may trigger default management procedures. However, it is possible that some settlement-related events do not indicate an underlying inability of a clearing participant to meet its obligations, but instead reflect operational or other temporary difficulties.

For this reason, central counterparties usually build in some flexibility in selecting the appropriate response to a possible default event. Any decision to suspend or terminate a clearing participant on the grounds of default must be taken, and seen to be taken, within a formal framework that reflects the gravity of that decision. In particular, a decision taken on the grounds that a participant is *likely* to fail to meet its obligations may have wider ramifications for that participant and, potentially, the central counterparty and the market more generally.

As with operators of other central counterparties, ASX has developed mechanisms to identify default circumstances. The Operating Rules and Procedures of ASX Clear and ASX Clear (Futures) specify the events that may be treated as 'events of default' of a clearing participant. These include, but are not limited to, failure to meet payment or settlement obligations, insolvency (or potential insolvency) of a participant, the appointment of an external administrator, breach of the central counterparty's rules or procedures, default of the clearing participant at another central counterparty or exchange, or regulatory notification of an imminent default or

14 The product clearability guidelines, used to assess whether a new product is suitable for clearing, cover default management requirements – including whether a broker agreement is in place and whether there is a process for compulsory settlement of the product.

similar serious event. The rules of both central counterparties also provide them with discretion to declare a default in a range of other circumstances.

The rules of each of the ASX central counterparties explicitly require that a clearing participant notifies the central counterparty if a default event occurs, or is likely to occur. This requirement is legally binding and would continue to apply even in the event that an external administrator had been appointed to the clearing participant. The Operating Rules and Procedures of the central counterparties specify that such communications must be made to the Managing Director, in the case of ASX Clear (Futures), or the General Manager, Clearing and Settlement, in the case of ASX Clear. The ASX central counterparties may also become aware of a participant default or potential default through its ongoing participant monitoring (see Section 5.1), or through communications with regulators or other central counterparties. Further, the Operational and Technical Standards of ASX's Trade Acceptance Service require that an approved market operator notifies ASX Clear immediately of a potential event of default by a common (market) participant.

Although the rules of the ASX central counterparties set out specific events of default, declaration of a default is never automatic. Instead, the central counterparties maintain the right to investigate a potential default fully, taking into account any extenuating circumstances. The process of investigating, and the subsequent handling of, a potential default depends on its nature. Specifically, the ASX central counterparties 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.

Following a declaration of default, the ASX central counterparties will suspend the defaulting participant's authority to clear.[15] The participant's authority to clear is initially suspended, rather than terminated, to ensure that the participant is still bound by the central counterparty's rules.[16] Typically, there are no payments or collateral movements to the clearing participant following suspension. This enables the central counterparty to 'crystallise' the defaulting participant's position and generate detailed account and position data (including collateral held), thereby allowing the portfolio to be closed out in an orderly manner.

Potential default during the CHESS batch

The DMF outlines specific processes for handling a potential default of an ASX Clear participant during processing of the Clearing House Electronic Sub-register System (CHESS) batch, as the need for immediate funding decisions for the batch would impose time constraints on any investigation of the potential default.[17] To handle such an event, ASX Clear has the power under its Operating Rules and Procedures to suspend the participant and implement a back-out algorithm to recalculate settlement.[18] ASX Clear could then initiate the standard process for investigating and managing the potential default. In the event that a default had already been declared, the default management process would run concurrently with the management of the CHESS batch.

15 If required, the defaulter's status as a participant of ASX's exchanges or other CS facilities may also be suspended. ASX's central counterparties also have the power to impose conditions on a participant's ongoing participation in the facility prior to any declaration of default, including trading and financial constraints.

16 In the event that the clearing participant is under administration, the administrator is also bound by the rules of the central counterparty.

17 If the default event occurs outside the batch payment authorisation process, the clearing participant's outstanding novated obligations can be rescheduled before settlement begins.

18 ASX Settlement's back-out algorithm seeks to remove as few transactions from the batch as possible, maximising settlement values and volumes, while minimising the spillover to other participants. Non-novated settlement obligations are typically backed out first.

Managing a Default

The financial impact of a clearing participant default on any central counterparty will largely depend on the size and nature of the defaulter's portfolio and the prevailing market conditions. However, the means by which a central counterparty closes out its exposures will also play a role in determining both the value of any loss incurred by the central counterparty, and the impact of the default on surviving clearing participants, (potentially) the clients of the defaulting participant and the stability of the broader market.

Close-out methods

Central counterparties typically have a range of options available to close out (or otherwise manage) the positions of a defaulting participant, including transfer of client positions to a surviving clearing participant, on-market or off-market liquidation of positions, exercising derivatives, allowing options to expire, hedging, enforcing compulsory settlement or auctioning the defaulting participant's portfolio to surviving clearing participants. There are advantages and disadvantages to each method and, in practice, the appropriate option to close out a position will depend on the product in question and the supporting legal framework, as well as market conditions at the time of default.

In general, close out through transfer – enacted by discharging the obligation between the central counterparty and the defaulting participant and replacing it with a new contract between the central counterparty and the transferee participant (which is of the same type as the extinguished contract between the central counterparty and the defaulter) – is likely to minimise any potential disruptions to market stability. However, transfer can be administratively complex, and there are legal barriers to this method of close out in many jurisdictions. (The impact of central counterparty account structures on transfer is discussed in Box A.)

Closing out positions through liquidation, by entering into offsetting transactions, offers full and final treatment of the central counterparty's exposure. On-market liquidation is generally preferable to off-market liquidation, as it is operationally simpler, benefits from transparent pricing, and entails less reputational risk. Expiry and exercise may also be attractive close-out methods – although exercise of deliverable contracts may create new obligations for the central counterparty or, if client positions are exercised, the clients of the defaulting participant.

Some central counterparties have the option to enforce compulsory settlement of positions, by terminating and cash settling contracts held by surviving clearing participants that offset those of the defaulter, at a price determined by the market operator or, where necessary, the central counterparty. This has the effect of mutualising the central counterparty's novation and risk mitigation function among surviving participants. Central counterparties may also close-out their exposures by auctioning the defaulting participant's portfolio to the surviving clearing participants.[19]

Finally, where the defaulting participant's positions cannot be readily closed out, a central counterparty may also use hedging to manage its exposures until such time as positions can be closed out.

The ASX central counterparties' approach to close out

The Financial Stability Standard for Central Counterparties requires that a default is managed in such a way that timely action is taken, and that risks to the central counterparty and its participants are minimised. The DMF and the Operating Rules and Procedures of the ASX central counterparties establish that the central

19 Closing out through auction is typically used by central counterparties that clear complex or over-the-counter products. Use of auctions to close out exposures is less likely to be considered by ASX.

Box A:
Central Counterparty Account Structures

One factor in determining the ease with which client positions can be transferred in a default event is the account structure utilised by the central counterparty. As noted, facilitating transfer may have financial stability benefits, as this method of extinguishing the central counterparty's exposures is likely to have the least impact on market conditions. Account structure also has broader implications for both client protection and netting and liquidity efficiencies. For these reasons, account structure has become an increasingly important consideration in the move to mandatory clearing of over-the-counter (OTC) derivatives, as well as in the Committee on Payment and Settlement Systems (CPSS) and the International Organization of Securities Commission's (IOSCO) proposed *Principles for Financial Market Infrastructures (FMIs)*. However, regulators remain aware that the optimal account structure for any central counterparty will also be influenced by the legal framework within which it operates, and the characteristics and idiosyncrasies of the market that it clears.

There are broadly three types of account structure used by central counterparties: a single-account (i.e. co-mingled house and client transactions); a house account with individually segregated client accounts; and a house account with an omnibus client account.

Of these account structures, the *single account* offers maximum netting benefits for settlement and margins. Each clearing participant has a single net novated settlement position and, assuming the central counterparty uses net margining, margin requirements are calculated across all client and house positions. This minimises collateral required against positions and can result in a reduced cost of clearing for participants and clients (depending how a clearing participant margins its clients). However, co-mingling of client and house funds raises client protection concerns, as client funds may ultimately be used to offset losses on house positions or another client's positions. Further, the use of a single-account structure with net margining may significantly weaken the ability of the central counterparty to transfer client positions to a surviving clearing participant following a default, as the net margining may mean individual clients' positions may be undercollateralised when transferred, or leave the remaining positions in the account undercollateralised. An alternative is that the central counterparty applies gross margining, in which case margin is calculated and called separately on house and individual clients' positions. Although this facilitates the transfer of positions, clients remain exposed to losses of the house and other clients.

Individually segregated client accounts, on the other hand, provide maximum protection for clients, as clients are not exposed to risks from the positions of the house or any other client. In this structure, margin collected can only be used against that client's positions. This full collateralisation, as well as the easy identification of any client's positions, facilitates transfer of these positions to a surviving clearing participant. However, this account structure is least efficient in terms of netting, and may be administratively complex for the central counterparty, and clearing participants, particularly in markets with a large number of retail clients.

A structure with a *house account* and an *omnibus client account* separates house and client positions and funds, offering something of a 'middle ground' in terms of client protection benefits and netting efficiencies. Although house and client positions are segregated, netting is retained across client positions, which can result in lower clearing costs for clients relative to an individually segregated structure. Further, although each client

remains exposed to any losses arising from the default of any of the clearing participant's other clients, they are protected from exposures to losses on house positions. However, as with the single account structure, if net margining is used, transfer of individual client positions in a default event can be difficult due to possible undercollateralisation. This problem would not arise if the entire omnibus account could be transferred to a single surviving clearing participant; however, identifying a participant willing to accept the account may be difficult, due to the administrative complexities a participant faces in taking on new clients, as well as the potential financial implications of accepting a large account.

Although there is a trade off between netting efficiencies, and client protection and transfer arrangements across the three broad account structures, the exact nature of this trade off (and, therefore, the optimal account structure for a given central counterparty) is also affected by a range of additional factors, including the legal regime in which the central counterparty operates and the characteristics of the market that it clears. Both of these factors influence the ability of a central counterparty to transfer positions: insolvency laws in many jurisdictions significantly restrict the ability of a central counterparty to enact transfers in a default event; and, even where transfer is legally viable, operational complexities in markets with many retail clients (typically cash equities markets) may also be restrictive. Where transfer is not deemed to be viable, the relative benefits of increased segregation may be reduced. The number of clients in any market also determines the operational complexity of providing increased segregation, which has potential flow-on effects to the cost of clearing.[1] Legacy issues, such as market practice and conventions, can also be important factors in shaping a central counterparty's choice of account structure.

Reflecting some of these considerations, ASX currently uses several account structures across its different markets. In the derivatives markets, ASX Clear offers individually segregated client accounts for options and individually segregated client accounts with an optional omnibus client account for futures, while ASX Clear (Futures) offers omnibus client accounts with net margining. In the cash equities market, cleared through ASX Clear, a single account structure is used. Although this single account combines house and client positions, there is no co-mingling of client and house funds.[2]

International Developments

The trade off between client protection and netting efficiencies (and, consequently, the cost of client clearing) across different account structures has been recognised in the proposed CPSS–IOSCO Principles for FMIs. The proposed principles also recognise that the ability of a central counterparty to protect client positions and funds, and to transfer client accounts, is also dependent on applicable national law. Nevertheless, the principles, as currently proposed, require that a central counterparty:

- has segregation and portability (i.e. transfer) arrangements that protect customer positions and collateral to the greatest extent possible under applicable law;

1 Client protection concerns can also be addressed through means other than account segregation; for example, some markets may utilise client-protection guarantee funds, designed to compensate clients for any losses arising from the default of their clearing participant or other clients. However, although these arrangements provide ex-post compensation, individual segregation offers *ex-ante* protection against such losses arising.

2 At present this is because ASX does not collect margin on cash equities. Although ASX is working to introduce cash equities margining, the proposal does not mandate the pass through of margin requirements to clients, and no client funds will be held in the account.

- employs an account structure that enables it to readily identify and segregate positions and collateral belonging to clients of a participant, and maintain these positions and collateral in an omnibus client account or individual client accounts; and
- structure its arrangements in a way that facilitates transfer of client positions and collateral in the event of a clearing participant default.

Although the proposed principles stop short of requiring individual client accounts, it is noted that a central counterparty should consider offering this structure, taking into account applicable insolvency regimes, the cost of implementation, and any risk-management challenges.

