2008/09 ASSESSMENT OF CLEARING AND SETTLEMENT FACILITIES IN AUSTRALIA

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CONTENTS

Reserve Bank

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1. Introduction and Executive Summary

In accordance with obligations under the *Corporations Act 2001*, the Reserve Bank is required to conduct an assessment at least once a year of whether licensed clearing and settlement (CS) facilities have complied with its *Financial Stability Standards* and done 'all other things necessary to reduce systemic risk'. The four CS facilities in the Australian Securities Exchange (ASX) group fall within the scope of the Standards: the two licensed central counterparties – the Australian Clearing House (ACH) and SFE Clearing Corporation (SFECC) – and the two licensed securities settlement facilities – ASX Settlement and Transfer Corporation (ASTC) and Austraclear. All four facilities were found to have complied with the relevant Standards over the year to end-June 2009.

The assessment period was characterised by heightened volatility in financial markets in late 2008, following the failure of the US investment bank, Lehman Brothers. While Lehman Brothers was not a direct participant in either central counterparty or ASTC, its failure and resulting spillover to securities and derivatives markets did pose some challenges. The central counterparties, in particular, faced an increase in risk exposure as volatility rose and the financial standing of some participants or their overseas parents was questioned. Both ACH and SFECC responded to the changing risk environment by intensifying their participant monitoring, increasing margin requirements, and pro-actively adjusting other risk-control parameters as necessary. In the event, all four licensed CS facilities were resilient to the turbulent market conditions during this period.

In light of these events, the Reserve Bank examined the facilities' response to the challenges posed by the volatility in financial markets. It also assessed a number of other developments through the period, including ongoing refinements to risk-management and operational processes. Particularly given the events of the past year, the Payments System Board took a heightened interest in matters related to the stability of the market infrastructure and will continue to do so.

At the central counterparties, there were a number of important developments, including the following:

- *Review of participant-monitoring arrangements*: Further to the broker failures of early 2008 and heightened counterparty credit concerns in markets more generally, ASX Markets Supervision (ASXMS) undertook a review of participant-monitoring activities and launched a range of projects to enhance capital- and liquidity-monitoring arrangements. ACH also implemented an increase in minimum capital requirements for participants. Following a joint review of this policy by the Reserve Bank and the Australian Securities and Investments Commission (ASIC), the time-line for implementation of further increases in participants' capital requirements was revised.
- *Review of default-management processes*: Again, in light of some issues raised by the broker failures of early 2008, ASX embarked on a thorough review of default-management

processes. In a first stage of this work, ASX has drawn up a comprehensive list of 'default intentions', setting out the factors to be taken into consideration at each key decision point, and reviewing capabilities. In a second phase of the work, ASX aims to further clarify the legal underpinning for intended actions, identify any necessary rule changes, and implement identified enhancements.

- *Exit from default-insurance arrangements*: Late in the period, both central counterparties announced their intention to exit from default-insurance arrangements with Radian Asset Assurance Inc. (Radian). This followed further ratings downgrades at the insurer. ACH has already implemented alternative arrangements, negotiating a fully drawn-down subordinated loan from a commercial bank. SFECC has retained its insurance arrangements for the time being, but has reduced the stress-test exposure limits beyond which participants are required to post additional collateral so that insurance is not taken into account. Ultimately, both central counterparties had intended to replace their insurance contracts with paid-up funds raised via the external issuance of debt by ASXCC. In the event, however, given difficult conditions in credit markets, the issuance of debt has been postponed indefinitely. Alternative sources of funding are under consideration.

Having reviewed these and other developments, and followed up on a number of issues raised in the 2007/08 Assessment, the Reserve Bank has identified a number of areas for further consideration by the central counterparties during the 2009/10 assessment period. These include:

- *Routine margining of cash equities*: Notwithstanding that the size and duration of replacement-cost risk associated with cash equities is low relative to that in derivatives contracts, recent high volatility in the cash equity market argues in favour of ACH routinely collecting initial and variation margin over the three-day pre-settlement period.[1] This would be consistent with the approach taken by many central counterparties internationally and the Reserve Bank welcomes ACH's decision to consult on this in the near future.
- *Account segregation*: ACH recently consulted on a proposal to require that clearing participants maintain separate house and client accounts for cash equities. Segregation would be consistent with international best practice in this area and would be particularly important should ACH proceed with routine margining of cash equities.
- *Triggers for an increase in fixed risk resources*: The Reserve Bank supports the current policy whereby participants are required to post additional collateral when the exposures they bring to the central counterparties give rise to projected stress-test losses beyond a specified threshold. This policy is appropriate where such exposures are infrequent, short-lived or highly concentrated among a few participants, as has generally been the case for both central counterparties over the past year. Nonetheless, ASX is encouraged to develop clear guidance on the circumstances in which it would increase the central counterparties' fixed risk resources (either routine margin or pooled resources), rather than relying on additional collateral. As noted in the 2007/08 Assessment, there are shortcomings to relying too heavily on variable calls for additional collateral, particularly given lags in the calculation and settlement of such calls.

1 *Or other routine collateralisation of cash equity market exposures in normal market circumstances.*

- *Review of the composition of pooled risk resources:* In light of the postponement of the proposed external debt issuance, the Reserve Bank will remain in dialogue with ASX in relation to the composition of the central counterparties' pooled risk resources. An important element of this will be ASX's plans in respect of an alternate long-term source of funding to replace the central counterparties' default insurance. It is anticipated that the future composition of pooled risk resources will also be referenced in ASX's forthcoming consultation on the central counterparties' risk control frameworks.
- *Intraday margining capabilities*: The Reserve Bank accepts the basis on which ACH has delayed the implementation of system enhancements to improve intraday margining capabilities. However, the Reserve Bank reiterates its interest in delivery of these capabilities and will continue to monitor progress during the forthcoming assessment period.
- *Treasury investment policy*: In the 2007/08 Assessment, the Reserve Bank observed that the central counterparties' treasury investment policy could give rise to sizeable, concentrated exposures with the large domestic banks. Having discussed the policy further with ASX during the current assessment period, the Reserve Bank acknowledges that it would be difficult for the central counterparties to reduce the concentration of investments among the largest domestic banks without compromising credit quality or liquidity. However, were the domestic repo market to deepen, perhaps due to continued expansion of government debt issuance, ASX would consider exploring this alternative for at least a portion of the treasury portfolio. The Reserve Bank encourages ASX to keep under review the various options for reducing concentration in the treasury investment portfolio.
- *Participant-monitoring arrangements*: The Reserve Bank welcomes the enhancements to capital- and liquidity-monitoring arrangements at ASXMS. It is noted, however, that the central counterparties' arrangements for monitoring clearing participants may change further in due course, in light of the recent government announcement of reforms to the supervision of Australia's financial markets. The Reserve Bank will remain in dialogue with ASX and ASIC over 2009/10 to examine any implications of the reforms for clearing participant-monitoring arrangements.

In the case of the securities settlement facilities, an important focus of the current Assessment has been developments at ASTC to enhance equity settlement arrangements. In the 2007/08 Assessment, the Reserve Bank drew out two key recommendations from its earlier *Review of Settlement Practices for Australian Equities* (published in May 2008).[2] This review followed the significant delays to the completion of settlement of Australian equities transactions on two days in January 2008. In particular, the Reserve Bank recommended modifications to the existing batch-settlement model, and improvements to the transparency of equities securities lending. ASTC took steps in response to both recommendations during the assessment period, while also proceeding with pre-announced enhancements to the settlement-fails regime and implementing an earlier start-of-day for submission of instructions to ASTC's settlement system, Clearing House Electronic Sub-register System (CHESS).

2 *This document is available at: http://www.rba.gov.au/PaymentsSystem/StdClearingSettlement/Pdf/review_sttlmt_prac_aus_equities_052008.pdf*

In respect of the recommended modifications to the batch process, ASX released a consultation document in December 2008, *Enhancing Australia's Equity Settlement System*, which sought feedback from participants on a range of potential measures.[3] Further to the consultation, ASTC plans to implement several measures, including:

- *A firm deadline for the back out of settlement obligations*: ASTC plans to establish a firm deadline for the back out of settlement obligations in the event that a participant fails to meet its payment obligations (although some flexibility will be retained in the event of operational problems). Had such arrangements 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 and spillover to the market at large.
- *Removal of ACH derivatives margins from the CHESS settlement batch*: This will ensure that ACH's risk-management arrangements are not dependent on the completion of settlement in the cash equity market.

ASTC decided not to pursue some other proposals included in the consultation. In particular, ASTC decided not to remove certain cash equity transaction types from the batch process and will not require that all participants connect to CHESS RTGS (a real-time settlement capability that allows securities transfers to settle on a delivery-versus-payment (DVP) basis outside of the daily batch process). Although CHESS RTGS connectivity will not be mandatory, ASTC will strongly encourage participants to connect. The Reserve Bank regards CHESS RTGS as a useful contingency and therefore encourages ASTC to keep mandatory connectivity under consideration, at least for the largest settlement participants.

Separately, working closely with the Reserve Bank and industry participants, ASX is developing arrangements for the implementation of a disclosure regime for equities securities lending. The key elements are transactional and positional reporting requirements.

- *Transactional reporting*: In conjunction with a new release of the CHESS software, due in November 2009, ASTC will require that settlement participants 'tag' all securities loan-related settlement instructions in CHESS. This will provide visibility for ASTC, as system operator, and also provide data for public release on the proportion of total settlements accounted for by loan-related transactions.
- *Positional reporting*: ASX is developing arrangements for direct reporting of outstanding on-loan and borrowed positions by settlement participants and other voluntary providers of data. This reporting will form the basis for public reports of aggregated loans outstanding for each security, relative to some relevant comparative statistics (eg, turnover, market capitalisation, total stock available for lending). A pilot reporting regime was launched in May 2009, with full implementation scheduled for December 2009.

This year's Assessment of Austraclear has again focused on operational risk management, following a lengthy outage of the EXIGO settlement system in March 2009. The outage was due to a code change which was inadvertently written to the live production system rather than the test system. Austraclear is taking appropriate steps to mitigate the risk of similar problems

3 *This document is available at: http://www.asx.com.au/about/pdf/consultation_paper_enhancing_equity_settlement_system.doc*

occurring in the future, and the Reserve Bank will follow up with Austraclear once the new arrangements are fully implemented.

For the first time, this year's report includes a special topic (Section 6), which offers a detailed assessment against one measure of the Standards. In part in response to the developments at Austraclear, the Reserve Bank chose operational risk management as the special topic for this period. A similar detailed assessment against at least one measure will be included in future assessments.