The potential exposures of clients under various central counterparty account structures has also been recognised in the Basel Committee on Banking Supervision's ongoing consideration of bank exposures to central counterparties. Under the proposed regime, direct clearing participants will face lower capital charges for positions cleared through a central counterparty. However, indirect clearing participants (i.e. clients) will only receive these reduced charges if their positions are fully segregated from those of their clearing member and there is assurance that the positions would be transferred to another clearing participant in the event of the original clearing participant's default. For the reasons outlined above, this last requirement is likely to be met only if the central counterparty uses individually segregated client accounts.

Account segregation has also been addressed in the push to mandate central clearing of standardised OTC derivatives, with regulators in various jurisdictions seeking to enhance client protections in the event of a clearing participant default. In Europe, the proposed *European Market Infrastructure Regulation* requires 'appropriate' segregation of house and client positions and collateral to allow for account transfers – including that a central counterparty must offer individually segregated client accounts. It will be up to the client to determine the level of segregation of their accounts; where individual segregation is chosen, the central counterparty must ensure that it is able to transfer the client's positions and collateral on request to another clearing participant. In the United States, provisions under the *Dodd-Frank Wall Street Reform and Consumer Protection Act* require segregation of client monies at the clearing participant level. However, given certain conditions (prescribed by the relevant regulator) are met, client monies may be co-mingled with other client monies at the central counterparty, provided that these monies are accounted for separately.

counterparties may use a variety of methods to manage their exposures, including, but not limited to transfer, on- or off-market liquidation, expiry, exercise, compulsory settlement (generally considered to be a 'last-resort' method of closing out) and hedging. The specific close-out method used will depend on market conditions, and the products in question.

The nature of the default may also have some bearing on the ASX central counterparties' choice of close-out method. In particular, provisions in the Corporations Act restrict parties dealing with the assets and liabilities of an entity placed under administration. The ability of the ASX central counterparties to manage, in a timely fashion, the portfolio of a defaulting participant that has been placed under administration may be affected in several ways, including the central counterparties' ability to settle on behalf of, or with respect to, obligations of the insolvent company; and to use transfer to manage its exposures.[20] Specifically, in the case where a defaulting participant is in administration, transfers could only occur with the prior written consent of the administrator or Court.

In a situation of multiple participant defaults (either at a single central counterparty or simultaneous defaults across the two ASX facilities) the principles set out in the DMF would continue to apply.

Ongoing operations

During the default management process, the ASX Limited Board and the CS Boards continue to be responsible for ensuring the performance and meeting the licence obligations of their respective trading, clearing and settlement functions. The ASX central counterparties have processes in place to ensure that day-to-day functions (e.g. operations and risk management) continue on a 'business as usual' basis while a participant default is being managed, such as by delegating responsibilities and separating the DMC from day-to-day operations.

Financial Resources

Central counterparties maintain default resources to enable them to withstand losses arising from a clearing participant default. Currently, international standards (and the Financial Stability Standard for Central Counterparties) require that central counterparties must hold sufficient default resources to be able to meet any losses arising from the default of the clearing participant with the largest exposure in all but the most extreme circumstances. Resources must be held in sufficiently liquid form such that the central counterparty can meet its obligations (e.g. variation margin- and settlement-related payments arising from the defaulter's positions) and close out the defaulter's portfolio in a timely manner.

If a loss eventuates and causes default resources to be drawn upon, a central counterparty must be able to restore its resources so that it can continue to comply with regulatory requirements. While, ideally, some comfort might be drawn from putting in place committed *ex-ante* replenishment arrangements, this may not always be practical. Nevertheless, given that a sizeable call on default resources would necessitate a rapid replenishment to restore confidence, central counterparties should consider and document options for replenishment and the benefits and costs of these under a range of scenarios. ASX's replenishment considerations are discussed below.

20 This is not a situation unique to Australia. Internationally, best practice is moving towards amending legislation to facilitate transfer. However, there are other important public policy considerations in general insolvency law that must be taken into account.

Central counterparty solvency and ongoing monitoring

While central counterparties must hold robust risk resources sufficient to withstand a default in extreme circumstances (i.e. unusually high market volatility) the possibility remains that a tail event might occur such that the financial viability of the central counterparty is threatened. Just like any other corporation, directors and management of central counterparties need to be alert to the legal risk of continuing to operate while insolvent.[21] The DMC monitors the financial position of the central counterparty on an ongoing basis throughout the default management process, assessing the estimated loss from liquidating the defaulting clearing participant's portfolio against the central counterparty's financial resources. This ongoing assessment considers both current market prices and hypothetical stressed market prices (based on the central counterparty's existing stress-test scenarios), and also takes into account the ability of ASX Clear to reschedule settlement. The ASX central counterparties have procedures in place so that if the potential for future financial weakness at the central counterparty is identified, more frequent reviews of solvency may be implemented.

Ongoing monitoring is also used to help prioritise closing out, managing liquidity and determining whether promissory default resources from remaining participants should be called. The central counterparty would make a call on these resources if it determined that prior-ranking financial resources were insufficient or likely to be insufficient to meet the loss resulting from the default event.

Liquidity

Access to adequate liquidity is clearly crucial in default management (e.g. to meet variation margin, settlement and other obligations to non-defaulting participants).

In the first instance, the ASX central counterparties would meet obligations arising from a participant default from collateral lodged by that participant. Collateral may be in the form of cash, a bank guarantee or letter of credit, or eligible securities.[22] Where the defaulting participant's contributions are insufficient, the central counterparty may draw upon other 'available financial resources'.[23] ASX Clear's available financial resources include a $50 million liquidity facility from ASX Limited.[24] ASX Clear also has the power under its Operating Rules and Procedures to reschedule settlements to manage its liquidity needs.

Financial offset and replenishment of default resources

Although the ASX central counterparties' risk management processes are designed, in all but the most extreme circumstances, to avoid any call upon mutualised default resources, the risk remains that there will be some call upon those funds. If a default does result in a loss to the central counterparty, this will be allocated against the central counterparty's financial resources in the order determined by its rules.

If it suffers a loss of default resources, a central counterparty must be able to restore these resources. The current draft of the CPSS–IOSCO Principles for FMIs contemplates establishing an *ex-ante* plan regarding how default resources might be replenished (and potentially how a central counterparty insolvency may be resolved).

21 Under the Corporations Act (s588G), if an entity trades while insolvent, the directors of that entity may be personally liable for debts incurred during that time.

22 ASX accepts bank guarantees and letters of credit as acceptable 'collateral'. If called, a bank will deliver cash to the central counterparty.

23 The available financial resources are $300 million for ASX Clear and $370 million for ASX Clear (Futures), reflecting the 'paid-up' component of the default resources, plus an additional liquidity facility for ASX Clear.

24 As noted above, in the cash equities market ASX Clear requires liquidity to meet the buy obligations arising from the defaulting participant's positions over the T+3 settlement cycle. These liquidity pressures do not arise in derivatives markets, as there is no such settlement cycle in these markets.

ASX has documented a process for making decisions regarding replenishment of a central counterparty's default resources following any draw down arising from a participant default. Responsibility for determining if the default 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 relevant CS Board. ASX's documented replenishment intentions canvass several options; the particular approach taken will depend on the specific circumstances, including the severity of the loss and the market environment. ASX Limited has also committed to maintaining a certain level of equity capital in the central counterparties, provided certain conditions are met including that the central counterparty is solvent. For its part, the Reserve Bank will require that any potential new formulation of default resources continues to meet the FSS and thereby be consistent with ensuring the stability of the financial system.

Summary

The ASX central counterparties have developed comprehensive and legally robust rules and procedures to deal with the default of a clearing participant. The arrangements recognise the potential systemic disturbance that may arise from the default of a clearing participant, and provide the central counterparties with appropriate flexibility to tailor the management of such an event to the particular market circumstances. It is the Reserve Bank's assessment that the default arrangements of ASX Clear and ASX Clear (Futures) satisfy the requirements of the default arrangements Measure of the Financial Stability Standard for Central Counterparties.

Nevertheless, the Reserve Bank notes that international standards in respect of default management continue to evolve, and the licensed CS facilities should respond to these changes as appropriate.

Appendix A
The Reserve Bank of Australia's Financial Stability Standards

Financial Stability Standard for Central Counterparties

A clearing and settlement (CS) facility licensee must conduct its affairs in a prudent manner, in accordance with the standards of a reasonable facility in contributing to the overall stability of the Australian financial system, to the extent that it is reasonably practicable to do so. This Standard applies to all CS facility licensees that operate a central counterparty with the exception of those CS facility licensees granted a licence under section 824B(2) of the *Corporations Act 2001*, which grants overseas central counterparties an exemption from full assessment against the Standard.

Granting a licence under section 824B(2) is subject to the Minister's discretion, and can only occur where the applicant is deemed to be subject to a regulatory regime in its principal place of business that is sufficiently equivalent to that in Australia 'in relation to the degree of protection from systemic risk and the level of effectiveness and fairness of services they achieve'. An important consideration here is that the Reserve Bank receives annual documentary evidence from the licensee's overseas regulator that the licensee has complied in all material respects with the requirements of the overseas regulator related to matters affecting stability. The required form of such documentary evidence will be discussed with the licensee and its overseas regulator, but it is expected that it would include the following: details of any assessments carried out over the preceding period relevant to the licensee's compliance with the requirements of the overseas regulator; and details of any specific areas of investigation by the regulator. Such documentary evidence must be received prior to the commencement of operations under the licence and on an annual schedule thereafter.

The Reserve Bank will also, from time to time, seek additional information directly from the licensee regarding its activities and risk management processes. Furthermore, notwithstanding that an overseas regime may be sufficiently equivalent to that in Australia, there may be some differences in the detailed application of principles or standards. The Reserve Bank will, in such cases, seek sufficient information to carry out a direct assessment of the CS facility licensee in respect of specific aspects of its operations. Subject to the outcome of such an assessment, the Reserve Bank may recommend that additional risk-mitigating actions be taken by the licensee.

At a minimum the Reserve Bank would expect to receive the following information on a regular basis:

- details of any material changes in the licensee's activities, processes, or people. The licensee is expected to provide activity reports and information on material changes in the conduct of its business – including changes to products, people and operational processes. The Reserve Bank expects to be informed in advance where material changes in these areas might be relevant to an assessment of systemic risk. Audited annual accounts, quarterly management accounts and data detailing stress-test outcomes relative to the facility's risk resources would also be expected; and

- additional information to allow assessment of specific aspects of the licensee's operations. The form and scope of the information necessary to carry out such an assessment will differ according to the coverage of the overseas regime. The Reserve Bank's expectations in this regard will be discussed periodically with the licensee.

In some cases it may be appropriate to establish a formal framework for co-operative oversight alongside the overseas regulator.

Financial Stability Standard for Securities Settlement Facilities

A CS facility licensee must conduct its affairs in a prudent manner, in accordance with the standards of a reasonable CS facility licensee in contributing to the overall stability of the Australian financial system, to the extent that it is reasonably practicable to do so.

This Standard only applies to CS facility licensees that provide a facility where the value of financial obligations settled in a financial year exceeds a threshold value of $100 million. When this threshold is exceeded for the first time, the provider of the facility must meet the Standard by the beginning of the next financial year.

Appendix B
Detailed Information Relevant to Assessment against the Financial Stability Standards

B1. Financial Stability Standard for Central Counterparties

In assessing whether a facility has met the *Financial Stability Standard for Central Counterparties*, the Reserve Bank considers a number of broad principles or measures. The full text of these measures and associated guidance is available on the Reserve Bank's website.[25] The following provides summary details of the information the Reserve Bank has used to assess ASX Clear Pty Limited (ASX Clear) and ASX Clear (Futures) Pty Limited (ASX Clear (Futures)) against each of these measures. This updates the information presented in the Reserve Bank's 2009/10 Assessment for material changes in policies and procedures over 2010/11.

B1.1 ASX Clear

1. Legal framework

The central counterparty must have a well-founded legal basis.

ASX Clear is a wholly owned subsidiary of ASX Clearing Corporation Limited (ASXCC), itself a wholly owned subsidiary of ASX Limited. It acts as the central counterparty for cash equities, pooled investment products, warrants, certain fixed-income products and equity- and commodity-related derivatives traded on the ASX market. Under the Trade Acceptance Service, it can also act as central counterparty for trades on approved market operator (AMO) platforms, such as Chi-X Australia Pty Ltd (Chi-X).

The legal basis for ASX Clear's operations is set out in the ASX Clear Operating Rules and Procedures. Under section 822B of the *Corporations Act 2001*, these rules have effect as a contract under seal between ASX Clear and each of its participants, and between each participant and each other participant. Furthermore, the netting arrangements contained in the ASX Clear Operating Rules and Procedures are protected as a 'netting market' under Part 5 of the *Payment Systems and Netting Act 1998*. This provides certainty for the netting process in the event of the insolvency of a participant.