It is the Reserve Bank's assessment that ASX's arrangements are consistent with the operational risk measure of the *Financial Stability Standards*. Nevertheless, the Reserve Bank notes that best practice in respect of operational risk continues to evolve and licensed CS facilities should respond both to this evolution and to specific issues identified by unfolding events. ASX's review of business continuity policy is welcome in this regard, including review of the case for introducing full redundancy for all four key systems at the business-recovery site and potential extension of remote-working arrangements. Another possible enhancement being explored in this context is to permanently locate some operational staff at the site, so as to facilitate rapid recovery in the event of a disruption and staff familiarity with the site.

The Reserve Bank will also continue to monitor implementation of enhancements to operational risk-management processes recommended by internal and external auditors. These include: completion of business-unit level pandemic planning; ongoing enhancement/update of detailed business-resumption plans; and an assessment of whether to include 'failover testing' within regular business continuity tests.[4]

The report is organised as follows. Section 2 introduces the Australian clearing and settlement landscape. Sections 3 and 4 of this report 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 *Financial Stability Standards*. Sections 5 and 6 fulfil the Reserve Bank's statutory obligations under Section 823CA of the *Corporations Act* to report to the Minister for Financial Services, Superannuation and Corporate Law, and to ASIC, on its annual assessment of the licensed CS facilities.

The Reserve Bank appreciates the openness and cooperation of ASX throughout the period and in the preparation of this report.

4 *'Failover testing' involves testing the capacity to switch operations to the recovery site intraday should a disruption occur.*

2. Clearing and Settlement in Australia

Two types of CS facilities operate in Australia: central counterparties and securities settlement facilities. Under the *Corporations Act*, these facilities are required to hold a CS facility licence and are required to comply with the relevant *Financial Stability Standards*.

Central Counterparties

A central counterparty interposes itself as the legal counterparty to all purchases and sales undertaken on a market via a process known as novation. This process 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.[5] These arrangements provide significant benefits in terms of counterparty risk management as well as greater opportunities for netting of obligations. At the same time, they necessarily 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, in which case the central counterparty must continue to meet its obligations to the defaulter's original counterparties. The central counterparty must therefore have 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.

The following licensed central counterparties are required to comply with the *Financial Stability Standard for Central Counterparties*:

- ACH – provides central counterparty services for a range of financial products traded on the ASX market, including equities, warrants and equity-related derivatives; and
- SFECC – provides central counterparty services for derivatives traded on the Sydney Futures Exchange (SFE) 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 transactions undertaken on securities markets. Settlement involves transfer of the title to the security and transfer of cash consideration. These functions are linked via DVP arrangements established within the settlement process.

5 *Typically, a central counterparty deals only with the small number of direct central counterparty participants. Most buyers and sellers must appoint a central counterparty participant to act on their behalf. The central counterparty will therefore have a contract with the participant acting on behalf of the buyer and the participant acting on behalf of the seller, rather than directly with the buyer and seller.*

The following licensed securities settlement facilities are required to comply with the *Financial Stability Standard for Securities Settlement Facilities*:[6]

- ASTC – provides for the settlement of equities and warrants traded on the ASX market; and
- Austraclear – offers securities settlement services for over-the-counter (OTC) trades in debt securities.

Although ACH, SFECC, ASTC and Austraclear are all part of a single corporate group, ASX, each facility holds an individual CS facility licence.

6 *A third securities settlement facility – operated by IMB Limited – falls outside the application of the* Financial Stability Standards *due to its small size and the low likelihood of it affecting the overall stability of the Australian financial system.*

3. Developments in the Clearing and Settlement Industry in 2008/09

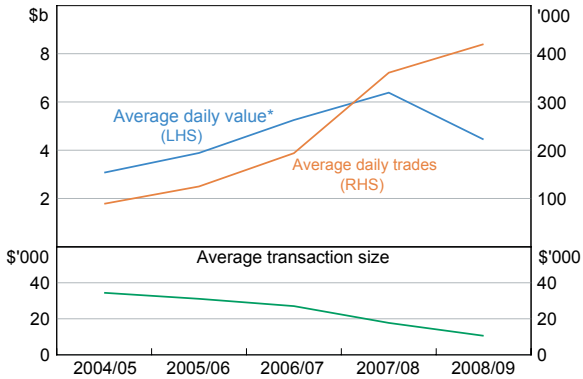
Volatility in financial markets rose to extremely high levels during the assessment period as strains continued to be felt throughout the global financial system. Accordingly, traded volumes and values in a number of the markets served by Australia's CS facilities declined, in some cases substantially. The turbulence in financial markets and associated concerns with some firms' financial positions also resulted in an increase in the risks faced by the central counterparties. While Lehman Brothers was not a direct participant in either central counterparty or ASTC, the investment bank's failure also posed some challenges. Nevertheless, all four licensed CS facilities were resilient to the turbulent conditions during this period.

The financial market events of the past two years have also highlighted the lack of transparency and build-up of risk in some OTC derivatives markets. International regulatory and industry efforts have accordingly been directed towards improving the clearing, settlement and other infrastructure supporting these markets. The Australian financial authorities are encouraging similar steps in the domestic OTC derivatives market.

Activity in the Licensed CS Facilities

Reflecting the difficult market conditions over the past year, the value of equities and derivatives transactions processed by the licensed CS facilities declined in 2008/09. In the cash equity market, after very strong growth in recent years, average daily trading volumes increased by a more modest 16 per cent (Graph 1). In value terms, daily cash equity transactions fell by 30 per cent, reflecting the substantial decline in share prices during the year. Average transaction size therefore continued to fall, with this also reflecting the longer term trend towards breaking up large orders for gradual release into the market.

Graph 1
Cash Equities Trades



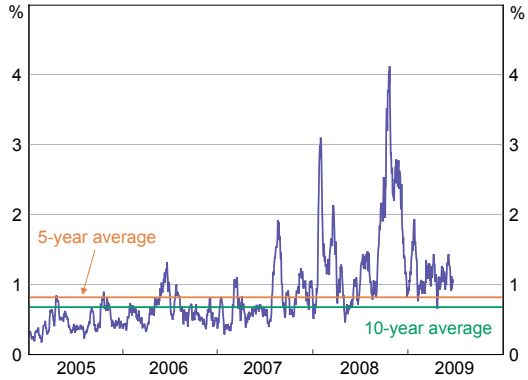
*Includes crossings (26 per cent of total turnover in the year to June 2009)
Source : ASX

The decline in traded values in the cash equity market has been reflected in a commensurate decline in values settled in CHESS. The average value of daily net securities transfers declined by 29 per cent to $9.5 billion over the period. The fall in average daily cash-settlement values on each side of the daily net CHESS settlement batch was more moderate, declining by 2 per cent to $620 million in 2008/09.

The slower growth in trading activity in 2008/09 reflected an increase in risk aversion among

market participants in the face of the financial market turbulence. Market volatility had been elevated since September 2007 when financial market strains first emerged, but was particularly high in late 2008 following the bankruptcy of Lehman Brothers (Graph 2). The ban on covered short selling imposed by ASIC in September 2008 – due to concerns about its potential to contribute to unwarranted price fluctuations in an already volatile market – may also have limited trading activity to some extent. The ban was subsequently removed in November 2008 for non-financial stocks and in May 2009 for financial stocks.

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

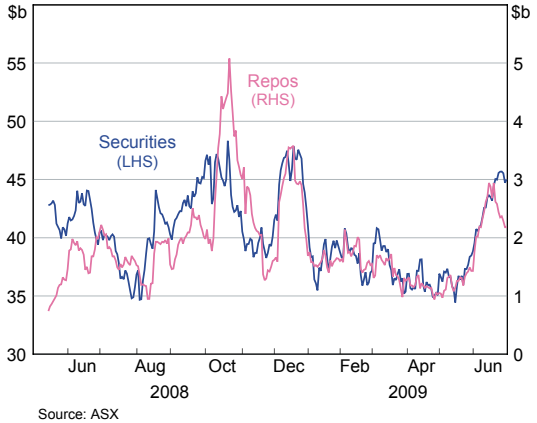


Source: Global Financial Data

Activity in the ASX and SFE derivatives markets declined substantially during the year in response to the turbulent market conditions, with only a modest recovery late in the assessment period, at least for the major interest rate contracts. Volumes traded on the SFE market fell by 28 per cent in 2008/09, with average open interest in the government bond contracts in particular declining by around a third, and open interest in the 90-day bank accepted bill futures contract declining by 5 per cent. Volumes traded on the smaller ASX derivatives market fell by 18 per cent in 2008/09.

Trading in debt securities was also relatively subdued, after strong growth in recent years. The value of debt securities settled through Austraclear (comprising outright purchases and sales, as well as repos of debt securities) was broadly flat in 2008/09 at a daily average of $42.3 billion. There was, however, some variability within the year, including a sharp increase in repo activity in September and October as market participants' demand for liquidity rose during the financial market turbulence (Graph 3).

Graph 3
DVP Transactions in Austraclear
10-day moving average



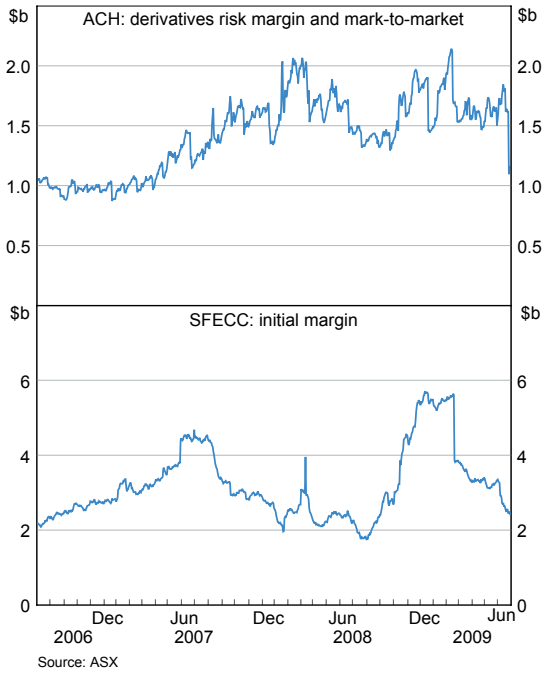
Source: ASX

Risk Management in the Licensed Central Counterparties

Notwithstanding the decline in trading activity, the risks faced by the licensed central counterparties – as measured by the value of margin collected from participants – increased during the past year as market volatility rose. The central counterparties' participant monitoring also intensified as strains in the financial system threatened the financial standing of some clearing participants.

In the case of ACH, average daily exposure to participants' settlement obligations arising from cash equity trades on the ASX market (almost three-quarters of which are novated to ACH) was $993 million in 2008/09.[7] This represents a decline of 23 per cent relative to the 2007/08 assessment period, due to the decline in traded values. However, taking into account the increased market volatility, the risks faced by ACH in relation to these exposures increased. ACH does not routinely collect margins in respect of participants' cash equity positions, but does calculate a notional margin amount for ASX 200 stocks. Average daily notional initial margin calculated rose by 10 per cent to $175 million, with average mark-to-market margin little changed at $41 million.