The ASX Clear Operating Rules and Procedures define the nature and scope of its obligation to provide clearing services to participants, and describe the conditions under which final and irrevocable settlement of obligations is deemed to have occurred. The Operating Rules and Procedures also set out the rights and obligations of participants, including in the event of default or suspension.

2. Participation requirements

The requirements for participation in the central counterparty must promote the safety and integrity of the central counterparty and ensure fair and open access. Participation requirements must:

25 Available at <http://www.rba.gov.au/payments-system/clearing-settlement/standards/index.html>.

(a) be based on objective and publicly disclosed criteria;

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

At the end of June 2011, ASX Clear had 48 participants – 45 of these were also ASX market participants, while three provided specialist third-party clearing services.

(b) ensure that participants in the central counterparty are of a sufficient financial standing such that the central counterparty is not exposed to unacceptable credit risks;

ASX Clear's participation requirements are designed to promote the safety and integrity of the central counterparty. Participants clearing cash equities or options are required to comply with a risk-based capital regime under which, subject to Direct Participants maintaining a minimum of $5 million in 'core capital' and General Participants maintaining a minimum of $10 million in core capital, they must hold liquid capital in excess of a 'total risk requirement', which reflects counterparty risk, large-exposure risk, position risk and operational risk. Brokers that do not have a need to undertake their own clearing, or choose not to hold the required amount of capital, may use the services of specialist third-party clearers. ASX Clear intends to further increase core capital requirements to $10 million for Direct Participants from 1 January 2013. However, any such change will be subject to sufficient depth and competition in the third-party clearing market. ASX Clear intends to increase core capital requirements from $10 million to $20 million for General Participants, effective 1 January 2012. Participants that only clear futures may elect to be covered by an alternative capital regime, based either on a net tangible assets (NTA) requirement or compliance with the regime of another prudential supervisor. At the end of the assessment period all but three of ASX Clear's 48 participants were subject to the risk-based regime; two were subject to NTA requirements and one was subject to the regime of another prudential supervisor.

Following the transfer of market regulatory responsibilities to the Australian Securities and Investments Commission (ASIC), the Capital Monitoring area of ASX Compliance, responsible for monitoring, assessing and investigating of matters relating to participant financial requirements, has been transferred to Clearing Risk Management.

Clearing Risk Management, which reports to the Chief Risk Officer (CRO), covers both central counterparties and focuses on day-to-day participant activity. This involves monitoring risk profiles, open positions and settlement of obligations to the central counterparties. Clearing Risk Management also determines and reviews participants' internal credit ratings (ICR).

A participant's ICR is based on its external credit rating (if available), or that of its parent if either that parent provides a formal guarantee to the central counterparty or the participant carries the parental corporate name. Otherwise, the rating is based on the participant's capital position (or that of its parent where that parent is unrated but provides a formal guarantee to the central counterparty).

Clearing Risk Management maintains a 'watch list' of participants deemed to warrant more intensive monitoring. Inclusion on the watch list might, for instance, reflect issues arising from routine review of financial returns by the Capital Monitoring area, or concerns emerging from a specific event or media report. Participants on the watch list are subject to greater scrutiny in respect of the exposures they bring to the central counterparty and, should a participant's perceived financial standing deteriorate further, restrictions may be placed on its trading, clearing and settlement activities.

ASX Clear participants submit capital liquidity returns on a monthly basis. These returns may be a trigger for follow-up enquiries, for example, if: the ratio of liquid capital to the total risk requirement falls below 1.7; there are sustained losses on outstanding positions; or there is a significant fall in liquid capital held. More stringent reporting requirements apply where a participant's capital falls below certain stated thresholds. A range of 'spot checks' verify the accuracy of participant returns. Individual spot checks are, for example, triggered by two or more historical inaccuracies in the submitter's returns, while industry-wide spot checks are conducted to look at multiple participants' compliance with a specific aspect of the capital rules.

(c) require that participants have the operational capacity to settle their obligations with the central counterparty in a timely manner; and

Under the Operating Rules and Procedures, ASX Clear participants are subject to requirements regarding technical and operational capacity, including business continuity. The Operating Rules also include provisions to ensure that a participant's management structure is designed to achieve compliance with the ASX Clear Operating Rules and Procedures, including meeting settlement obligations.

(d) allow the CS facility licensee as operator of the central counterparty to suspend or cancel the participation of an institution which breaches the applicable participation or other risk-control requirements.

ASX Clear has wide-ranging powers to sanction its participants in order to preserve the integrity of the central counterparty. ASX Clear may suspend or terminate a participant's authority to clear all, or any category of, 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 impact on the central counterparty. 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 Clear 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 the Executive Office of ASX Compliance. Disciplinary action relating to rule breaches is brought before the ASX Compliance Officer (prior to 1 August 2010, this was dealt with by the Disciplinary Tribunal).

3. Understanding risks

The central counterparty's rules and procedures must enable each participant to understand the central counterparty's impact on each of the financial risks the participant incurs through participation in the central counterparty.

The ASX Clear Operating Rules and Procedures are comprehensive and are publicly available on the ASX website. The Operating Rules and Procedures explain the role and responsibilities of each category of participant and ASX Clear. Some background information on ASX Clear's operations and risk management is also available on the ASX website.

ASX Clear must lodge any changes to its Operating Rules with ASIC. Under section 822E of the Corporations Act, the Minister for Financial Services and Superannuation (the Minister) has 28 days to consider, and potentially disallow, any rule changes made by a licensed clearing and settlement (CS) facility. ASX Clear consults with its participants on important rule changes, and notifies participants of all changes to the Operating Rules and Procedures.

4. Novation

The rules and procedures governing the central counterparty must clearly identify:

(a) the nature and scope of novation; and

The nature and scope of novation is set out in the ASX Clear Operating Rules and Procedures. Through the process of novation, ASX Clear takes on the financial obligations of the seller to the buyer, and the buyer to the seller. The obligations of ASX Clear are to each clearing participant as principal, irrespective of whether that participant is acting on behalf of a client.

(b) the point in the clearing process at which trades are novated.

The point at which trades are novated is set out in the Operating Rules and Procedures. These specify that a broker-to-broker transaction on the ASX market is novated to ASX Clear upon the acceptance and registration of the details of that market transaction within the clearing system. For equities market transactions, novation occurs with effect from the matching of the trade on the market. In the case of derivatives transactions, novation takes place at the time of registration (which is when the contract has been properly designated to accounts of both participants). For both cash equities and derivatives, novation can occur no later than the evening of the day of the trade.

5. Settlement

Settlement arrangements must ensure that the central counterparty's exposures are clearly and irrevocably extinguished on settlement. This requires that:

(a) where settlement involves the exchange of one asset for another, it must be done on an appropriate delivery-versus-payment basis; and

(b) where payments, including net payments, are made to extinguish other obligations, payment must be made by real-time gross settlement.

Settlement of obligations between a central counterparty and its participants can involve two processes:

- The exchange of one asset for another, such as cash equities. In this case, ASX Clear utilises the settlement facility provided by ASX Settlement Pty Limited (ASX Settlement); or
- Payments to or from the central counterparty, including margin payments relating to derivatives positions. In this instance, the facility provided by Austraclear Limited (Austraclear) must be used.

In each case, ASX Clear calculates bilateral net positions between itself and each of its clearing participants. These positions reflect both cash payment and securities obligations. The relevant netting arrangements are outlined in the ASX Clear Operating Rules and Procedures and are protected as a 'netting market' under Part 5 of the Payment Systems and Netting Act.

ASX Settlement's settlement process involves the use of a Model 3 delivery-versus-payment (DVP) mechanism, whereby cash payments and securities transfers are settled simultaneously in a single daily multilateral net batch. 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 in respect of each line of stock. Once participants' net obligations have been calculated, ASX Settlement confirms that sufficient securities are available in each participant's securities account in the Clearing House Electronic Sub-register System (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 the Reserve Bank Information and Transfer

System (RITS) across payment providers' exchange settlement (ES) accounts. Once cash settlement has been confirmed, ASX Settlement effects the net transfer of securities within CHESS.

Participants settle routine margin payments in respect of ASX derivatives positions via cash transfers in Austraclear, which settle in real time via RITS. As part of its plans for central counterparty harmonisation, during the assessment period ASX consolidated ASX Clear and ASX Clear (Futures)' ES accounts into a single ASXCC ES account. Margin-related funds movements and treasury investment-related settlements in RITS for both central counterparties are now settled using ASXCC's ES account.

Settlement in both ASX Settlement and Austraclear is final and irrevocable. In the case of ASX Settlement, finality is supported both by its Operating Rules and Procedures and ASX Settlement's approval under Part 3 of the Payment Systems and Netting Act. Settlement according to Austraclear's Regulations and Procedures is also final and irrevocable by virtue of its approval under Part 2 of the Payment Systems and Netting Act.

ASX Clear also clears grain and wool futures. These instruments may be physically settled through commodity warehouses, with ASX Clear transferring title to the buyer only once payment is received from the seller.

6. Default arrangements

The CS facility licensee as operator of the central counterparty must ensure that it has clear rules and procedures to deal with the possibility of a participant being unable to fulfil its obligations to the central counterparty. The arrangements for dealing with a default must ensure that in this scenario timely action is taken by the central counterparty and the participants in the central counterparty, and that risks to the central counterparty and its participants are minimised.

Details of ASX Clear's default arrangements are provided in Section 6 of this Assessment.

7. Risk controls

The CS facility licensee as operator of a central counterparty must have comprehensive risk-control arrangements in place. These arrangements must provide the operator of the central counterparty with a high degree of confidence that, in the event of extreme volatility in relevant markets, the central counterparty will be able to settle all of its obligations in a timely manner. As a minimum, the risk-control arrangements must provide the CS facility licensee as operator of the central counterparty with a high degree of confidence that the central counterparty will be able to settle its obligations in the event that the participant with the largest settlement obligations cannot meet them. In all but the most extreme circumstances, a central counterparty must be able to settle its obligations using liquid assets as defined in this standard.

The CS facility licensee as operator of a central counterparty must:

(a) ensure that its risk-control measures, typically a combination of its own capital, margins, guarantee funds and pre-determined loss-sharing arrangements, provide sufficient coverage and liquidity; and

(b) undertake regular and rigorous stress testing to ensure the adequacy of its risk controls.

The adequacy of risk-control measures must be approved by the board of the central counterparty, or an appropriate body as delegated by the board.

The risk controls of a central counterparty are crucial in providing a high degree of confidence that it would be able to meet its obligations in the event of a participant failure. The inability of a central counterparty to

meet its obligations could be extremely disruptive to the financial system. The focus of the Reserve Bank in this area is to ensure that the combination of risk controls implies a very low probability of failure of the central counterparty.

ASX Clear's financial resources are at the core of its risk controls. These comprise: margin and other collateral calls based on participants' positions; and pooled financial resources of $550 million (of which $250 million is fully paid up and invested in high-quality liquid assets). Stress testing is carried out daily to gauge the adequacy of financial resources and to monitor the risks associated with individual participants' positions. Where large or concentrated exposures are identified by stress testing, additional collateral calls are made on participants. These risk controls are supplemented by ASX Clear's participation requirements and participant-monitoring arrangements (Measure 2).

i. Margins

ASX Clear levies margins on derivatives products. Initial (risk) margin provides cover in the event that a participant defaults and an adverse price change occurs before the central counterparty can close out the participant's positions. Initial margin is calibrated so as to cover three standard deviations of the 60-day historical distribution of price movements until a position can be closed out, assuming a close-out period of either one or two days. ASX Clear also levies so-called premium margin on sold exchange-traded option positions, updating this daily to reflect mark-to-market changes in the close-out price, and levies mark-to-market margin on both bought and sold low exercise price options, and all futures positions. All margin rates are reviewed on a three-monthly cycle, supplemented with *ad hoc* reviews during especially volatile market conditions.

ASX Clear calculates total initial margin requirements across each participant's portfolio using a margining engine based on Theoretical Intermarket Margin System (TIMS) methodology, developed by the Options Clearing Corporation. On 20 September 2010, ASX moved the calculation of margin (using the TIMS methodology) to ASX Clear's in-house Derivatives Clearing System (DCS). This methodology will continue to be used in the near term, although a longer-term project is planned to replace it with CME Standard Portfolio Analysis Risk (SPAN) (see Section 5 of this Assessment).

Margin requirements are calculated overnight (with mark-to-market margins based on closing contract prices each day), and are notified to participants the next morning. As discussed in Measure 5, from February 2010, all margin obligations are settled via Austraclear and must be met by 10.30 am. Both variation and intraday margin obligations must be settled in cash, while participants may use cash or non-cash collateral to meet initial (risk) and premium margin obligations. Securities are eligible to be used as collateral only if strict criteria set by ASX Clear are met, and are subject to a haircut. In general, acceptable collateral includes: S&P/ASX 200 index constituent stocks; exchange-traded funds that the ASX deems are mature and liquid and where issuer risk is considered low (currently only the SPDR S&P/ASX 200 Fund); and stocks lodged as specific cover for a call option on that stock. The list of acceptable collateral is reviewed at least quarterly, in order to reflect changes to the S&P/ASX 200 constituent list. ASX Clear restricts the use of participant or related entity issued stocks to manage the potential risk of correlated default of a participant and the collateral issuer. ASX Clear also accepts guarantees from banks with a short-term S&P credit rating of at least A-1+ as collateral, as long as the bank is not a related entity of the participant.

In the event of sharp intraday price movements, ASX Clear may also call margin intraday. This must be met by participants within two hours of notification. System enhancements have enabled intraday margin calls to reflect changes in participants' positions; previously, intraday margin calls only reflected price movements.

Under ASX Clear's Contributions and Additional Cover (CAC) methodology, a participant is also required to post additional collateral should stress-test outcomes (see below) reveal that the potential loss arising from its positions as at the close of the previous day exceed its stress-test exposure limit (STEL). Comparison of potential stress-test losses with the STEL offers some guidance as to the resilience of the central counterparty to a participant default in extreme market conditions. Commencing 1 October 2009, ASX Clear introduced a regime where STELs are linked to participants' ICRs. In normal market conditions, highly-rated (i.e. A- and B-rated) participants are eligible for discounts on the additional collateral called.

In addition, ASX Clear may call capital-based position limit (CBPL) CAC from participants with large portfolios (proxied by risk margin requirements) relative to their liquid capital. CAC calls are typically made on participants by 9.30 am and must be settled within two hours, either via the transfer of cash in Austraclear, or through the provision of a bank guarantee from an approved Authorised Deposit-taking Institution (ADI). ASX Clear may also call CAC from participants where it has counterparty credit risk concerns.

There are potential shortcomings to relying too heavily on variable calls for additional collateral, particularly given lags in the calculation and settlement of such calls. Consequently, in deciding whether a central counterparty has sufficient fixed resources, ASX considers the size, frequency, duration and distribution of the additional collateral calls across participants. This process is documented in guidance on the circumstances in which ASX would consider increasing the central counterparties' fixed risk resources instead of relying on additional collateral.

ii. Guarantee fund

ASX Clear maintains additional pooled financial resources to protect against losses in excess of margin and other collateral assets posted by a defaulting participant. ASX Clear holds paid-up financial resources of $250 million, which consist of: own equity ($3.5 million); funds held in a restricted capital reserve ($71.5 million); and fully-drawn subordinated loans from ASXCC (totalling $175 million), which is ultimately funded by a commercial bank loan facility ($100 million) and a subordinated loan from ASX Limited ($75 million). ASX Clear also has the right under its Operating Rules and Procedures to levy its participants up to $300 million collectively in 'Emergency Assessments' should a loss caused by a participant's default exceed its other resources.

ASX Clear uses daily capital stress tests to monitor the risks undertaken by individual participants and the adequacy of the central counterparty's financial resources. Stress tests are based on 99 scenarios, each calibrated to a one-in-30-year event. The scenarios cover extreme price moves and volatility shifts at the market-wide, sector and individual stock levels. ASX Clear regularly reviews stress-test scenarios and occasionally amends them to reflect current market conditions. During 2010/11, several changes to stress-test parameters were made. The annual review of parameters occurred in November 2010 and resulted in the replacement of health-sector scenarios with telecommunication-sector scenarios and the introduction of individual-stock scenarios for four stocks, replacing scenarios for other stocks previously included in the individual-stock stress-test scenarios. The increase in the market-up scenario remained in place during the 2010/11 assessment period, after the maximum ten-day fall exceeded 7 per cent in May 2010, triggering the Rebound Regime, which aims to capture the possible market bounce effect following certain downward market movements.

In December 2010, ASXCC became the controlling entity for ASX Clear's treasury investments, which are now conducted through ASXCC's ES account. In respect of both cash margin collected and pooled risk resources, ASX Clear invests funds in accordance with a defined treasury investment policy, endorsed by the ASX Clear Clearing Board (one of the CS Boards). The policy is designed to ensure that risk resources can be reliably accessed on a timely basis. The policy restricts treasury investments to liquid assets – such as bank bills and

certificates of deposit – and applies issuer investment limits scaled according to the credit standing of the issuing counterparty. This policy was updated in November 2010, with the definition of liquid assets changed so that it is more focused on market liquidity than investment maturity. Eligible investment counterparties comprise Australian federal or state government agencies and Australian Prudential Regulation Authority (APRA) supervised ADIs, with a minimum short-term S&P credit rating of A-1 and long-term credit rating of A. Individual counterparty limits and concentration limits also apply; the maximum exposure to any investment counterparty is 33 per cent.

In addition, the policy sets upper limits for the average maturity of investments and the market risk of the portfolio. It also imposes an overarching liquidity requirement that is sufficient to cover: 'ordinary' liquidity needs (which accounts for payment obligations, and is based on the maximum payment on any given day over the previous year); liquidity needs in the event of a default (referred to as the default liquidity requirement or DLR); and the value of cash margin posted by the largest clearing participant. To ensure the adequacy of the DLR, ASX Clear carries out regular liquidity stress tests. The DLR is currently set at $300 million and is met by liquid assets held in respect of ASX Clear's paid-up risk resources of $250 million, and a further $50 million available under a committed standby liquidity facility. This $50 million committed liquidity facility was previously provided to ASX Clear by a commercial bank, but upon expiry of this facility in June 2010 it was replaced with a similar facility provided by ASX Limited.

iii. Loss sharing

This measure of the Standard applies to arrangements where participants commit to meet any settlement shortfall. The arrangement does not require that a facility have loss-sharing arrangements in place, but where they exist they should be documented, legally enforceable and acknowledged by all participants in the central counterparty. One element of ASX Clear default resources is a promissory component up to a fixed amount (the Emergency Assessments referred to in the previous section of this Measure). This is not an open-ended commitment and does not constitute a loss-sharing arrangement as contemplated by Measure 7(iii).

8. Governance

The central counterparty must have effective, accountable and transparent governance arrangements.

Ultimate responsibility for the control of the financial risks faced by ASX Clear lies with the ASX Limited Board and the ASX Clear Clearing Board. The ASX Limited Board, which is accountable to ASX Group (ASX) shareholders, is responsible for overseeing the processes for identifying significant risks to ASX and ensuring that appropriate and adequate control, monitoring and reporting mechanisms are in place. In addition, the ASX Limited Board assigns certain responsibilities to the ASX Clear Clearing Board (as specified in the ASX Limited Board Charter), including the management of ASX Clear's clearing and settlement risk, and its compliance with the *Financial Stability Standards* (FSS).

The ASX Limited Board Charter also places requirements on the Board structure, including that the majority of members and the Chair be independent (defined as being free of business or other relationships that could interfere with independent exercise of judgement). There are currently nine members of the ASX Limited Board, comprising the ASX Chief Executive Officer (CEO) and eight independent, non-executive directors. The ASX Limited Board appoints the members of the ASX Clear Clearing Board, which comprises one executive director (the ASX CEO) and six non-executive directors. The independent directors are appointed for their skill and expertise in clearing and settlement operational and risk-management matters. The seven directors

filling these positions are also on the boards of ASX Clear (Futures), ASX Settlement and Austraclear. ASX Clear (Futures) and Austraclear share a common chair, as do ASX Clear and ASX Settlement. Four of the non-executive directors are also members of the ASX Limited Board, and two are external directors appointed for their expertise in clearing and settlement matters. The ASX Limited Board Charter and the profiles of all board members are publicly available online.

The ASX Clear Board meets between six and eight times each year, and receives detailed reports on ASX Clear's business and operations, risk management and financial performance. It is responsible for approving capital, liquidity and stress-testing arrangements.

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

9. Operational risk

The CS facility licensee as operator of a central counterparty must identify sources of operational risk and minimise these through the development of appropriate systems, controls and procedures.

ASX Clear's key operating systems are DCS and CHESS. Operational risk in the CHESS system is dealt with in the discussion of ASX Settlement (see Appendix B2, below).

i. Security and operational reliability

The security of DCS is supported by access controls, restricting access both physically and virtually. The process to request access to systems is documented, monitored and formally audited. ASX Clear performs external-penetration and vulnerability testing on DCS regularly. Technology-security policy is considered by external auditors twice a year. ASX's Internal Audit unit routinely monitors compliance with policy, reporting to the Audit and Risk Committee on a quarterly basis.

ASX Clear has a number of arrangements in place to ensure DCS is operationally reliable:

- operational processes are documented and supported by internal procedures;
- the design and effectiveness of control procedures supporting the core operational and systems processes are subject to regular independent external and internal audits;
- critical IT infrastructure is designed to ensure resilience against component failure, including full redundancy at the primary site; and
- availability targets are documented and defined formally for critical services.

Notwithstanding these arrangements, should an infrastructure failure occur at the primary site, failover to ASX's backup site is targeted to occur within one hour. A comprehensive test is completed over a two-year cycle to demonstrate that normal functions can be carried out using systems located at the backup site. ASX Clear also regularly tests its ability to operate its primary systems from the backup site.

Over the 2010/11 assessment period, DCS was available 100 per cent of the time. The availability target for DCS is 99.8 per cent.

DCS capacity is monitored on an ongoing basis, with monthly reviews of current and projected capacity requirements. ASX Clear ensures that it has sufficient technical and human resource capacity to operate DCS during peak periods, including in the event of operational incidents or system failure. Average capacity utilisation of DCS over the assessment period was 14 per cent, while peak utilisation was 30 per cent. ASX has increased the capacity of DCS over the past 12 months, to bring usage in line with its policy, such that peak utilisation does not exceed 50 per cent of capacity.

ASX Clear has arrangements in place to ensure that changes to DCS and supporting infrastructure do not disrupt its normal operations. ASX Clear operates a separate test environment for DCS and has a formal, documented change-management process.

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

ii. Business continuity procedures

ASX 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. The risk that an operational incident at the main site disrupts DCS is mitigated through maintenance of a backup site. ASX also has procedures in place to manage the availability of staff with specific skills in the event of a contingency, with migration to the backup site targeted to occur within one to two hours. In addition, as noted in the previous Assessment, ASX is in the process of implementing arrangements to have some operational staff at its backup site during business hours in order to support rapid recovery in the event of a disruption.

ASX Clear's Operating Rules and Procedures require participants to maintain adequate business continuity arrangements to allow the recovery of usual operations within one to two hours following a contingency event. If a participant fails to do so, ASX Clear may impose sanctions. Spot checks of participants' business continuity management are triggered if a participant has been experiencing operational problems. These include examination of governance and processes.

ASX Clear regularly tests business-recovery arrangements. Connectivity and procedural testing of the backup site are performed monthly by representatives from ASX Clear. Live tests (i.e. where market and clearing and settlement services are provided in real time from the backup site) 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 adequacy of ASX Clear's business continuity procedures is reviewed regularly, as part of broader reviews of ASX Clear's operational risk policy.

iii. Outsourcing

No operational functions are outsourced by ASX Clear. However, external suppliers are used for various services, such as utilities, hardware maintenance, operating system and product maintenance, and certain security-related specialist independent services. ASX Clear no longer relies on an external vendor for the software underpinning margining (i.e. TIMS software, discussed in Section 5 of this Assessment). TIMS margin calculations have been integrated within DCS since September 2010.

iv. External administration of a related body

Within the ASX structure, most operational resources are provided by ASX Operations Limited, a subsidiary of ASX Limited. In the event that ASX Operations Limited became subject to external administration and this particular event did not impact upon the capacity of ASX Clear to continue operating, ASX Clear would be able to retain use of resources under provisions within the written support agreement between it and ASX Operations Limited (to the extent permissible by law).

10. Regulatory reporting

ASX Clear, as a CS facility licensee, is required to meet certain reporting obligations to the Reserve Bank under the FSS for Central Counterparties. These obligations include the reporting of: breaches of the Standard; the failure of a participant to fulfil the central counterparty's risk-control requirements; and the central counterparty's failure to enforce its own risk-control requirements. There are also obligations to report financial and stress-testing results on a quarterly basis. ASX Clear satisfied all reporting obligations during the assessment period.

B1.2 ASX Clear (Futures)

1. Legal framework

The central counterparty must have a well-founded legal basis.