Graph 4
Margins



Source: ASX

Similarly, while derivatives traded volumes and open interest declined, the risk associated with remaining positions rose as market volatility increased. Both ACH and SFECC raised initial margin levels sharply in late 2008. For ASX-traded derivatives, the daily average of initial (risk) and mark-to-market margin required by ACH was broadly constant at around $1.6 billion in 2008/09, despite the decline in positions (Graph 4). Initial margin collected in respect of trades on the SFE market increased by 26 per cent to a daily average of $3.6 billion in 2008/09, after a 4 per cent reduction in 2007/08.

7 *The daily exposure faced by ACH arises from unsettled trades through the three-day settlement cycle. ACH's average total settlement exposure from a single day's trades was $466 million in 2008/09, down by 24 per cent from the previous year.*

Performance of the Licensed CS Facilities during the Market Turbulence

Despite the more difficult market conditions during the past year, Australia's licensed CS facilities continued to operate robustly. The ASX central counterparties intensified their risk management, taking actions in several areas: reassessment of participants' internal credit ratings (ICRs); more intensive monitoring of participants that were experiencing or at risk of financial distress; application of a lower threshold for intraday margin calls; more frequent reviews of initial margin intervals; and revision to stress-test scenario parameters. These measures are discussed in more detail in Sections 5.1 and 5.2.

Lehman Brothers participated indirectly in the Australian CS facilities, with the exception of Austraclear. In the event of the bankruptcy of its US parent, Lehman's pre-existing cash equity trades and open derivatives positions were settled or closed out relatively smoothly by its clearers. Some increase in equity settlement fails was observed, however, as delays occurred in obtaining approval from the European administrator for the release of Lehman's securities. Settlement fails increased further following the imposition of the ban on short selling by ASIC, as some securities lenders were reluctant to lend securities due to initial uncertainties as to the scope of the ban.[8] Nevertheless, the fail rate remained low by international standards and the increase was temporary. The downward trend in the fail rate – which had commenced in mid 2008 – resumed, with the rate settling at around 0.1 per cent during the first half of 2009 (compared with 0.24 per cent at the start of the assessment period). This would seem to reflect the enhancements to the settlement-fails regime implemented during 2008/09, including an increase in penalty fees applied in the event of a failed settlement delivery, and a requirement to close out positions remaining unsettled on the fifth business day after trade date. These enhancements are discussed further in Section 5.3.

Prospective Changes in the Clearing and Settlement Landscape

Consistent with international developments, the Australian cash equity market faces the prospect of competition in trading. Three applications for licences to provide trading platforms for ASX-listed equities are awaiting decision by the Minister for Financial Services, Superannuation and Corporate Law. If these licences are granted, arrangements would need to be made to enable the new trading platforms to clear and settle trades. ASX has consulted with industry and market licence applicants on how these platforms might connect to ACH and ASTC and in December 2008 published draft high-level business requirements for the provision of clearing and settlement services to non-ASX trading platforms. The Reserve Bank has been in regular dialogue with ASX and ASIC on this matter.

Against a background of turbulent financial markets, a number of international regulatory and government groups have looked closely at the infrastructure underpinning OTC derivatives markets. The Financial Stability Board[9] and the International Organization of Securities

8 *ASIC subsequently published a 'no-action' letter, stating that sales of securities that were on loan within securities lending programmes would not be deemed short selling as long as the securities were recalled within a reasonable time frame after executing the sale.*

9 *An international group comprised of representatives from central banks, finance ministries, supervisory agencies and various international organisations.*

Commissions, among others, have issued recommendations in this area, and major global OTC market participants have strengthened their commitments to US and European regulators to enhance market practices. Initiatives include market reporting to improve transparency, central counterparty clearing of trades where possible, and improved risk management and governance.

In Australia, a working group comprising the Australian Prudential Regulaton Authority (APRA), ASIC and the Reserve Bank is in dialogue with industry to promote similar developments in the Australian market.[10] In time, this may see an extension of the activities of the existing Australian CS facilities and/or new entrants to clear transactions in Australia's OTC derivatives market.

10 *For more details, see* Survey of the OTC Derivatives Market in Australia *published by APRA, ASIC and the Reserve Bank, available at http://www.rba.gov.au/PaymentsSystem/StdClearingSettlement/SurOtcDerMarAus/sotcdma_052009.pdf*

4. The Financial Stability Standards

The Financial Stability Standards

The Reserve Bank has determined *Financial Stability Standards* for central counterparties and securities settlement facilities under powers conferred in the *Corporations Act*. The Standards are supplemented by a set of detailed measures that the Reserve Bank considers relevant for meeting each Standard (see Attachment). The Standards may be varied by the Reserve Bank as necessary to accommodate relevant developments in the clearing and settlement landscape. Variations made in 2008/09 are discussed below.

The Standards comprehensively cover matters relevant to the assessment of systemic risks arising from the activities of licensed facilities. As such, in assessing licensed 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'.

Determination, Variation and Revocation of Financial Stability Standards

Section 25M(1)(a)-(c) of the *Reserve Bank Act* requires that the Payments System Board describe 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 2009. The Standard for central counterparties was, however, varied during the period, and a measure of the Standard for securities settlement facilities was also varied.

Variation to the Financial Stability Standard for Central Counterparties

To date, all licensed central counterparties have been required to comply in full with the following *Financial Stability Standard for Central Counterparties*, irrespective of any other regulatory obligations to which they may be subject:

> *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.*

With a trend emerging internationally towards increased cross-border provision of clearing services, the Reserve Bank published a consultation paper in October 2008 which set out a proposed regime for the oversight of overseas central counterparties.[11] After a review of submissions, the regime was finalised by the Payments System Board in February and the *Financial Stability Standard for Central Counterparties* was varied to

11 *The document* Consultation on Variation of the Financial Stability Standard for Central Counterparties: Oversight of Overseas Facilities *is available at: http://www.rba.gov.au/PaymentsSystem/StdClearingSettlement/Pdf/coof_102008.pdf*

give effect to the new arrangements.[12] Under the new regime, any overseas central counterparty licensed under Section 824B(2) of the *Corporations Act* will be exempt from full assessment against the Standard as long as it is able to provide documentary evidence from the overseas regulator that it has met all relevant requirements.[13] This change is reflected in the following addition to the Standard, along with some explanatory guidance.

> *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. *This exception applies only for such time as 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. Such evidence must be provided in a form and at a time agreed with the Reserve Bank.*

A licence may be granted under Section 824B(2) at the Minister's discretion, subject to advice from ASIC and the Reserve Bank, and only where the applicant is deemed to operate under a 'sufficiently equivalent' regulatory regime in its home jurisdiction. While the concept of sufficient equivalence is explicitly recognised in the *Corporations Act*, the Act provides no detail on how it is to be assessed. Therefore, the Reserve Bank has also developed guidance on how it would approach the assessment of sufficient equivalence in relation to the degree of protection from systemic risk. Following a further round of consultation,[14] the Board finalised a three-step approach to this assessment in July 2009, considering: the clarity and coverage of the overseas regime; the oversight process of the overseas regulator; and observed outcomes.[15]

Variation to Measure 3 of the Financial Stability Standard for Securities Settlement Facilities

The Standard for securities settlement facilities states:

> *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.*

12 *The* Notice of Variation *is available at: http://www.rba.gov.au/PaymentsSystem/StdClearingSettlement/notice_of_variation_fsscc_0209.pdf*

13 *The guidance associated with the varied Standard stresses that an overseas central counterparty subject to this regime will retain direct obligations to the Reserve Bank. Furthermore, it is expected that should an overseas central counterparty apply for a licence in respect of a particularly large or systemically important market in Australia, the Reserve Bank would advise the Minister that the applicant should apply for a domestic licence, in which case the exemption would not apply.*

14 *The consultation document* Consultation on Assessing Sufficient Equivalence *is available at: http://www.rba.gov.au/PaymentsSystem/StdClearingSettlement/ConAssessSuffEqu/ase_052009.pdf*

15 *The financial guidance*, Assessing the Sufficient Equivalence of an Overseas Regulatory Regime *is available at: http://www.rba.gov.au/PaymentsSystem/StdClearingSettlement/assessing.html*

An important conclusion from the Reserve Bank's review of settlement practices for Australian equities, released in May 2008, was that improved disclosure of securities lending activity in the Australian equities market could help to enhance the robustness of the settlement process and the functioning of the market. Following this review, the Reserve Bank worked closely with ASX and industry participants to develop new disclosure arrangements and in October 2008 released a consultation document setting out a proposed variation to Measure 3 of the *Financial Stability Standard for Securities Settlement Facilities* that would have the effect of requiring ASX to collect and publish information on securities lending.[16]

A number of practical issues related to how the new arrangements might be implemented were highlighted in submissions and discussed with industry participants ahead of the finalisation of the regime in February 2009.[17] Under the regime, settlement participants in ASTC will be required to make both transactional and positional securities lending data available to ASX. Non-settlement participants will also be encouraged to report under the disclosure regime. Details are provided in Section 5.3.

16 *The document* Consultation on Disclosure of Equities Securities Lending *is available at: http://www.rba.gov.au/PaymentsSystem/StdClearingSettlement/Pdf/cdesl_102008.pdf*

17 *The document* Disclosure of Equities Securities Lending *is available at: http://www.rba.gov.au/PaymentsSystem/StdClearingSettlement/DisEquSecLen0209/desl_022009.pdf*

5. Assessment of CS Facilities against the Financial Stability Standards

The Reserve Bank monitors licensed CS facilities' compliance with the *Financial Stability Standards* on an ongoing basis and reports on its assessment once a year, covering the period 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 stress-test outcomes. These reporting requirements are supplemented by a regular dialogue with the licensees on issues relevant to compliance at both an operational and a policy level, and the provision of data on activity, exposures and operational performance.

The assessments that follow describe the key developments over the year to end-June 2009 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 have complied with the relevant Standards over the assessment period.

Details of the information that the Reserve Bank has used to assess each facility against the relevant measures is presented in the Attachment, which builds on material included in prior Assessments.[18]

18 *Assessments for 2006/07 and 2007/08 may be found at: http://www.rba.gov.au/PaymentsSystem/StdClearingSettlement/reports_clrg_settlement.html*

5.1 Australian Clearing House (ACH)

Background

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

The rights and obligations of ACH and its participants are set out in ACH's Clearing Rules. Under Section 822B of the *Corporations Act*, these rules constitute a contract under seal between ACH and each of its participants, and between participants. The netting arrangements contained in ACH's Clearing Rules are further protected under Part 5 of the *Payment Systems and Netting Act 1998*.