ASX Clear (Futures) is a wholly owned subsidiary of ASXCC, itself a wholly owned subsidiary of ASX Limited. It acts as the central counterparty for all futures and options products that are traded on the ASX 24 market.

The legal basis for ASX Clear (Futures)'s operations is set out in its Operating Rules and Procedures. Under section 822B of the Corporations Act, these rules have effect as a contract under seal between ASX Clear (Futures) and each of its participants, and between each participant and each other participant. Furthermore, the netting arrangements contained in ASX Clear (Futures)' Operating Rules and Procedures are protected as a 'netting market' under Part 5 of the Payment Systems and Netting Act. This provides certainty for the netting process in the event of the insolvency of a participant.

ASX Clear (Futures)' Operating Rules and Procedures define the nature and scope of its obligation to provide clearing support to participants, and describe the conditions under which final and irrevocable settlement of obligations is deemed to have occurred. The Operating Rules and Procedures also set out the rights and obligations of participants, including in the event of default or suspension.

2. Participation requirements

The requirements for participation in the central counterparty must promote the safety and integrity of the central counterparty and ensure fair and open access. Participation requirements must:

(a) be based on objective and publicly disclosed criteria;

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

At the end of June 2011, ASX Clear (Futures) had 15 participants, predominantly large foreign banks and their subsidiaries.

(b) ensure that participants in the central counterparty are of a sufficient financial standing such that the central counterparty is not exposed to unacceptable credit risks;

ASX Clear (Futures)' participation requirements are designed to promote the safety and integrity of the central counterparty. They cover: minimum capital and financial obligations; business and managerial requirements; operational resources; business continuity arrangements; and risk- and liquidity-management arrangements.

Participants are subject to a minimum NTA requirement of $5 million, with management discretion to impose a higher requirement. Over time, ASX Clear (Futures) plans to implement a further increase in this NTA requirement to $10 million, with a higher requirement for those participants clearing for third parties. Participants are obliged to lodge a detailed financial report with the Capital Monitoring unit on a monthly basis.

Each participant's financial standing is monitored on an ongoing basis by Clearing Risk Management, a unit that covers both central counterparties and reports to the CRO. Within Clearing Risk Management, Capital Monitoring is responsible for monitoring, assessing and investigating matters relating to financial requirements, including monitoring participants' monthly NTA statements for any matters of concern. (Prior to December 2010, Capital Monitoring sat within ASX Compliance.)

Clearing Risk Management is also responsible for the day-to-day monitoring of participants' risk profiles, open positions and settlements of obligations to the central counterparties. In addition, it determines and reviews participants' ICRs, drawing on information provided by participants in their monthly statements. A participant's ICR is based on its external credit rating (if available), or that of its parent if either that parent provides a formal guarantee to the central counterparty or the participant carries the parental corporate name. Otherwise, the rating is based on the participant's capital position (or that of its parent where the parent is unrated but provides a formal guarantee to the central counterparty). Clearing Risk Management also maintains a 'watch list' of participants deemed to warrant more intensive monitoring. Inclusion on the watch list might, for instance, reflect issues arising from routine review of financial returns by ASX Compliance, or concerns emerging from a specific event or media report. Participants on the watch list are subject to greater scrutiny in respect of the exposures they bring to the central counterparty and, should a participant's perceived financial standing deteriorate, restrictions may be placed on its trading, clearing and settlement activities.

(c) require that participants have the operational capacity to settle their obligations with the central counterparty in a timely manner; and

Under the Operating Rules and Procedures, the ASX Clear (Futures) Clearing Board (one of the CS Boards) must be satisfied that a potential participant has (or will have) managerial, operational, financial and appropriate complementary business continuity arrangements in place to enable it to meet its ongoing obligations, and is in a position to make an immediate transfer of funds to meet its obligations.

(d) allow the CS facility licensee as operator of the central counterparty to suspend or cancel the participation of an institution which breaches the applicable participation or other risk-control requirements.

Under the Operating Rules and Procedures, a clearing participant may be suspended under a number of circumstances, including the participant's default, the appointment of external management, or the breach of financial requirements. The ASX Clear (Futures) Clearing Board can also suspend a clearing participant for misconduct, breaches of the Operating Rules and Procedures, or if it ceases to satisfy the admission requirements.

3. Understanding risks

The central counterparty's rules and procedures must enable each participant to understand the central counterparty's impact on each of the financial risks the participant incurs through participation in the central counterparty.

ASX Clear (Futures)' Operating Rules and Procedures are comprehensive and publicly available. The Operating Rules and Procedures explain the role and responsibilities of participants and ASX Clear (Futures). Background information on ASX Clear (Futures)' operations and risk management is also available on the ASX website.

ASX Clear (Futures) must lodge any changes to its Operating Rules with ASIC. Under section 822E of the Corporations Act, the Minister has 28 days to consider, and potentially disallow, any rule changes made by a licensed CS facility. ASX Clear (Futures) consults with its participants on important rule changes. Announcements affecting participants are issued as 'ASX 24 Notices'.

4. Novation

The rules and procedures governing the central counterparty must clearly identify:

(a) the nature and scope of novation; and

The nature and scope of novation is set out in ASX Clear (Futures)' Operating Rules and Procedures. Through the process of novation, ASX Clear (Futures) takes on the financial obligations of the seller to the buyer, and the buyer to the seller. The obligations of ASX Clear (Futures) are to each participant as principal, irrespective of whether that participant is acting on behalf of a client.

(b) the point in the clearing process at which trades are novated.

The point at which trades are novated is set out in the Operating Rules and Procedures. These specify that a transaction on the ASX 24 market is novated to ASX Clear (Futures) 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).

5. Settlement

Settlement arrangements must ensure that the central counterparty's exposures are clearly and irrevocably extinguished on settlement. This requires that:

(a) where settlement involves the exchange of one asset for another, it must be done on an appropriate delivery-versus-payment basis; and

(b) where payments, including net payments, are made to extinguish other obligations, payment must be made by real-time gross settlement.

The vast majority of ASX Clear (Futures) settlements involve cash payments to or from the central counterparty. These include margin payments and the settlement of cash-settled derivative contracts. Settlement of payments generally occurs on a net basis. Each day, ASX Clear (Futures) calculates the net obligations of each of its participants. ASX Clear (Futures) participants with a net obligation to the central counterparty are required to make payments to ASX Clear (Futures) in Austraclear by 11.00 am. Once these payments have been received, ASX Clear (Futures) makes payments to those participants with a net obligation from the central counterparty. Interbank settlement of these payments occurs between participants' appointed banks and ASX Clear (Futures) in real time across ES accounts at the Reserve Bank, via the real-time gross settlement (RTGS) system 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 accepted bill futures, ASX Clear (Futures) utilises the standard settlement process in Austraclear. The delivery of greasy wool is via a warehouse, with ASX Clear (Futures) retaining title documentation until payment has been made.

The settlement of obligations is final and irrevocable according to the terms of ASX Clear (Futures)' and ASX 24's Operating Rules and Procedures, which set out contract specifications, including the means of settlement. For payments and securities obligations settled through Austraclear, finality is reinforced by Austraclear's Regulations and Procedures and its approval under Part 2 of the Payment Systems and Netting Act. Any interbank transactions arising from these settlements are settled in real time across ES accounts held with the Reserve Bank. Payments within this system are also final and irrevocable; this is again supported by the approval of RITS under Part 2 of the Payment Systems and Netting Act.

6. Default arrangements

The CS facility licensee as operator of the central counterparty must ensure that it has clear rules and procedures to deal with the possibility of a participant being unable to fulfil its obligations to the central counterparty. The arrangements for dealing with a default must ensure that in this scenario timely action is taken by the central counterparty and the participants in the central counterparty, and that risks to the central counterparty and its participants are minimised.

Details of ASX Clear (Futures)' default arrangements are provided in Section 6 of this Assessment.

7. Risk controls

The CS facility licensee as operator of a central counterparty must have comprehensive risk-control arrangements in place. These arrangements must provide the operator of the central counterparty with a high degree of confidence that, in the event of extreme volatility in relevant markets, the central counterparty will be able to settle all of its obligations in a timely manner. As a minimum, the risk-control arrangements must provide the CS facility licensee as operator of the central counterparty with a high degree of confidence that the central counterparty will be able to settle its obligations in the event that the participant with the largest settlement obligations cannot meet them. In all but the most extreme circumstances, a central counterparty must be able to settle its obligations using liquid assets as defined in this standard.

The CS facility licensee as operator of a central counterparty must:

(a) ensure that its risk-control measures, typically a combination of its own capital, margins, guarantee funds and pre-determined loss-sharing arrangements, provide sufficient coverage and liquidity; and

(b) undertake regular and rigorous stress testing to ensure the adequacy of its risk controls.

The adequacy of risk-control measures must be approved by the board of the central counterparty, or an appropriate body as delegated by the board.

The risk controls of a central counterparty are crucial in providing a high degree of confidence that it would be able to meet its obligations in the event of a participant failure. The inability of a central counterparty to meet its obligations could be extremely disruptive to the financial system. The focus of the Reserve Bank in

this area is to ensure that the combination of risk controls implies a very low probability of failure of the central counterparty.

At the core of ASX Clear (Futures)' risk controls are its financial resources. These comprise margin and other collateral lodged in accordance with participants' positions, and pooled financial resources of $400 million (of which $30 million is promissory). Stress testing is carried out daily to gauge the adequacy of financial resources and to monitor the risks associated with individual participants' positions. Where large or concentrated exposures are identified by stress testing, additional collateral is required to be posted by participants. These risk controls are supplemented by ASX Clear (Futures)' participation requirements and participant-monitoring arrangements (Measure 2).

i. Margins

ASX Clear (Futures) levies margin on the derivatives products it clears.

Initial margin is calibrated so as to cover three standard deviations of the 60-day historical distribution of price movements, considering both one- and two-day price movements, sufficient for an adequate close-out period. All margin rates are reviewed on a three-monthly cycle, with the possibility of more frequent *ad hoc* reviews in times of greater market volatility.

ASX Clear (Futures) calculates total initial margin requirements across each participant's portfolio using the OMX RIVA version of the internationally accepted SPAN methodology; this is due to be replaced by CME SPAN, which is widely regarded as best practice, in the first quarter of 2012. Margin requirements are calculated overnight based on closing contract prices each day, and are notified to participants by 6.00 am the next day. Margin obligations must be met via Austraclear by 11.00 am – breaches of any margin payment deadline are escalated to ASX Compliance and may attract a financial penalty. Participants generally meet these obligations using cash, although they may also use high-quality liquid non-cash collateral, such as eligible debt securities and foreign-currency deposits. Acceptable collateral is reviewed annually, and haircuts are applied in respect of all non-cash collateral posted. ASX Clear (Futures) does not accept participant/parental issued collateral, in order to reduce the possibility that it might face the default of a clearing participant and a collateral issuer.

ASX Clear (Futures) also levies variation (mark-to-market) margin on derivatives positions to cover gains or losses arising from price movements over the preceding day. Should conditions warrant, ASX Clear (Futures) is also able to call variation margin intraday, based on either changes in positions or movements in prices. Intraday margin calls can be made at various times throughout the day. Participants are required to meet an intraday margin call within two hours of notification. Both variation and intraday margin obligations must be settled in cash.

ASX Clear (Futures) also uses a system of STEL Additional Initial Margin (AIM), based on participants' exposures in ASX 24's four largest contracts. STEL AIM calls are intended to cover potential losses from large or concentrated positions with the central counterparty in extreme market conditions. ASX Clear (Futures) calculates potential exposures using a system of stress tests (see below) and makes AIM calls to cover potential stress losses in excess of a stated threshold – the participant's STEL. STELs are linked to the value of ASX Clear (Futures)' risk resources and vary according to the credit quality of participants. In normal market conditions highly-rated participants with NTAs above a minimum threshold are eligible for discounts on their STEL AIM calls. As of 13 July 2011, ASX Clear (Futures) excludes its $30 million in promissory risk resources when calculating STELs; previously these resources were taken into consideration for A-rated participants. The change recognises the potential for a significant delay in receipt of these resources.

The STEL AIM system is designed to provide a high degree of confidence that the central counterparty will be able to meet its obligations, even in the event that losses arising from a defaulting participant's positions exceed ASX Clear (Futures)' pooled risk resources and ordinary initial margin requirements. However, there are potential shortcomings to relying too heavily on variable calls for additional collateral, particularly given lags in the calculation and settlement of such calls. Consequently, in deciding whether a central counterparty has sufficient fixed resources, ASX considers the size, frequency, duration and distribution of the additional collateral calls across participants. This process is documented in guidance on the circumstances in which ASX would consider an increase to the central counterparties' fixed risk resources instead of relying on additional collateral.