ACH applies three layers of risk-management protections:

- *Participation requirements and ongoing monitoring*: Following a change which took effect on 1 January 2009, ACH participants clearing cash equities or options are required to hold at least $2 million in 'core liquid' capital.[19] Over time, ACH plans to implement a further increase in the minimum capital requirement to $10 million.
- *Margining and other collateralisation of exposures by participants*: Margins are routinely collected from participants in respect of derivatives exposures, but not 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 ACH in the event of a default.[20]
- *The maintenance of a buffer of risk resources, including own capital*: Finally, ACH has access to pooled risk resources of $550 million to meet losses arising in extreme market conditions. Of these additional resources, $250 million are fully paid up (including funds paid into a restricted capital reserve from the National Guarantee Fund (NGF) in 2005, a subordinated loan provided by ASX Limited, and a subordinated loan of $100 million from a commercial bank). These funds are supplemented by 'emergency assessments', of up to $300 million, which can be levied on surviving participants in the event of a default.

At the end of the assessment period, ACH had 57 participants, including 27 Australian brokers, 20 subsidiaries of foreign banks and brokers, eight subsidiaries of Australian banks, and two specialist clearers. Nine participants resigned during the period, while one new participant joined.

19 *'Core liquid' capital is defined by ASX to be the sum of: all paid-up ordinary share capital; all non-cumulative preference shares; all reserves, excluding revaluation reserves; and opening retained profits/losses, adjusted for current year movements. In addition, ACH participants are subject to a risk-based requirement under which they must hold sufficient 'liquid capital' to cover counterparty risk, large exposure risk, position risk and operational risk.*

20 *While 'Additional Cover', posted in respect of derivatives positions, is equivalent to margin and hence can only be used in the case that the participant posting the collateral defaults, 'Contributions', posted in respect of cash equities positions, are a mutualised resource. In due course, ACH expects to introduce margining powers to its Clearing Rules, which could result in any such Contributions being treated as equivalent to margin.*

Assessment of Developments in 2008/09

Against a backdrop of turbulent conditions in financial markets, ACH continued to develop its risk and operating framework over the assessment period. Among the most notable changes, ACH implemented the first phase of an increase in minimum capital requirements for participants, made further enhancements to its stress-testing arrangements, and revised the composition of pooled risk resources following further downgrade of its provider of default insurance. Also, following the broker failures of early 2008, ASX carried out detailed reviews of participant-monitoring arrangements and default-management processes, which also had implications for SFECC. Finally, ASX continued to develop the legal framework for migration of both central counterparties' treasury and funding activities to ASX Clearing Corporation (ASXCC). In this year's Assessment, the Reserve Bank focused particular attention on these changes to the risk and operating framework and also reviewed ACH's response to the market volatility of late 2008.

Participation requirements

In July 2008, ACH announced that it intended to increase the minimum capital requirement for participants from $100 000 to $2 million with effect from 1 January 2009, and further to $10 million with effect from 1 January 2010. This prospective change was noted in the 2007/08 Assessment.

In December 2008, the Reserve Bank and ASIC were asked by the Minister for Superannuation and Corporate Law to review the prospective change in participation requirements. Following consultation with ACH participants, a report, *Review of Participation Requirements in Central Counterparties*, was published in April 2009.[21] The report concluded that there was a strong in-principle case for ACH to raise the minimum capital requirement for participants. However, given developments in financial markets, and uncertainties in the market for third-party clearing, the report recommended a more gradual implementation of the increase in minimum capital requirements. This would allow additional time for the third-party clearing market to deepen and provide further scope for smaller brokers to examine various alternative business strategies.[22]

ACH expressed broad agreement with the conclusions of the report and announced an extension to its timetable for increasing minimum capital requirements. The revised timetable is:

- an increase to $5 million effective 1 July 2010 (and to $10 million for third-party clearers); and
- a further increase to $10 million, effective 1 January 2012 (with a higher requirement for third-party clearers to be confirmed).

The Reserve Bank and ASIC remain in dialogue with ACH on these plans and will continue to monitor the implementation of the new requirements. Both authorities also continue to take a close interest in developments in the market for third-party clearing, the effectiveness and

21 *The document,* Review of Participation Requirements in Central Counterparties, *is available at: http://www.rba.gov.au/PaymentsSystem/StdClearingSettlement/RevParReqCenCou/rprcc_032009.pdf*

22 *In addition to these conclusions, ASIC and the Reserve Bank each made some recommendations related to their particular regulatory responsibilities. ASIC suggested that ACH explore whether alternative interim arrangements might be applied for some existing participants. The Reserve Bank encouraged ACH to consider other risk-control measures during the longer implementation phase and also suggested that a higher minimum capital requirement for third-party clearers might be considered.*

robustness of which is important to ACH's plans in respect of participation requirements, and more generally critical to the smooth functioning of the clearing and settlement infrastructure.

Participant monitoring

Participant-monitoring arrangements were an important focus of the Reserve Bank's 2007/08 Assessment, following the financial difficulties faced by several brokers early in 2008. During 2008/09, the Reserve Bank remained in dialogue with ASX on enhancements to these arrangements and also examined more generally the objectives of participant monitoring for a central counterparty (see Box A).

As described in the 2007/08 Assessment, monitoring of clearing participants is predominantly conducted by two units within ASX: ASXMS, a separate subsidiary with its own board; and Clearing Risk Operations, which is located within the central counterparties. ASXMS is responsible for capital and liquidity monitoring, as well as investigations and enforcement. Clearing Risk Operations focuses more on day-to-day participant activity and monitors risk profiles, open positions and settlement of obligations to the central counterparties.[23]

During the year, ASXMS undertook a thorough review of its capital- and liquidity-monitoring arrangements and has set in train a number of projects to deliver enhancements. These include:

- *Enhancement to the risk-calculation methodology*: Drawing on international benchmarking work, this project will review and develop methodologies for the calculation of risks arising from a range of alternative transaction types, including securities lending and margin lending.
- *Spot checks of the accuracy of returns*: ASXMS developed some triggers for follow-up enquiries and detailed investigation, including on-site visits.
- *Participant re-authorisation*: This project will systematically review the status of individual participants to ensure that they are completing returns appropriate for the range of business activities that they undertake.
- *Introduction of a new technical solution for participants' delivery of capital and liquidity returns and a new system for production of information and exceptions reports*: System development is due to be completed in December and the new system is expected to be rolled out in April 2010.

The Reserve Bank welcomes these enhancements to the participant-monitoring framework. In particular, revision to the risk-calculation methodology to more accurately capture specific sources of off-market risk should go some way towards addressing issues raised in the 2007/08 Assessment around gaps revealed by the broker failures of early 2008. Also, regular spot checks should have the beneficial effects of increasing the frequency of dialogue with participants and promoting accurate completion of returns.

23 *The unit is also responsible for determining and reviewing participants' ICRs, drawing on information provided by participants in their returns to ASXMS.*

During the assessment period, the Reserve Bank also explored whether the location of the capital- and liquidity-monitoring function within ASXMS could lead to the loss of clearing-risk-relevant information, or more generally compromise the effectiveness of the central counterparties' monitoring of clearing participants. Given the vertically integrated structure of ASX, the capital- and liquidity monitoring unit in ASXMS supports ASX's supervision of market participants as well as clearing participants. Hence, consolidation of this activity delivers synergies and operational efficiencies. The Reserve Bank is of the view that arrangements are in place to ensure an appropriate flow of information to Clearing Risk Operations to support the central counterparties' risk-monitoring activities. Furthermore, steps have been taken to further enhance this through the introduction of monthly liaison meetings involving senior and working-level personnel from ASXMS, Clearing Risk Operations and Clearing and Settlement Operations. These meetings facilitate the exchange of clearing-risk-relevant information on clearing participants and complement the regular exchange of quantitative information from participants' capital and liquidity returns and other more *ad hoc* dialogue.

Arrangements in this area may, however, change in due course following the announcement by the Minister for Financial Services, Superannuation and Corporate Law in August 2009 that ASIC would be given responsibility for whole-of-market supervision of Australia's financial markets, including a role in supervising brokers' trading activities. The Reserve Bank will be in dialogue with ASX and ASIC during 2009/10 to examine how this may alter the central counterparties' arrangements for monitoring clearing participants.

Box A: Participant Monitoring in a Central Counterparty

In addition to assessing developments in ACH's participant-monitoring activities, the Reserve Bank considered more generally the appropriate boundary of a central counterparty's participant monitoring.

While it would be ideal for a central counterparty to be in a position to foresee any future threats to a participant's solvency and its ongoing ability to meet its obligations, in practice this is not possible. Given the breadth and complexity of many clearing participants' activities, there will be a natural limit to the accuracy with which a central counterparty can quantify the risk of default, in particular where shocks to a participant's solvency may arise from off-market activities or the activities of other (perhaps overseas) related entities. The data available to the central counterparty will often not be sufficiently granular, comprehensive or timely to offer a reliable 'early warning' of a participant's financial difficulties.

As clearing participants' businesses become more complex and international in scope, a central counterparty's ability to capture and process sufficiently reliable and timely information on individual sources of risk becomes more limited. For this reason, a central counterparty typically seeks to rely wherever possible on the relevant prudential supervisor, who will have access to more timely, more granular, and more comprehensive data than will typically be available to a central counterparty. Indeed, in this regard, ACH is seeking to permit direct participation by Authorised Deposit-taking Institutions (ADIs) and as part of this initiative is developing a framework for efficient reliance, where appropriate, on (domestic and foreign) prudential regulators.

Given the difficulties associated with participant monitoring, a central counterparty will typically emphasise other elements within its risk framework, to ensure that it could continue to meet its obligations on a timely basis should a participant default. These include, in particular:

- high-level filters, such as threshold participation requirements and ICRs;
- triggers for follow-up enquiry, based for instance on the observation of trends in financial ratios, market data, corporate events, and other qualitative information;
- close monitoring of risks brought to the central counterparty and application of statistical analysis and stress testing to ensure that the calibration of both margin and pooled risk resources offer adequate coverage in the event of a participant default; and
- appropriate default-management arrangements to ensure minimal spillover from the central counterparty's close out of a defaulter's open positions.

Both of the central counterparties operated by ASX have enhanced their capabilities in most of these areas in recent years. Both ACH and SFECC have refined their use of high-level filters, such as participation requirements and ICRs, and have recently enhanced their margining and stress-testing methodologies. Work is also currently underway to strengthen default-management arrangements (see below). ✠

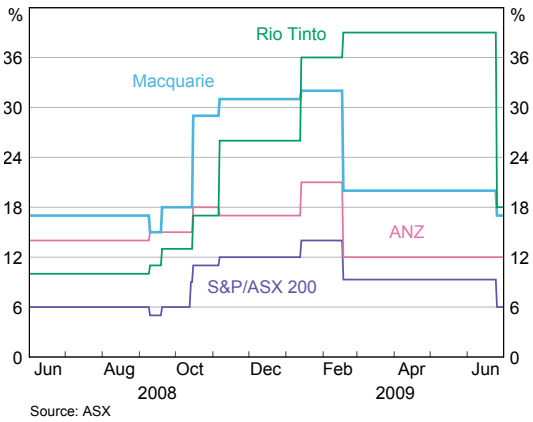
Performance of ACH during the market turbulence of late 2008

ACH acted in a timely manner to intensify its risk-management activities in response to the heightened market volatility during late 2008 and concerns over some participants' financial standing. This occurred within the existing risk-management framework in the areas of participant monitoring, margining and stress testing. While the Reserve Bank considers that the steps taken by ACH were appropriate, the experience of this period suggests that further enhancement to ACH's risk-management framework should be considered, and in particular the routine margining of cash equities (see Box B).

As noted in Box A, within their participant-monitoring activities, the ASX central counterparties assign ICRs. These ratings are based on the external credit rating or net tangible assets (NTAs) of the participant or its parent, and are used to better understand the distribution of the central counterparties' risk exposures and assist in the interpretation of stress-test results. During the weeks following the Lehman Brothers failure, ACH downgraded 8 participants within this framework. As conditions stabilised during the first half of 2009, 6 participants' ratings were upgraded. The central counterparties also maintain a 'watch list' of participants deemed to warrant more intensive monitoring. At its peak, 15 ACH participants were on the watch list. By the end of June 2009, this number had dropped back to eight.

During the period of market volatility in late 2008, ACH also took proactive steps to increase the degree of margin coverage for ASX derivatives positions. In the December quarter 2008, ACH carried out eight *ad hoc* reviews of exchange-traded option margin intervals (in addition to the routine quarterly reviews). This resulted in some often large adjustments to margin intervals, with correspondingly large margin calls on participants. Indeed, notwithstanding that the volume of trading activity declined in the December quarter 2008, margin funds held by ACH increased by 9 per cent, to $1.5 billion. The increase in margin intervals in late 2008 has since been reversed for many – though not all – contracts as market conditions have stabilised and volatility has receded (Graph 5).

Graph 5
ASX Options Margin Interval



Source: ASX

The difficult market conditions during the past year also prompted ACH to lower the threshold beyond which intraday margin is called on ASX derivatives positions. ACH called for intraday margin in the event that initial margin was eroded by 40 per cent (or 30 per cent for those participants on the watch list), rather than 50 per cent as previously. This led to an increase in the frequency of such calls, which were also often sizeable. In the December 2008 quarter, 194 intraday margin calls were made, amounting to a total of $485million. The largest single call was for $131 million in December 2008. By comparison, an average of 48 calls were made during each of the preceding quarters of 2008, for an average total of $176 million.

Finally, ACH uses stress testing to assess the adequacy of its risk resources and calls for additional collateral under the CAC regime to cover large exposures identified via the stress-testing process. The extreme market conditions in late 2008 resulted in some price movements that were close to, and in one case exceeded, the scenarios used by ACH in stress testing. The magnitudes of some stress tests were adjusted in conjunction with an expansion of the range of scenarios in December 2008. These changes had been planned prior to the turbulent period in late 2008 and the revised price-move scenarios are all more extreme than those experienced during that period.

Box B: Margining Cash Equities

ACH does not routinely collect margin from participants in respect of cash equities positions, instead covering the risk exposures arising from these positions through its pooled risk resources and, in the case of large exposures, through calls for additional collateral under the CAC regime.

The pooling of risk resources economises on opportunity costs arising when each participant is individually required to post initial margin. However, there may be costs to relying too heavily on pooled resources. In particular, drawing on pooled resources to fund a default may carry reputational costs. For instance, the central counterparty's risk-management approach may be called into question. Furthermore, replenishing paid-up resources following a draw could be difficult, again leading to a loss of confidence in the central counterparty.

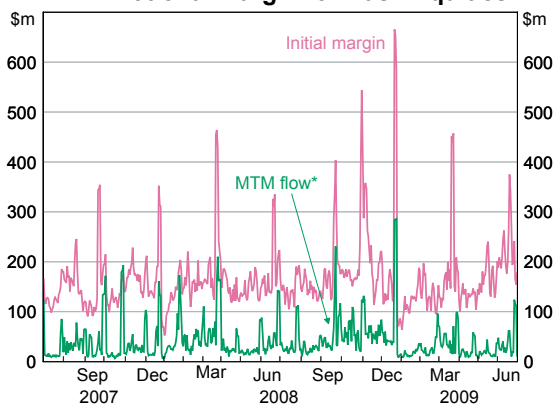
Requiring participants to post margin avoids these problems and also provides participants with good incentives to manage the risk they bring to the central counterparty. The participant bears a direct opportunity cost when it brings a trade to the central counterparty, and will therefore factor this into its trading decision. It also bears a direct cost (the loss of all margin posted) if it 'walks away' from a loss-making trade, therefore reducing any strategic incentive it may have to do so.[24]

For these reasons, the use of margining as a risk-management tool is universal among central counterparties that clear derivatives, and most central counterparties that clear cash equities also routinely margin exposures. While the size and duration of exposures is somewhat lower in the cash equity market than in the derivatives market, the impact of a call on pooled risk resources could still be sizeable in the event of a participant default.

Indeed, as noted in Section 3, volatility in the cash equity market has risen markedly over the past two years, notwithstanding a dip more recently (Graph 2). ACH monitors the risk in participants' cash equity exposures by calculating a notional value of initial margin and mark-to-market margin. These averaged $175 million, and $41 million, respectively, across participants during the year to end-June 2009. Notional

24 *Of course, there are also costs. In particular, imposing margin requirements may in some cases pose liquidity problems for participants and lead to a reduction in trading activity.*

Graph 6
ACH Notional Margin for Cash Equities



* MTM flow is the notional daily mark-to-market payment between participants
Source: ASX

initial margin peaked at more than $600 million (Graph 6).[25] While the largest individual participant exposures are covered by additional collateral calls linked to the stress-testing regime, there would seem to be a strong case for ACH to reduce its dependence on these collateral calls and pooled risk resources by introducing routine margining for cash equities.[26]

ASX will include routine margining of cash equities by ACH in an upcoming consultation on the risk-control framework for the central counterparties. The consultation will also consider potential issues in implementation. These are likely to include the following:

- the lag between establishment of a position and the settlement of margin, which is important given the short duration of the three-day settlement cycle;
- the liquidity implications for participants; and
- the potential spillover to trading activity from introducing margining.

In discussion with ACH, one option under consideration is a regime whereby the initial margin calculation takes into account participants' 'typical' exposures over time. Such an approach would avoid large daily swings in margin requirements as settling trades fall out of the calculation and new positions enter. Large concentrated positions would continue to be covered by additional collateral calls.

25 *During the assessment period, the system used by ACH to calculate notional initial and mark-to-market margin considered only exposures to the largest and most liquid 200 listed securities, which typically comprise more than 90 per cent of novated settlement value. Since the end of the assessment period, ACH has expanded the scope of its notional margin calculations to include other less-liquid securities. Within the expanded model, a very conservative notional initial margin is applied to the least actively traded securities, with no offset against other positions. As such, the expansion of the model has led to a material increase in total notional initial margin. The distribution of notional margin across participants has also changed, with significant increases for some smaller clearing participants, who tend to generate higher exposures to less-liquid securities. In absolute terms, however, notional initial margin for these participants generally remains low.*

26 *Or other routine collateralisation of cash equity market exposures in normal market circumstances.*

Default management project

As reported in the 2007/08 Assessment, the financial difficulties experienced by several ASX brokers during early 2008 highlighted a number of learning points around the detailed management of a default event. In light of this experience, ASX is now working to enhance default-management processes for both ACH and SFECC, with the aim of managing legal, operational and liquidity risks, and minimising potential losses and spillovers that could arise under such circumstances.

In a first phase of this project, ASX carried out a comprehensive analysis of 'default intentions', setting out clearly the factors to be taken into consideration, and the decisions to be taken during the default-management process. ASX identified three broad stages in this process: establishment of a default (identification of a trigger event and declaration of a default); close out of a defaulter's positions (for instance, whether and how to liquidate, hedge or transfer positions); and funding any losses arising in the close-out process (or indeed returning surplus funds to a liquidator).

During this phase of the work, ASX also examined legal factors that may impinge on its choice of actions in the default-management process, and in particular the interaction with insolvency law. In this context, ASX looked to international precedent and identified that certain provisions in US and UK law, for instance, afford protections to central counterparties that are not currently available under Australian Corporations law.

In a second stage, ASX will work towards implementation of identified enhancements to operational capabilities, data collection and reporting, and will further clarify the legal underpinning for the default intentions identified. ASX will also determine whether changes to ACH and SFECC Clearing Rules are required. If so, regulatory approval will be sought from ASIC. Some changes have already been implemented, including the formalisation of *ex-ante* arrangements with brokers to assist in the close out of a defaulting participant's positions, and some rule-book clarifications around the protections afforded by the *Payment Systems and Netting Act*.

The Reserve Bank welcomes ACH's review of default-management processes, which recognises that detailed *ex-ante* planning is critical to an effective close-out process. Indeed, lessons learned from recent events, and the default of Lehman Brothers in particular, are likely to continue to shape central counterparties', and their regulators', work in this area over the coming years.

Account segregation

One important issue that has attracted considerable attention in recent months, particularly following the failure of Lehman Brothers, is the segregation of house (proprietary) and client positions in central counterparties. Currently, in the case of cash equities, each participant has a single account with ACH which is used both for house and client transactions. For derivatives, client accounts are individually segregated. In consultation with participants during the assessment period, ACH sought feedback on proposals to introduce new account structures.

Under the proposals, clearing participants for cash equities would be required to operate a segregated omnibus client account. This would assist in the management of a clearing participant default, allowing client positions to be dealt with separately from house positions. For derivatives,

participants would have the option to continue to hold client positions in individually segregated accounts, or alternatively operate an omnibus client account.

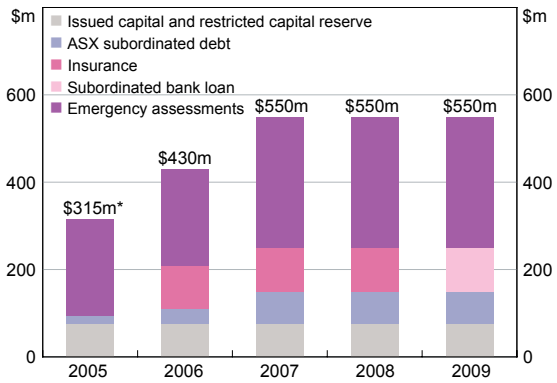
Segregation is regarded as industry best practice, with an omnibus client account structure (which provides netting efficiencies across clients) the most commonly observed internationally. An omnibus structure would also be consistent with practice at SFECC. In respect of cash equities, respondents to ACH's consultation stressed the high cost of moving to a segregated account structure. It was also noted that some of the protections afforded by segregation were available through individual segregation of securities accounts in CHESS and client recourse to the NGF.