Like other margins, STEL AIMs are calculated overnight, notified to participants at 6.00 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 letters of credit from ADIs.

In addition, ASX Clear (Futures) may call CBPL AIMs from participants with large portfolios (proxied by initial margin requirements) relative to their NTA. ASX Clear (Futures) may also call AIMs from participants where it has counterparty credit risk concerns.

ii. Guarantee fund

ASX Clear (Futures) maintains a buffer of financial resources to protect against losses arising in the event of a default that exceed the value of margin and other collateral assets contributed by the defaulting participant. The value of ASX Clear (Futures)' Clearing Guarantee Fund (CGF) includes $370 million of paid-up funds, comprising $30 million in ASX Clear (Futures)' own capital, a $70 million subordinated loan provided by ASXCC (ultimately funded by ASX Limited), paid-up participant commitments of $120 million, and a subordinated loan from ASXCC of $150 million (ultimately funded by a subordinated commercial bank loan). In addition, ASX Clear (Futures) may call on participants for up to $30 million in promissory commitments, although it cannot rely on the timeliness of these funds, as the rules set out that payment could potentially be made a significant time after a participant default. ASX Clear (Futures)' Operating Rules and Procedures state that the ASX Clear (Futures) Board shall be entitled to apply the pooled financial resources upon default by a clearing participant. The rules stipulate the order in which the resources will be applied, and make it clear that the contributions of all participants, not just those in default, may be called upon in a default event. ASX Clear (Futures) recently amended its rules, clarifying that the subordinated ASXCC loan will be called upon prior to calling for promissory commitments in the event of a default. In recognition of the potential for a significant delay in the receipt of the promissory risk resources, ASX Clear (Futures) has also removed the promissory commitments from its STEL calculation.

ASX Clear (Futures) uses daily stress tests of its four major contracts to monitor the risks undertaken by individual participants and the adequacy of the CGF. ASX Clear (Futures) uses a suite of portfolio and single-contract stress-test scenarios based on statistical analysis of historical market movements. These provide consistent tests across contract types and are tailored to ASX Clear (Futures)' risk tolerance, as defined by its board. The stress scenarios aim to capture one-in-30 year events for single asset scenarios and one-in-100 year events for multi-asset scenarios, and are reviewed annually.

In December 2010, ASXCC became the controlling entity for ASX Clear (Futures)' treasury investments, which are now conducted through ASXCC's ES account. 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 ASX Clear (Futures) Clearing Board. This policy is designed to ensure that risk resources can be reliably

accessed on a timely basis. It restricts treasury investments to high-quality liquid assets – such as bank bills and certificates of deposit – and applies issuer investment limits scaled according to the credit standing of the issuing counterparty. This policy was updated in November 2010, with the definition of liquid assets changed so that it is more focused on market liquidity than investment maturity. Eligible investment counterparties comprise Australian federal or state government agencies and APRA-supervised ADIs, and must have a minimum S&P short-term credit-rating of A-1 and long-term credit rating of A. Individual counterparty limits and concentration limits also apply; the maximum exposure to any investment counterparty is 33 per cent.

The treasury investment policy also sets upper limits for the average maturity of investments and the market risk of the portfolio (estimated by value-at-risk modelling), and an overarching liquidity requirement based on assumed 'ordinary' liquidity needs (e.g. for the return of margin to participants, based on the maximum required over the previous year), liquidity needs in the event of a default (i.e. the DLR) and the value of cash margin posted by the largest clearing participant. ASX Clear (Futures) uses a liquidity stress-testing model to assess the adequacy of its liquidity arrangements. The model, which is similar to that used by ASX Clear, calculates the maximum liquid funds that ASX Clear (Futures) would need to access in order to meet obligations arising in the event of a clearing participant default. The model is based on ASX Clear (Futures)' capital stress tests. The liquidity stress-test assumptions were refined in November 2010 so that a default is now more onerous because it is assumed to occur prior to receipt of the previous day's variation margin payments, if owed by the defaulter, or after any variation margin payments have been paid, if owed to the defaulter.

The results of the liquidity stress tests are compared with the DLR. The DLR is currently set at $370 million – equal to the non-promissory component of ASX Clear (Futures)' CGF. Breaches of the DLR trigger a review of the adequacy of the DLR. Such a review will take into account the outcome of the capital stress tests, as any AIM calls will provide extra liquidity.

iii. Loss sharing

This measure of the Standard applies to arrangements where participants commit to meet any settlement shortfall. The arrangement does not require that a facility have loss-sharing arrangements in place, but where they exist they should be documented, legally enforceable and acknowledged by all participants in the central counterparty. One element of ASX Clear (Futures)' default resources is a promissory component up to a fixed amount (the promissory participant commitments referred to in the previous section of this Measure). This is not an open-ended commitment and does not constitute a loss-sharing arrangement as contemplated by Measure 7(iii).

8. Governance

The central counterparty must have effective, accountable and transparent governance arrangements.

Ultimate responsibility for the control of the financial risks faced by ASX Clear (Futures) lies with the ASX Limited Board and the ASX Clear (Futures) Clearing Board. The ASX Limited Board, which is accountable to ASX shareholders, is responsible for overseeing the processes for identifying significant risks to ASX and ensuring that appropriate and adequate control, monitoring and reporting mechanisms are in place. In addition, the ASX Limited Board assigns certain responsibilities to the ASX Clear (Futures) Clearing Board (as specified in the ASX Limited Board Charter), including the management of ASX Clear (Futures)' clearing and settlement risk, and its compliance with the FSS.

The ASX Limited Board Charter also places requirements on the Board structure, including that the majority of members and the Chair be independent (defined as being free of business or other relationships that could interfere with independent exercise of judgement). There are currently nine members of the ASX Limited Board, comprising the ASX CEO and eight independent, non-executive directors. The ASX Limited Board appoints the members of the ASX Clear (Futures) Clearing Board, which comprises one executive director (the ASX CEO) and six non-executive directors. The independent directors are appointed for their skill and expertise in clearing and settlement operational and risk-management matters. The seven directors filling these positions are also on the boards of ASX Clear, ASX Settlement and Austraclear. ASX Clear (Futures) and Austraclear share a common chair, as do ASX Clear and ASX Settlement. Four of the non-executive directors are also members of the ASX Limited Board, and two are external directors appointed for their expertise in clearing and settlement matters. The ASX Limited Board Charter and the profiles of all board members are publicly available online.

The ASX Clear (Futures) Clearing Board meets between six and eight times each year, and receives detailed reports on ASX Clear (Futures)' business and operations, risk management and financial performance. It is responsible for approving capital, liquidity and stress-testing arrangements.

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

9. Operational risk

The CS facility licensee as operator of a central counterparty must identify sources of operational risk and minimise these through the development of appropriate systems, controls and procedures.

ASX Clear (Futures)' key operating system is SECUR.

i. Security and operational reliability

The security of SECUR is supported by access controls, restricting access both physically and virtually. The process to request access to systems is documented, monitored and formally audited. ASX Clear (Futures) performs external penetration and vulnerability testing on SECUR regularly. Technology-security policy is considered by external auditors twice a year. ASX's Internal Audit unit routinely monitors compliance with this policy, reporting to the Audit and Risk Committee on a quarterly basis.

ASX Clear (Futures) has a number of arrangements in place to ensure SECUR is operationally reliable:

- operational processes are documented and supported by internal procedures;
- the design and effectiveness of control procedures supporting the core operational and systems processes are subject to regular independent external and internal audits;
- critical IT infrastructure is designed to ensure resilience against component failure, including full redundancy at the primary site; and
- availability targets are documented and defined formally for critical services.

Nevertheless, should infrastructure fail at the primary site, operations are switched over to ASX's backup site within a target of one hour. A comprehensive test is completed over a two-year cycle to demonstrate that normal functions can be carried out using systems located at the backup site. ASX Clear (Futures) also regularly tests its ability to operate its primary systems from its backup site.

Over the 2010/11 assessment period, SECUR was available 100 per cent of the time. The availability target for SECUR is 99.8 per cent of the time.

SECUR capacity is monitored on an ongoing basis, with monthly reviews of current and projected capacity requirements. ASX Clear (Futures) requires that it has sufficient technical and human resources to operate SECUR during peak periods, including in the event of operational incidents or system failure. Average capacity utilisation of SECUR over the assessment period was 23 per cent, while peak utilisation was 40 per cent. In accordance with its capacity policy, ASX upgraded SECUR in the June 2011 quarter to ensure that peak utilisation does not exceed 50 per cent.

ASX Clear (Futures) has arrangements in place to ensure that changes to SECUR and supporting infrastructure do not disrupt its normal operations. ASX Clear (Futures) operates a separate test environment for SECUR and has a formal, documented change-management process.

ASX Clear (Futures) also has arrangements in place to ensure that it has well-trained and competent personnel operating SECUR. Staff are provided with relevant policies and guidelines from commencement of employment, with weekly communications thereafter. Staff are evaluated with reference to each defined operational process. ASX Clear (Futures) has a formal succession-planning and management process in place.

ii. Business continuity procedures

ASX 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 procedures to respond to failures. These plans are periodically updated. The risk that an operational incident at the main site disrupts SECUR is mitigated through maintenance of a backup site. ASX also has procedures in place to ensure that staff with specific skills are in place in the event of a contingency, with migration to the backup site targeted to occur within one to two hours. In addition, as noted in the previous Assessment, ASX is in the process of implementing arrangements to have some operational staff at its backup site during business hours in order to support rapid recovery in the event of a disruption.

ASX Clear (Futures)' Operating Rules and Procedures require participants to maintain adequate business continuity arrangements to allow the recovery of usual operations within approximately one to two hours following a contingency event. If a participant fails to do so, ASX Clear (Futures) may impose sanctions. Spot checks of participants' business continuity management are triggered if a participant has been experiencing operational problems, and include examination of governance and processes.

ASX Clear (Futures)' regularly tests business-recovery arrangements. Connectivity and procedural testing of the backup site are performed monthly by representatives from ASX Clear (Futures). Live tests (i.e. where market and clearing and settlement services are provided in real time from the backup site) 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 adequacy of ASX Clear (Futures)' business continuity procedures is reviewed regularly as part of broader reviews of ASX Clear (Futures)' operational risk policy.

iii. Outsourcing

No operational functions are outsourced by ASX Clear (Futures). However, external suppliers are used for various services, such as to provide utilities, hardware maintenance, operating system and product maintenance, and certain security-related specialist independent services. Since mid 2008, ASX Clear (Futures) has been responsible for first- and second-level operational support of SECUR. This includes business continuity arrangements, and computer-system support not involving changes to system components or underlying source code. Previously, these high-levels of support were provided by NASDAQ OMX, which continues to provide third-level and software support. During the previous assessment period, a new agreement was finalised to extend this support beyond 2013.

iv. External administration of a related body

Within the ASX structure, most operational resources are provided by ASX Operations Limited, a subsidiary of ASX Limited. In the event that ASX Operations Limited became subject to external administration, and this particular event did not impact upon the capacity of ASX Clear (Futures) to continue operating, ASX Clear (Futures) would be able to retain use of resources under provisions within the written support agreement between it and ASX Operations Limited (to the extent permissible by law).

10. Regulatory reporting

CS facility licensees, as operators of central counterparties, are required to meet certain reporting obligations to the Reserve Bank under the FSS for Central Counterparties. These obligations include the reporting of: breaches of the Standard; the failure of a participant to fulfil the central counterparty's risk-control requirements; and the central counterparty's failure to enforce its own risk-control requirements. There are also obligations to report financial and stress-testing results on a quarterly basis. ASX Clear (Futures) satisfied all reporting obligations during the assessment period.

B2. Financial Stability Standard for Securities Settlement Facilities

In assessing whether a facility meets the *Financial Stability Standard for Securities Settlement Facilities* the Reserve Bank considers a number of measures. The full text of these measures and associated guidance is available on the Reserve Bank's website. The following provides a summary of the information the Reserve Bank has used to assess ASX Settlement and Austraclear against each of these measures. This updates the information presented in the Reserve Bank's 2009/10 Assessment for material changes in policies and procedures over 2010/11.

B2.1 ASX Settlement

1. Legal framework

The securities settlement facility must have a well-founded legal basis.

ASX Settlement is a wholly owned subsidiary of ASX Limited. It provides settlement services for the ASX market and will provide services to Chi-X Australia once trading commences on this AMO's platform on 31 October 2011. ASX Settlement provides a transfer service for a small number of transactions undertaken on the National Stock Exchange, the Asia Pacific Exchange and the SIM Venture Securities Exchange.