Notwithstanding the high cost of transition, the Reserve Bank notes the importance of ensuring that ACH's arrangements in this area are consistent with international best practice. Furthermore, segregation would be particularly important should ACH proceed with routine margining of cash equities. In such circumstances, separate identification and attribution of margin posted in respect of client positions would be necessary, particularly in the management of a clearing participant default. ACH has accepted participants' views that the costs of account segregation outweigh the benefits in the near term, but retains segregation as a longer term objective. ACH also proposes to revisit the issue in the context of its forthcoming consultation on risk controls, in which routine margining of cash equities is to be considered.

Adequacy of ACH's risk resources

The risk resources available to ACH to meet losses arising in the event of a participant default comprise any margin or other collateral collected from the defaulting participant, and ACH's pooled risk resources. Having risen significantly between 2005 and 2007, the aggregate value of ACH's pooled risk resources remained at $550 million over the latest period (Graph 7).

Graph 7
ACH: Risk Resources
As at June



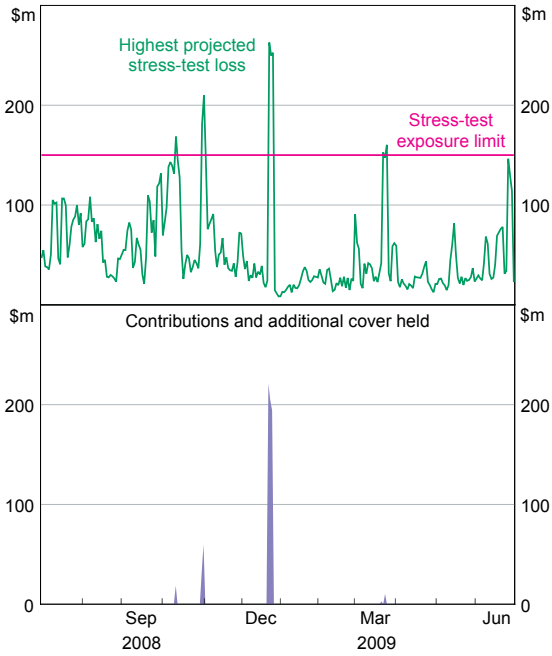
* An additional $15m was available from ACH's retained earnings.
Source: ASX

The composition of these resources did change, however. In particular, following the downgrade of Radian, ACH's provider of default insurance, to BBB- in April 2009, ACH took the decision to exit its insurance arrangement. This had been under review for some time, in light of earlier downgrades and in the context of a broader review of the composition of the central counterparties' risk resources. As a transitionary arrangement, ACH negotiated a fully drawn-down subordinated-loan facility from a commercial bank, increasing the fully paid-up component of risk resources from $150 million to $250 million. This also replaced $100 million of the $150 million committed liquidity facility previously in place from the same commercial bank provider.

Ultimately, ACH had intended to replace the default insurance component of risk resources with funds sourced from the issuance of principal-reducing notes by ASXCC, the legal holding company

for ACH and SFECC.[27] Given the turbulent conditions in financial markets, plans to issue these notes were placed on hold until towards the end of the assessment period and have since been postponed indefinitely. The Reserve Bank will remain in dialogue with ASX in relation to an alternate long-term source of funding to replace the insurance component of its pooled risk resources. This will be done in the context of a wider ranging discussion of the composition of pooled risk resources and the balance between own capital and other sources of funding. It is anticipated that issues around composition will also be referenced in ASX's forthcoming consultation on the central counterparties' risk control frameworks.

Graph 8
ACH: Highest Projected Stress-test Losses and Exposure Limit



Note: Participants are called to pay CAC whenever their projected stress-test losses exceed $150 million. This is the minimum value of paid-up risk resources required and effectively acts as a common STEL for all ACH participants. The upper panel presents the projected stress-test loss only for the participant with the highest projected loss, while the lower panel presents the aggregate of CAC posted by all participants with projected stress-test losses in excess of the STEL.
Source: ASX

Currently, ACH calls for CAC whenever a participant's projected stress-test losses on its cash equity and derivatives positions exceed a common stress-test exposure limit (STEL) of $150 million (taking into account any margin already posted). Until the recent exit from default insurance, $150 million was the fully paid-up component of ACH's pooled risk resources. Comparison of projected stress-test losses with the level of available risk resources or the STEL offers some guidance as to the resilience of the central counterparty to a participant default in extreme market conditions. During the assessment period, there were 13 instances of stress-test exposures exceeding the paid-up component of risk resources, reflecting the positions of four participants. As in previous periods, these excesses tended to be concentrated at quarter ends, reflecting large cash equity trades associated with the quarterly expiry of equity index futures contracts.[28] (Graph 8, top panel).

27 *That is, it had been intended that the principal value repayable by ASXCC would reduce in the event of a draw on the funds raised following either a participant default or the failure of a treasury investment counterparty. To support the debt issuance, ASX sought external credit ratings, with ratings of AA- and A assigned by Standard and Poors in June 2009 for ASXCC and the notes (based on indicative terms of issue), respectively. Throughout the period, ASX also continued to work on the legal basis for the new treasury and funding arrangements under ASXCC, liaising with the Reserve Bank and ASIC during this process.*

28 *These positions are related to index-arbitrage transactions. Index arbitrage is a trading strategy which seeks to profit from a difference between the actual and theoretical spread between futures prices and prices in the underlying physical market. The trading strategy involves taking either a long futures position and selling stock, or taking a short futures position and buying stock. The gains from the trading strategy are realised when the futures position expires: the futures position is liquidated and the stock is either bought (if stock had originally been sold) or sold (if the stock had originally been bought). The scale of these cash equity trades can cause spikes in ACH participants' projected stress losses.*

During the period, all projected stress-test losses in excess of $150 million were fully covered by CAC calls. As foreshadowed in the 2007/08 Assessment, ACH intends to introduce STELs that vary according to the ICR of the participant.[29] A similar regime is already in place at SFECC. In the recent *Review of Participation Requirements in Central Counterparties*, the Reserve Bank encouraged ACH to proceed with implementation of this regime, seeing this as a means of managing ACH's exposures to less well-capitalised participants. It is intended that this will be introduced early in the 2009/10 assessment period, following discussion with some potentially affected participants.[30]

The Reserve Bank regards reliance on variable collateral called under the CAC regime as an appropriate approach where projected stress-test excesses are relatively infrequent, short-lived or typically concentrated on a small number of participants, as has been the case in the past year. However, there are shortcomings to such reliance. In particular, as noted in the 2007/08 Assessment there will inevitably be a lag in calculation and settlement of additional collateral requirements, and in extreme circumstances calling for additional collateral could in itself precipitate a default.[31] The Reserve Bank therefore encourages ASX to establish some clear guidance on when the central counterparties would increase fixed risk resources (either routine margining or pooled resources). This guidance might consider factors such as the size, frequency and duration of calls for additional collateral, and their dispersion across participants.

Derivatives margins: system capabilities

In both the 2006/07 and 2007/08 Assessments, the Reserve Bank encouraged ACH to progress plans to introduce system capability to make intraday margin calls in response to sizeable intraday changes in participants' positions, as well as to changes in prices, which are already captured. This system enhancement had been planned as part of the second phase of ACH's ongoing Risk Management System (RMS) project, and was scheduled for implementation during the current assessment period. In the event, following a re-appraisal of project time-lines, ASX negotiated a narrower scope for this phase of work with the system vendor.

In conjunction with this reprioritisation, work on intraday capabilities was decoupled from the RMS project and brought within the scope of a broader project under which margin-setting calculations currently carried out under the Theoretical Intermarket Margin System (TIMS) methodology will be migrated from outsourced software to ACH's in-house Derivatives Clearing System (DCS). This project is expected to run until mid-2010. This is an interim measure, since ASX has announced that in time it intends to migrate both central counterparties' derivatives

29 *Furthermore, in normal market conditions, highly rated counterparties will be required to cover only a proportion of the excess exposure beyond the stated threshold. ACH would suspend discounting if the exponentially-weighted moving average (EWMA) of SPI S&P/ASX 200 volatility was 20 per cent higher than historical volatility.*

30 *Had the proposed new arrangements been in place during 2008/09, B-rated participants would have been called less often (on four occasions, rather than nine occasions), but C- and D-rated participants more often. C-rated participants would have been called five, rather than four times, and a D-rated participant would have been called on one occasion, whereas there were no calls on D-rated participants under the existing regime.*

31 *In the 2007/08 Assessment it was noted that, given the timing of ACH's daily stress tests, collateral can only be called in respect of the position at the close of the previous day's trading. Therefore, ACH can retain uncovered exposure for more than 24 hours (and longer over weekends). ACH was encouraged to give further consideration to how the regime might be enhanced so as to allow for calls to be made sooner after a large position had been executed. ACH confirmed that there would be system and technological challenges to addressing this in the near term.*

margining to the CME version of the Standardised Portfolio Analysis of Risk (SPAN) margining system (SFECC currently uses the RIVA version of the SPAN system).

While accepting the reasons for the delay in implementation of these system enhancements, and the need to prioritise project resources, the Reserve Bank reiterates its close interest in delivery of this intraday capability and will continue to monitor progress during the forthcoming assessment period.

Settlement of derivatives margins

Under current arrangements, ACH participants can choose whether to settle routine margin payments in respect of ASX derivatives positions via Austraclear or via the daily batch-settlement process in CHESS. Where settled in CHESS, settlement of margins – a key risk-management tool for ACH – is dependent on the completion of settlement in the cash equity market. The potential risk of such dependence was highlighted by the significant delays in the batch settlement of Australian equities transactions in January 2008. In the 2007/08 Assessment, the Reserve Bank encouraged ASX to consider the removal of ACH derivatives margins from the CHESS batch, requiring instead that all be settled via Austraclear. Having consulted with industry on this issue (along with a number of other possible enhancements to the equity settlement process, discussed in more detail in Section 5.3), ACH intends to proceed with the removal of derivatives margins from the CHESS batch.[32]

In a related development foreshadowed in the 2007/08 Assessment, ACH recently gained approval to operate an Exchange Settlement (ES) account with the Reserve Bank. ACH will use the account for margin-related funds movements and treasury investment-related settlements in the Reserve Bank Information and Transfer System (RITS). These payments were previously settled under an agency agreement with a commercial bank. The Reserve Bank supports this development, which should reduce operational risk and, by providing a vehicle for direct settlement in central bank money, reduce counterparty risk against ACH's commercial bank provider.

Treasury investment policy

In the 2007/08 Assessment, it was noted that both ACH and SFECC had revised their treasury investment policies, setting counterparty exposure limits within capital for all counterparties with the exception of the four largest domestic banks. While acknowledging the improvement over previous arrangements, the Reserve Bank expressed concerns around the potential size

32 *In considering the implementation, ASX identified a potential daylight principal risk associated with the exercise of low-exercise-price options (LEPOs). A LEPO is a European-style call option (ie, can only be exercised on expiry date) with a strike price of one cent. There is no up-front option premium and both buyer and seller pay margins through the life of the LEPO. Upon exercise at expiry, the buyer pays premium and final margin payments to the seller (via ACH) and the securities are transferred against consideration of just one cent. Since the final margin and premium payments represent the full value of the securities, where these are not settled in the CHESS settlement batch, a daylight principal risk arises between the time at which they settle in Austraclear and the time at which securities are transferred in CHESS. The Reserve Bank encouraged ACH to find a solution to this principal-risk issue as a matter of priority, particularly since it already arises where participants choose to settle their payments in Austraclear. ACH has identified a long-term solution, which involves settlement of securities delivered at expiry at the prevailing stock price, rather than the strike price of one cent . This will take some time to implement, however, and hence an interim solution has been proposed, whereby ACH will withhold all outward margin payments until it is has been confirmed that the CHESS batch has settled. The Reserve Bank accepts that this solution will mitigate the daylight principal risk faced by ACH in respect of LEPOs, but encourages ACH also to proceed with the longer term solution.*

and concentration of exposures to the major banks and undertook to continue to discuss these arrangements further with ASX.

Some refinements were made to the central counterparties' treasury investment policies during the period. These were in part associated with the establishment of the treasury investment mandate for ASXCC, which was approved by the ACH Clearing Board in October 2008. Among the most substantive changes, ASX introduced the concept of an Ordinary Liquidity Requirement (OLR), equal to 10 per cent of the relevant central counterparty's treasury portfolio. The establishment of the OLR recognises that a central counterparty can face high liquidity needs even in the absence of a default event, perhaps associated with the return of margin to participants, or the replacement of cash collateral with non-cash collateral. The OLR is calibrated to provide sufficient liquidity at a confidence interval of 99 per cent; liquidity requirements in excess of this level would be met through the sale or repo of investment assets. Overall, ACH must maintain, at a minimum, liquid assets equal to the sum of the Default Liquidity Requirement (which is currently set at $300m, less the amount of any committed or drawn-down standby facility) and the OLR.

During the assessment period, as counterparty credit risk concerns mounted, ASX reduced investment limits for some counterparties, with the effect that treasury investments became even more highly concentrated in the large domestic banks. The Clearing Board was content with this shift, seeing it as appropriate given the high credit standing of Australian banks relative to many overseas investment counterparties. Indeed, given prevailing conditions in the market for short-term Australian dollar paper, ASX did not see a viable alternative to concentrating investments with the largest domestic banks if the credit and liquidity profile of the portfolio was to be maintained. The Reserve Bank explored alternative treasury investment options with both central counterparties and acknowledges that there are currently constraints to implementing these. The main alternative models to unsecured treasury investment applied internationally are:

- *Disincentivising the use of cash collateral*: Central counterparties applying this model pay little or no interest on cash posted to meet margin calls. Combined with a list of eligible non-cash collateral assets typically restricted to government securities, this approach mitigates the investment counterparty risk associated with reinvestment of a cash margin portfolio. It does, however, introduce liquidity risk and reliance on committed liquidity facilities, and market risk also remains on the collateral assets posted.
- *Investing on a secured basis (reverse repo)*: In this case, funds are invested on a secured basis via repo arrangements, perhaps managed by a tri-party agent. The repos are typically of short maturity, ensuring adequate liquidity, and the assets taken in as security conform to restrictive credit-quality criteria (typically government securities).

In ASX's view, these models are not currently viable, given the absence of a deep and liquid market for government securities and, consequently, the small scale of the Australian dollar repo market. ASX considers that investments with the four largest domestic banks currently offer the best high-quality liquid alternative to government securities. However, were the domestic repo market to deepen, perhaps due to continued expansion of government debt issuance, ASX would consider exploring a secured alternative for at least a portion of the central counterparties' treasury

portfolios. The Reserve Bank acknowledges the current constraints, but encourages ASX to keep under review the various options for reducing concentration in its treasury investments.

Operational performance

ACH's core systems are DCS and CHESS. Details of operational performance during the period and relevant policy changes are provided in Section 6.

Harmonisation and linking of central counterparty activities

Since the merger of the Australian Stock Exchange and SFE Corporation in 2006, ACH and SFECC have continued to operate as separate central counterparties. In December 2008, ASX released a consultation document on the possibility of harmonising and linking the activities of the two central counterparties, with a view to taking advantage of potential efficiencies. Feedback was sought on several specific initiatives, including migration of both central counterparties to the latest version of the CME SPAN margining system, introduction of margin offsets between derivatives contracts cleared by ACH and SFECC, and establishment of a single point of lodgement for collateral. Comments were also sought regarding the full integration of the central counterparties.

Having considered the responses, ASX recently announced its conclusions.[33] As noted, it is intended that both central counterparties will in time migrate to CME SPAN margining. Analysis is also underway to assess the potential for introduction of margin offsets between the SPI equity index futures contract cleared by SFECC and the equity index options contract cleared by ACH. Other margin offsets will be considered over time, as will harmonisation of the definition of 'house account' across the two central counterparties. There was little support for the other initiatives proposed and these will not be pursued further in the near term.

New market operators

As reported in the 2007/08 Assessment, three companies have applied for market licences to offer competing trading platforms for ASX-listed equities. A decision has yet to be taken on these licence applications, but some work continued at ASX during the period to establish arrangements for the new trading platforms to clear and settle via ACH and ASTC. There was further dialogue with industry and market licence applicants on these arrangements, and in December 2008 ASX published draft high-level business requirements for the provision of these services to non-ASX trading platforms. The Reserve Bank remains of the view that arrangements which as far as possible mirror those in place to clear and settle trades executed on the ASX market should be consistent with continued compliance with the *Financial Stability Standard*.

33 *The document* Delivering Efficiencies to the Marketplace through the Harmonisation and Linking of CCP Activities: The Way Forward *may be found at: http://www.asx.com.au/about/pdf/market_information_paper_delivering_efficiencies.pdf*

Summary

It is the Reserve Bank's assessment that ACH 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 the following:

- *Risk-management actions during the market turbulence*: As market conditions became more volatile during the assessment period, ACH responded with more intensive participant monitoring, more frequent intraday margin calls, and pro-active increases in margin intervals.
- *Review of participant-monitoring arrangements*: Further to the broker failures of early 2008 and heightened counterparty credit concerns more generally, ASXMS undertook a review of participant-monitoring activities and launched a range of projects to enhance capital- and liquidity-monitoring arrangements. ACH also proceeded with an increase to minimum capital requirements and revised the time-line for implementation of further increases.
- *Review of default management processes*: ASX embarked on a thorough review of default-management processes, identifying key decision points and reviewing capabilities. In a second phase of the work, ASX aims to further clarify the legal underpinning for intended actions, identify any necessary rule changes, and implement identified enhancements.
- *Continued refinement to the risk framework*: ACH continued to refine its risk framework. Steps taken during the period included: exit from default insurance arrangements and replacement with a subordinated loan from a commercial bank; expansion of the range of stress-testing scenarios (and some scenario increases); progress towards implementation of ratings-dependent stress-test exposure limits within the CAC regime; and the prospective removal of ACH derivatives margins from the CHESS settlement batch. ASX also continued to work on the legal and operational arrangements for migration of treasury and funding arrangements to ASXCC, the central counterparties' holding company, though the proposed external issuance of debt by ASXCC has since been placed on hold indefinitely.

The Assessment also identifies a number of areas for further consideration by ACH during the forthcoming period. These include:

- *Routine margining of cash equities*: Notwithstanding that the size and duration of replacement-cost risk associated with cash equities is low relative to that in derivatives contracts, recent high volatility in the cash equity market argues in favour of ACH routinely collecting initial and variation margin over the three-day pre-settlement period. This would be consistent with the approach taken by many central counterparties internationally and the Reserve Bank welcomes ACH's decision to consult on this in the near future.
- *Account segregation*: ACH recently consulted on a proposal to require that clearing participants maintain separate house and client accounts for cash equities. Segregation would be consistent with international best practice in this area and would be particularly important should ACH proceed with routine margining of cash equities.

- *Triggers for an increase in fixed risk resources*: The Reserve Bank regards collateral calls under the CAC regime as appropriate where such calls are infrequent, short-lived or highly concentrated among a few participants. This has indeed been the case over the past year. Nonetheless, ACH is encouraged to develop clear guidance on the circumstances in which it would increase its fixed risk resources (either routine margining or pooled resources), rather than relying on additional collateral. As noted in the 2007/08 Assessment, there are shortcomings to relying too heavily on variable calls for additional collateral, particularly given lags in the calculation and settlement of such calls.
- *Review of the composition of pooled risk resources:* In light of the postponement of the proposed external debt issuance, the Reserve Bank will remain in dialogue with ASX in relation to the composition of the central counterparties' pooled risk resources. An important element of this will be ASX's plans in respect of an alternate long-term source of funding to replace the central counterparties' default insurance. It is anticipated that issues around composition will also be referenced in ASX's forthcoming consultation on the central counterparties' risk control frameworks.
- *Intraday margining capabilities*: The Reserve Bank accepts the basis on which ACH has delayed the implementation of system enhancements to improve intraday margining capabilities. However, the Reserve Bank reiterates its interest in delivery of these capabilities and will continue to monitor progress during the forthcoming assessment period.
- *Treasury investment policy*: The Reserve Bank acknowledges that existing treasury investment alternatives are limited for the ASX central counterparties and that it would be difficult to reduce the concentration of investments among the largest domestic banks without compromising credit quality or liquidity. However, were the domestic repo market to deepen, perhaps due to continued expansion of government debt issuance, ASX would consider exploring this alternative for at least a portion of the treasury portfolio. The Reserve Bank encourages ASX to keep under review the various options for reducing concentration in the treasury investment portfolio.
- *Participant-monitoring arrangements*: The Reserve Bank welcomes the enhancements to capital- and liquidity-monitoring arrangements at ASXMS. It is noted, however, that the central counterparties' arrangements for monitoring clearing participants may change further in due course, in light of the recent government announcement of reforms to the supervision of Australia's financial markets. The Reserve Bank will remain in dialogue with ASX and ASIC over 2009/10 to examine any implications of the reforms for clearing participant-monitoring arrangements.

5.2 SFE Clearing Corporation (SFECC)

Background

SFECC provides central counterparty services for derivatives traded on the SFE market.

SFECC operates within a sound legal framework, based on its Clearing Rules. Under Section 822B of the *Corporations Act*, these rules constitute a contract under seal between SFECC and each of its participants, and between participants. Among other things, the rules set out the rights and obligations of SFECC and each of its participants in respect of SFECC's provision of central counterparty services. The netting arrangements contained in SFECC's Clearing Rules are further protected under Part 5 of the *Payment Systems and Netting Act*.