The legal basis for ASX Settlement's operations is set out in its Operating Rules and Procedures. Under section 822B of the Corporations Act, these rules and procedures have effect as a contract under seal between ASX

Settlement and each of its participants, as well as between each of the participants. 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 undertaken by ASX Settlement with respect to its participants' obligations have approval as a netting arrangement under Part 3 of the Payment Systems and Netting Act. This provides certainty for the netting process in the event of the insolvency of an ASX Settlement participant or a payments provider.

2. Participation requirements

The requirements for participation in the securities settlement facility must promote the safety and integrity of the securities settlement facility and ensure fair and open access. Participation requirements must:

(a) be based on objective and publicly disclosed criteria;

ASX Settlement has objective and transparent participation requirements, which are publicly available and form part of its Operating Rules and Procedures. The Operating Rules and Procedures also provide for an appeals process should an application for participation be rejected or a participant's access be terminated. ASX Settlement had 132 participants as at end June 2011.

(b) require that participants have the operational capacity and financial standing to settle their obligations through the securities settlement facility in a timely manner; and

Participation requirements address financial and business integrity issues, as well as operational and technical matters.

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 rules or other offence committed by the participant. The monitoring, assessment and investigation of matters relating to financial requirements is dealt with by ASX Compliance, a separate subsidiary within ASX, with its own board.

(c) allow the CS facility licensee as operator of the securities settlement facility to suspend or cancel the participation of an institution which breaches the applicable participation or other risk-control requirements.

The ASX Settlement Operating Rules and Procedures allow it to suspend or terminate a participant from its 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. During the 2010/11 assessment period, ASX Settlement chose to suspend a participant following an event of non-compliance with ASX Settlement's risk control requirements.

ASX Settlement also levies fees on a participant that fails to meet its settlement obligations on a timely basis. 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 operates a regime to benchmark the settlement performance. This regime uses peer-group benchmarking and provides a participant's compliance unit with a ranking of its settlement performance (based on the value of its trades which have failed to settle) against its market group peers.

3. Understanding risks

The securities settlement facility must make sufficient information publicly available, via its rules and procedures and the provision of relevant information on settlement activity, such that each participant is able to understand the securities settlement facility's impact on each of the financial risks the participant incurs through participation in the facility.

The ASX Settlement Operating Rules and Procedures are comprehensive and publicly available. The Operating Rules and Procedures explain the role and responsibilities of each category of participant and ASX Settlement. Background information on ASX Settlement's operations and risk management is also available on the ASX website.

ASX Settlement must lodge any changes to its Operating Rules with ASIC. Under section 822E of the Corporations Act, the Minister has 28 days to consider, and potentially disallow, any rule changes made by a licensed CS facility. ASX Settlement consults with its participants on important rule changes, and notifies participants of all changes to the Operating Rules and Procedures.

A variation to this measure of the Standard in February 2009 requires a licensed CS facility as operator of a securities settlement facility to make publicly available any relevant information on settlement activity. Since November 2009, settlement participants 'tag' securities-lending-related settlement instructions submitted to CHESS and, from December 2009, participants disclose outstanding positions, both borrowed and lent. ASX publishes aggregate data on its website daily.

4. Certainty of title

The CS facility licensee as operator of the securities settlement facility must ensure that under the facility's rules and procedures, participants, or where relevant, their clients, have a clear and unambiguous title to, or interest in, securities held, deposited or registered on their behalf, including in circumstances where the solvency of the operator of a securities settlement facility is in doubt. This requires that its rules and procedures:

(a) clearly identify the type of title or interest held by participants for particular securities, to the extent such title or interest is recognised by the facility's rules or procedures;

Securities are dematerialised and held in CHESS. Title is held in the name of clients of ASX Settlement participants. The system does not record any details of encumbrances, other than collateral lodged in favour of ASX Clear.

A CHESS sub-register forms part of the issuer's 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.

(b) clearly identify the way in which the transfer of (or any other forms of dealing with) securities and related payments can be effected through the facility; and

The transfer of title to securities in CHESS is given effect by electronic book entry. Settlement occurs via a DVP process in a daily scheduled batch-settlement cycle (see Measure 5). The ASX Settlement Operating Rules and Procedures also provide for transferring securities without payment, where required.

(c) ensure that, to the extent permissible by law, the creditors of the operator of the securities settlement facility have no claim over securities or other assets held, deposited or registered by participants in the facility.

In the event of ASX Settlement's insolvency, the rules and arrangements for title within ASX Settlement provide a high degree of assurance that participants' securities will be immune from claims by ASX Settlement's creditors. ASX Settlement is not the legal owner of any participant or client assets, with these assets recorded in CHESS in the name of the participant or sponsored client.

5. Settlement

The CS facility licensee as operator of a securities settlement facility must ensure that its operations do not expose its participants, or the financial system more broadly, to unacceptable levels of risk. The operator of a securities settlement facility must pay particular attention to ensuring settlement finality and the use of high-quality settlement assets in payment for securities.

(a) The operation of a securities settlement facility must eliminate principal risk between its participants and ensure that settlements, once completed, are final and irrevocable.

(b) The assets used to settle the payment obligations in respect of a transaction in the securities settlement facility must carry little or no credit or liquidity risk.

(c) Exposures between providers of cash settlement assets must be settled finally and irrevocably.

Settlement of securities transactions in ASX Settlement occurs on a Model 3 DVP basis. This involves the simultaneous transfer of net payment and net securities obligations between buyers and sellers at the end of the settlement cycle. The ASX Settlement Operating Rules and Procedures establish that settlement according to the terms of those rules is final and irrevocable. This is reinforced through legislation (see Measure 1).

Once a trade has been executed on the ASX market, a trade-related instruction is sent to CHESS. 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. 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 2010/11, an average of around 80 per cent of the value of net securities settled in the final batch was in respect of non-novated transactions. The majority of these transactions were related to the 'priming' of clearing participants' accounts to facilitate settlement of novated trades (i.e. the transfer of securities to a clearing participant's securities account to ensure that they can be delivered in accordance with scheduled obligations).

By 6.00 am on the settlement day, ASX Settlement notifies each participant of its projected net cash and securities settlement 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 and participants' payment providers are requested to fund the net cash obligations of settlement participants. Payment providers hold ES accounts at the Reserve Bank and act on behalf of settlement participants. There were 12 payment providers operating in ASX Settlement as at 30 June 2011. 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 noon.

The finality of ASX Settlement's settlement process is reinforced by its approval under Part 3 of the Payment Systems and Netting Act.

In addition, the payments between payment providers as part of the multilateral net batch are protected by virtue of the approval of RITS as an RTGS system under Part 2 of the Payment Systems and Netting Act. This approval protects payments from being voided in the case of a payments provider entering external administration.

If, due to a shortfall of either securities or funds, a participant is unable to settle its scheduled obligations in the batch, ASX Settlement's rules allow for all or some of the transactions of the affected participant to be 'backed out'. These transactions are then rescheduled for settlement on the next settlement day. The precise parameters of the back-out process depend upon whether or not the failing participant is in default. If the participant is in default, ASX Clear may assume an obligation for novated settlements in accordance with its default-management arrangements. ASX Settlement's back-out algorithm seeks to remove as few transactions from the batch as possible, maximising settlement values and volumes, while minimising the spillover to other participants. Non-novated settlement obligations are typically backed out first.

Building on changes introduced in 2009/10, since 6 September 2010 ASX has eliminated netting between house and client margin payments and plans to implement further improvements to reduce the risks surrounding the settlement process in the future (see Section 5.3 of this Assessment for details).

6. External administration

The rules and procedures for the securities settlement facility must contain mechanisms to deal with the external administration of a participant, or a provider of cash settlement assets, in such a way as to limit the operational and financial impact on both the securities settlement facility and its participants. This requires that the CS facility licensee as operator of the securities settlement facility must:

(a) allow for the cancellation or suspension of a participant or a provider of cash settlement assets from the security settlement facility:

(i) if the participant or provider of cash settlement assets is in external administration; or

(ii) if there is a reasonable suspicion of external administration; and

The ASX Settlement Operating Rules and Procedures allow for the cancellation or suspension of a participant or a payment provider in the event that it becomes subject to external administration, or if it reasonably suspects that this may occur. Participants and payment providers are required to notify ASX Settlement if they, or any other participant or payment provider, become subject to external administration or if they reasonably suspect that this may occur.

(b) allow participant users of a cash settlement provider which becomes subject to external administration, or which is reasonably likely to become subject to external administration, to quickly nominate a new provider.

The ASX Settlement Operating Rules and Procedures allow participants to nominate a new payment provider if their current provider is subject to, or is reasonably likely to become subject to, external administration.

The ASX Settlement Operating Rules and Procedures allow it to remove transactions from batch settlement under certain circumstances, including where a participant is subject to external administration. ASX Settlement has procedures and mechanisms in place to allow it to recast a batch ensuring that settlement can be carried out in a timely manner (see Measure 5).

7. Operational risk

The CS facility licensee as operator of a securities settlement facility must identify sources of operational risk and minimise these through the development of appropriate systems, controls and procedures.

ASX Settlement's key operating system is CHESS.

i. Security and operational reliability

The security of the CHESS system is supported by access controls, restricting both physical and virtual access. The process to request access to systems is documented, monitored and formally audited. ASX Settlement performs external penetration and vulnerability testing on CHESS regularly. Technology-security policy is considered by external auditors twice a year. ASX's Internal Audit unit routinely monitors compliance with policy, reporting to the Audit and Risk Committee on a quarterly basis.

ASX Settlement has a number of arrangements in place to ensure that CHESS is operationally reliable:

- operational processes are documented and supported by internal procedures;
- the design and effectiveness of control procedures supporting the core operational and systems processes are subject to regular independent external and internal audit;
- critical IT infrastructure is designed to ensure resilience against component failure, including full redundancy at the primary site; and
- availability targets are documented and defined formally for critical services.

Nevertheless, should infrastructure fail occur at the primary site, ASX aims to switch operations over to the backup site within one hour. A comprehensive test is completed over a two-year cycle to demonstrate that normal functions can be carried out using systems located at the backup site. ASX Settlement also regularly tests its ability to operate its primary systems from its backup site.

Over the 2010/11 assessment period, CHESS achieved high operational reliability. CHESS was available 99.96 per cent of the time, with just one short outage reported in the March quarter 2011. The availability target for CHESS is 99.8 per cent.

CHESS capacity is monitored on an ongoing basis, with monthly reviews of current and projected capacity requirements. ASX Settlement requires that it has sufficient technical and human resources to operate the clearing and settlement systems during peak periods, including in the event of operational incidents or system failure. Average capacity utilisation of CHESS over the assessment period was 15 per cent, while peak utilisation was 20 per cent. The capacity headroom target for CHESS is 100 per cent over peak utilisation.

ASX Settlement has arrangements in place to ensure that changes to CHESS and supporting infrastructure do not disrupt its normal operations. ASX Settlement operates a separate test environment for CHESS and has a formal, documented change-management process.

ASX Settlement also has arrangements in place to ensure 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. ASX Settlement has a formal succession-planning and management process in place.

ii. Business continuity procedures

ASX 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 periodically updated. The risk that an operational incident at the main site disrupts CHESS is mitigated through maintenance of a backup site. ASX also has procedures in place to manage the availability of staff with specific skills in the event of a contingency, with migration to the backup site targeted to occur within one to two hours. In addition, as noted in the previous Assessment, ASX is in the process of implementing arrangements to have some operational staff at its backup site during business hours in order to support rapid recovery in the event of a disruption.

ASX Settlement requires participants to maintain adequate business continuity arrangements to allow the recovery of usual operations within approximately one to two hours following a contingency event. If a participant fails to do so, ASX Settlement may impose sanctions.

ASX Settlement regularly tests business-recovery arrangements. Connectivity and procedural testing of the backup site are performed monthly by representatives from ASX Settlement. Live tests (i.e. where market and clearing and settlement services are provided in real time from the backup site) 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 adequacy of ASX Settlement's business continuity procedures is reviewed regularly, as part of broader reviews of ASX Settlement's operational risk policy.

iii. Outsourcing

No operational functions are outsourced by ASX Settlement. However, external suppliers are used for various services, such as utilities, hardware maintenance, operating system and product maintenance, and certain security-related specialist independent services. ASX Settlement is also reliant on interactions with SWIFT, and would revert to manual processing of SWIFT payments in the event of a SWIFT failure.

iv. External administration of a related body

Within the ASX structure, most operational resources are provided by ASX Operations Limited, a subsidiary of ASX Limited. In the event that ASX Operations Limited became subject to external administration and this particular event did not impact upon the capacity of ASX Settlement to continue operating, ASX Settlement would be able to retain use of resources under provisions within the written support agreement between it and ASX Operations Limited (to the extent permissible by law).

8. Regulatory reporting

CS facility licensees are required to meet certain reporting obligations to the Reserve Bank under the FSS. These obligations include the reporting of: breaches of the Standard; breaches of risk-control requirements; and quarterly financial results. ASX Settlement satisfied all reporting obligations during the assessment period.

B2.2 Austraclear

1. Legal framework

The securities settlement facility must have a well-founded legal basis.

Austraclear is a wholly owned subsidiary of ASX Limited. It provides settlement services for debt securities and for derivatives traded on the ASX 24 and ASX markets.

The legal basis for Austraclear's operations is set out in its Regulations and Procedures. Under section 822B of the Corporations Act, these regulations and procedures have effect as a contract under seal between Austraclear and each of its participants, as well as between each of the participants. 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 reinforced by its approval as an RTGS system under Part 2 of the Payment Systems and Netting Act. This approval protects the finality of payments made through Austraclear in the event of a participant entering external administration.

2. Participation requirements

The requirements for participation in the securities settlement facility must promote the safety and integrity of the securities settlement facility and ensure fair and open access. Participation requirements must:

(a) be based on objective and publicly disclosed criteria;

(b) require that participants have the operational capacity and financial standing to settle their obligations through the securities settlement facility in a timely manner; and

(c) allow the CS facility licensee as operator of the securities settlement facility to suspend or cancel the participation of an institution which breaches the applicable participation or other risk-control requirements.

Austraclear had 731 participants as at end June 2011. Austraclear has objective and transparent participation requirements, which are publicly available and form part of the Regulations and Procedures. The Regulations also provide for an appeals process should an application for participation be rejected or a participant's access be terminated. Its participation requirements address issues such as financial standing, business integrity and business continuity arrangements.

Austraclear's Regulations and Procedures allow it to suspend or terminate a participant from its facility in the event of a breach of its Regulations. Clearing and Settlement Operations monitors participants' operational processing performance.

3. Understanding risks

The securities settlement facility must make sufficient information publicly available, via its rules and procedures and the provision of relevant information on settlement activity, such that each participant is able to understand the securities settlement facility's impact on each of the financial risks the participant incurs through participation in the facility.

Austraclear's Regulations and Procedures are comprehensive and publicly available. The Regulations and Procedures explain the role and responsibilities of each category of participant and Austraclear. Background information on Austraclear's operations, technical arrangements and risk management is also available on ASX's website.

Austraclear must lodge any changes to its Regulations with ASIC. Under section 822E of the Corporations Act, the Minister has 28 days to consider, and potentially disallow, any rule changes made by a licensed CS facility. Austraclear consults with its participants on important rule changes. Announcements affecting participants are issued as ASX 24 Notices, which are targeted to participants and market users.

4. Certainty of title

The CS facility licensee as operator of the securities settlement facility must ensure that under the facility's rules and procedures, participants, or where relevant, their clients, have a clear and unambiguous title to, or interest in, securities held, deposited or registered on their behalf, including in circumstances where the solvency of the operator of a securities settlement facility is in doubt. This requires that its rules and procedures:

(a) clearly identify the type of title or interest held by participants for particular securities, to the extent such title or interest is recognised by the facility's rules or procedures;

Austraclear's Regulations and Procedures identify title for three different classes of securities: paper securities, non-paper securities and dematerialised securities.

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. Non-paper securities are electronic securities that are not registered within the Austraclear system. They include Australian Government securities, registrable state and semi-government securities and corporate debt. In each of the registries, Austraclear holds legal title for the participant as nominee. The participant retains beneficial title. 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.

(b) clearly identify the way in which the transfer of (or any other forms of dealing with) securities and related payments can be effected through the facility; and

The transfer of title to securities in the Austraclear system is effected by book entry. Paper securities are transferred through updates to participants' security records. Austraclear also uses 'allonges' which maintain the negotiability of paper securities. Non-paper securities are transferred through the passing of beneficial title from the seller to the buyer. Austraclear retains legal title in the relevant registry. Transfers of dematerialised securities are transfers of contractual rights within the Austraclear system.

(c) ensure that, to the extent permissible by law, the creditors of the operator of the securities settlement facility have no claim over securities or other assets held, deposited or registered by participants in the facility.

In the event of Austraclear's insolvency, the rules and arrangements for title within Austraclear provide a high degree of assurance that participants' securities will be immune from claims by Austraclear's creditors. Austraclear is not counterparty to any transactions settled in its system.

5. Settlement

The CS facility licensee as operator of a securities settlement facility must ensure that its operations do not expose its participants, or the financial system more broadly, to unacceptable levels of risk. The operator of a securities settlement facility must pay particular attention to ensuring settlement finality and the use of high-quality settlement assets in payment for securities.

(i) The operation of a securities settlement facility must eliminate principal risk between its participants and ensure that settlements, once completed, are final and irrevocable.

Settlement of securities transactions in Austraclear occurs on a Model 1 DVP 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. Austraclear also provides for one-way cash transfers between participants, which are also settled on an item-by-item basis. Austraclear's Regulations and Procedures establish the basis for settlement of transactions entered into the system. By volume, DVP settlements accounted for around 49 per cent of total settlements during the assessment period, and one-way cash transfers account for around 51 per cent. There was also a small number of free-of-payment securities transfers (less than 1 per cent of total volumes). By value, however, DVP payments predominate, accounting for 77 per cent of total transfers in the year to end June 2011.

(ii) The assets used to settle the payment obligations in respect of a transaction in the securities settlement facility must carry little or no credit or liquidity risk.

Austraclear settlement participants must either be a 'participating bank' or appoint a participating bank to meet payment obligations in central bank money. 59 participating banks were operating in Austraclear and held ES accounts at the Reserve Bank as at 30 June 2011. Settlement of payment obligations occurs between participating banks across ES accounts on an RTGS basis without credit risk. Simultaneously, DVP settlement between settlement participants of cash and securities obligations occurs within Austraclear.

(iii) Exposures between providers of cash settlement assets must be settled finally and irrevocably.

The finality of Austraclear's settlement process is ensured by its approval under Part 2 of the Payment Systems and Netting Act. In addition, the payments between participating banks are also protected by virtue of the approval of RITS as an RTGS system under Part 2 of the Payment Systems and Netting Act.

6. External administration

The rules and procedures for the securities settlement facility must contain mechanisms to deal with the external administration of a participant, or a provider of cash settlement assets, in such a way as to limit the operational and financial impact on both the securities settlement facility and its participants. This requires that the CS facility licensee as operator of the securities settlement facility must:

(a) allow for the cancellation or suspension of a participant or a provider of cash settlement assets from the security settlement facility:

(i) if the participant or provider of cash settlement assets is in external administration; or

(ii) if there is a reasonable suspicion of external administration; and

(b) allow participant users of a cash settlement provider which becomes subject to external administration, or which is reasonably likely to become subject to external administration, to quickly nominate a new provider.

Austraclear's Regulations and Procedures allow it to cancel or suspend a participant or a participating bank that becomes subject to external administration, or if it reasonably suspects 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.

There is no restriction within the Austraclear Regulations and Procedures on a participant changing its participating bank, including the case where that participant bank is insolvent.

7. Operational risk

The CS facility licensee as operator of a securities settlement facility must identify sources of operational risk and minimise these through the development of appropriate systems, controls and procedures.

Austraclear's key operating system is EXIGO.

i. Security and operational reliability

Since mid 2008 Austraclear has been responsible for first- and second-level operational support of EXIGO. This includes business continuity arrangements, and computer system support not involving changes to system components or underlying source code. Previously this support was provided by NASDAQ OMX, which continues to provide third-level and software support. In 2010, a new agreement was finalised to extend this support beyond 2013.

During the assessment period, EXIGO was available for 100 per cent of the required time. This exceeded the availability target stipulated in Austraclear's 'Step-in and Service Agreement' with the Reserve Bank. As outlined in Section 5.4 of this Assessment, there were two minor operational incidents during the assessment period. The Reserve Bank is satisfied with both ASX's immediate responses, and the follow-up action taken to prevent reoccurrence, in relation to the operational incidents that occurred during the year.

Average capacity utilisation for EXIGO was 22 per cent during the assessment period, and peak capacity utilisation was 36 per cent. ASX's capacity headroom policy requires that peak utilisation does not exceed 50 per cent. Following breaches to this policy in the previous assessment period, ASX plans to increase the capacity of EXIGO in September 2011, as part of a broader EXIGO upgrade.

The security of the EXIGO system is supported by access controls that are subject to external audit. Austraclear also has a fraud control policy in place which seeks to minimise the risk of fraud occurring within Austraclear, as well as providing procedures for its timely identification and appropriate responses should it occur.

ii. Business continuity procedures

ASX maintains extensive contingency plans detailing the operational response to a CS facility disruption, including coverage of the various lines of authority, means of communication and failover procedures. These plans are periodically updated. The risk that an operational incident at the main site disrupts EXIGO is mitigated through maintenance of a backup site. ASX also has procedures in place to manage the availability of staff with specific skills in the event of a contingency, with migration to the backup site targeted to occur within one to two hours. In addition, as noted in the previous Assessment, ASX is in the process of implementing arrangements to have some operational staff at its backup site during business hours in order to support rapid recovery in the event of a disruption.

Austraclear tests backup arrangements quarterly and carries out connectivity and procedural testing on a monthly basis. Live tests (i.e. where market and clearing and settlement services are provided in real time from the backup site) are conducted on a two-year cycle; the most recent live test of EXIGO occurred in November 2009 and revealed some issues that have now been resolved. The next test has been delayed until after the next version of the EXIGO software is released in October 2011. Through its Regulations and Procedures, Austraclear also requires that its participants have appropriate disaster recovery arrangements. The adequacy of Austraclear's business continuity procedures is reviewed regularly, as part of broader reviews of Austraclear's operational risk policy.

iii. Outsourcing

No operational functions are outsourced by Austraclear. However, external suppliers are used for various services, such as utilities, hardware maintenance, operating system and product maintenance, and certain security-related specialist independent services. As noted above, NASDAQ OMX provides third-level and software support to EXIGO.

Austraclear is reliant on interactions with SWIFT, and would revert to manual processing of SWIFT payments in the event of a SWIFT failure. The failure of RITS would potentially prevent settlement in EXIGO, although ASX has prepared business plans to consider the potential for EXIGO to continue operating independently.

iv. External administration of a related body

ASX Operations Limited, a subsidiary of ASX Limited, is responsible for supplying Austraclear and other ASX companies with personnel and technological resources. Austraclear has a written support agreement with ASX Operations Limited, which helps to ensure its access to these resources in the event of the external administration of ASX Operations, to the extent permissible by law.

8. Regulatory reporting

CS facility licensees are required to meet certain reporting obligations to the Reserve Bank under the FSS. These obligations include the reporting of: breaches of the Standard; breaches of risk-control requirements; and quarterly financial results. Austraclear satisfied all reporting obligations during the assessment period.

Glossary

ADI	Authorised Deposit-taking Institution
AIM	Additional Initial Margin
AMO	Approved Market Operator
APRA	Australian Prudential Regulation Authority
ASIC	Australian Securities and Investments Commission
CAC	Contributions and Additional Cover
CBPL	Capital-based position limit
CEO	Chief Executive Officer
CGF	Clearing Guarantee Fund
CHESS	Clearing House Electronic Sub-register System
CPSS	Committee on Payment and Settlement Systems
CRO	Chief Risk Officer
CS	Clearing and settlement
DCS	Derivatives Clearing System
DIRQ	Derivatives Intraday Risk Quantification
DLR	Default liquidity requirement
DMC	Default Management Committee
DMF	Default management framework
DVP	Delivery-versus-payment
ES	Exchange Settlement
EWMA	Exponentially Weighted Moving Average
FEX	Financial and Energy Exchange
FMI	Financial market infrastructure
FSA	UK's Financial Services Authority
FSS	Financial Stability Standard
ICR	Internal credit rating
IOSCO	International Organization of Securities Commissions
LEPO	Low exercise price option
NGF	National Guarantee Fund
NTA	Net tangible assets
OTC	Over-the-counter
RITS	Reserve Bank Information and Transfer System
RTGS	Real-time gross settlement
SPAN	Standard Portfolio Analysis of Risk
STEL	Stress-test exposure limit
TAS	Trade Acceptance Service
TIMS	Theoretical Intermarket Margin System