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

- *Minimum participation requirements and ongoing monitoring*: SFECC participants are required to hold at least $5 million in NTAs. Over time, SFECC 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*: SFECC levies margin on all derivatives products to cover any losses potentially arising should a participant default in normal market conditions. SFECC also calls for Additional Initial Margins (AIMs) from participants when individually large and concentrated exposures are identified by capital stress testing.
- *The maintenance of pooled risk resources in a Clearing Guarantee Fund*: Should margin and other collateral collected from a defaulting participant prove insufficient to meet its obligations, SFECC 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 comprises $100 million in SFECC's own capital (including a subordinated loan provided by SFE Corporation), participant commitments of $150 million (of which $120 million is paid up in advance and $30 million is promissory), and default insurance of $150 million.

At the end of June 2009, SFECC had 15 participants, predominantly large foreign banks and their subsidiaries.

Assessment of Developments in 2008/09

Having implemented some significant enhancements to its risk controls in 2007/08, SFECC made only relatively small refinements to its risk and operating framework in the current assessment period, including to stress-test exposure limits and stress-test parameters. Additionally, further to the cash equity market broker failures of early 2008 and the more general focus on counterparty credit risk, ASX carried out detailed reviews of participant-monitoring arrangements and default-management processes for both ACH and SFECC. Finally, progress continued towards the migration of both central counterparties' treasury and funding activities to ASXCC. This year's Assessment considers these changes and also reviews actions taken by SFECC in response to the turbulent market conditions of late 2008.

Participant monitoring

Participant-monitoring arrangements were an important focus of the Reserve Bank's 2007/08 Assessment. Although the proximate trigger for the Reserve Bank's examination of these arrangements was broker failures in the cash equity market, the experience also highlighted some issues of relevance to SFECC. In particular, the Reserve Bank continued to engage with ASX around enhancements to participant-monitoring arrangements and also examined more generally the role of participant monitoring within the broader risk framework of a central counterparty (see Box A).

As described in the 2007/08 Assessment, monitoring of clearing participants is predominantly conducted by two units within ASX: ASXMS, a separate subsidiary with its own board; and Clearing Risk Operations, which is located within the central counterparties.[34] During the year, ASXMS reviewed its capital- and liquidity-monitoring arrangements and is in the process of implementing a number of enhancements. While most of these are relevant to monitoring participants' compliance with ACH's risk-based capital requirements (details in Section 5.1), one of the projects underway will also deliver an improved technical solution for delivery of NTA returns by SFECC participants.

As noted in the assessment of developments at ACH in Section 5.1, the recent government announcement of reforms to supervisory arrangements in Australia's financial markets may have implications for the central counterparties' monitoring of clearing participants. The Reserve Bank will be in dialogue with ASX and ASIC during 2009/10 to examine how these reforms may alter these arrangements.

Performance of SFECC during the market turbulence of late 2008

SFECC took a number of steps in response to the increase in market volatility in late 2008, including in the areas of participant monitoring, margining and stress testing.

As part of their participant-monitoring activities, SFECC and ACH assign ICRs, based on the external credit rating or NTAs of the participant or its parent. These credit ratings are used to better understand the distribution of risk exposures and assist in the interpretation

34 *ASXMS is responsible for capital and liquidity monitoring, as well as investigations and enforcement. Clearing Risk Operations focuses principally on day-to-day participant activity and monitors risk profiles, open positions and settlement of obligations to the central counterparties.*

of stress-test results (discussed below).[35] SFECC downgraded two participants within this framework during the heightened market uncertainty in late 2008.

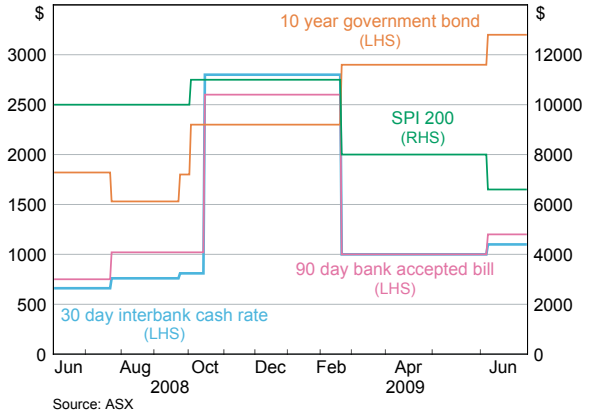
Clearing Risk Operations also maintains a 'watch list' of participants deemed to require more intensive monitoring. Up to six SFECC participants were included on this list during the assessment period, with three remaining on the list at end-June 2009. Participants on the watch list are subject to greater scrutiny in respect of the exposures they bring to the central counterparty, and where serious concerns arise restrictions may be placed on their trading or clearing activities.

SFECC also took steps to increase the degree of margin coverage in response to the heightened risks faced during the period. Initial margin rates are reviewed at least quarterly, or more frequently when market volatility rises and these rates are breached. In October 2008, SFECC carried out two reviews of initial margin rates for its main contracts (including, the SPI 200 futures contract, the 3 year and 10 year Commonwealth Treasury Bond futures contracts, the 90 day bank accepted bill futures contract, and the 30 day interbank cash rate contract). The resulting margin adjustments included sharp increases in margin rates, particularly for the major interest rate contracts. This led to large calls on participants, amounting to a total of $900 million in October 2008. The large increase in margin rates in late 2008 has since been largely reversed for many – though not all – contracts as market conditions have stabilised (Graph 9).

Graph 9

SFE Futures Initial Margin

Per contract



Source: ASX

SFECC also lowered the threshold for calling intraday margin, making calls in the event that initial margin was eroded by 40 per cent (or 30 per cent for participants on the watch list), rather than 50 per cent as previously. The lower erosion threshold, combined with the extremely volatile market conditions, meant that SFECC made almost 100 intraday calls in the final quarter of 2008, mostly in October, for a total of more than $6 billion. This compared with an average of less than 60 calls, averaging a little over $2 billion, in each of the preceding three quarters. Calls were individually large on occasion, the largest single call being for almost $400 million. As market conditions stabilised, the frequency of intraday calls declined. Just 19 calls were made in the first half of 2009, totalling less than $200 million.

SFECC also calls for AIMs to cover large and concentrated exposures identified via the stress-testing process. During October and November 2008, some high exposures were identified, which led to a peak in AIMs held of more than $300 million (see below). The extreme market

35 SFECC also uses ICRs to determine the threshold beyond which the AIMs cover will be called when large exposures are identified by stress testing.

conditions in late 2008 also resulted in some price movements that were close to the scenarios used by SFECC in stress testing. SFECC's annual review of its stress-test parameters in late 2008 resulted in increases to some parameters.

Default management project

As discussed in detail in Section 5.1, in light of the financial difficulties experienced by several ASX brokers during early 2008, ASX is working to enhance default-management processes for both ACH and SFECC. This project is directed towards managing legal, operational and liquidity risks and minimising potential losses and spillovers that could arise in the case of a default event. The Reserve Bank welcomes this review of default-management processes, which recognises that detailed *ex-ante* planning is critical to an effective close-out process.

SFECC's risk-management framework

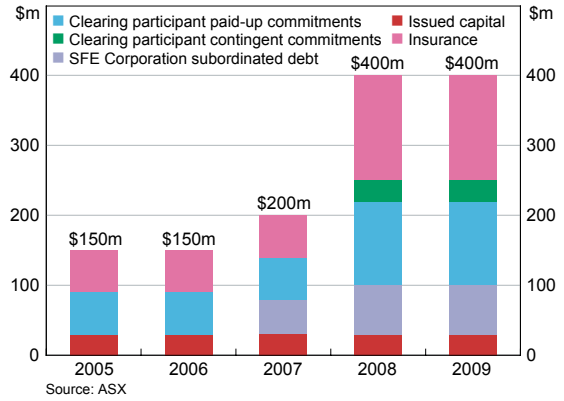
Some significant changes were made to SFECC's risk-management framework in the 2007/08 period, with the implementation of a new stress-testing methodology and an increase in the size of the CGF. By comparison, only relatively small refinements were made in the current assessment period, including to STELs and stress-test parameters.

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

There was no change to the margin-setting methodology during the period, although further to ASX's consultation on harmonisation and linking of the central counterparties, a decision was taken shortly after the end of the assessment period to migrate SFECC from the RIVA SPAN methodology to the latest version of CME SPAN. Some refinements were made, however, to risk-monitoring processes to allow more comprehensive assessment of margin coverage, taking into account a two-day as well as a one-day close-out period. SFECC also implemented some system changes to automate the monitoring of margin and collateral erosion and thereby support the intraday margining process.

The size of SFECC's CGF remained at $400 million during the period and its composition was unchanged (Graph 10). However, following a downgrade of the credit rating of its insurer, Radian, to BBB-, SFECC announced its intention to exit these arrangements in due course. While ACH had already exited its insurance arrangement with Radian, SFECC took the decision to retain its policy in the near term.

Graph 10
SFECC: Risk Resources
As at June

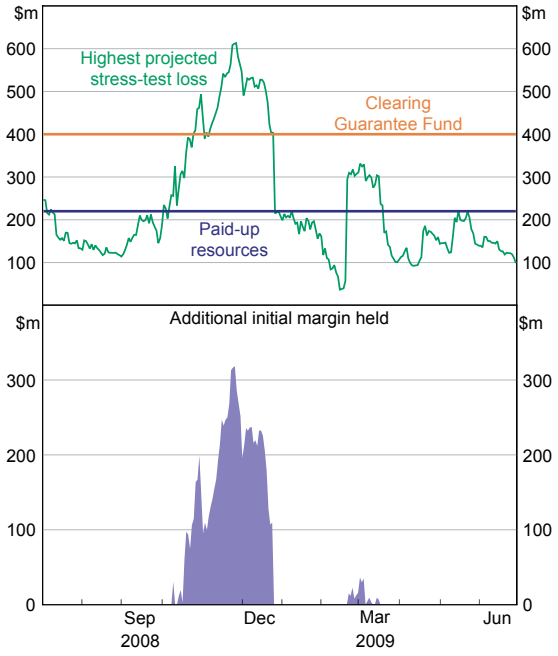


Source: ASX

Nevertheless, from 1 July 2009, SFECC temporarily reduced its participants' STELs to exclude the value of the insurance. That is, AIMs for higher rated participants will be called at a lower threshold projected stress loss. The STELs will be re-adjusted once the default-insurance coverage has been replaced. SFECC has indicated that if its insurer's credit rating falls further in the near term, it will accelerate its exit from these arrangements. Indeed, an 'in principle' subordinated-loan agreement, similar to that negotiated by ACH, has been reached with a commercial bank, which it is anticipated could be triggered at relatively short notice.

Ultimately, SFECC had intended to replace this component of risk resources with funds sourced from the issuance of principal-reducing notes by ASXCC, the legal holding company for ACH and SFECC. As noted in Section 5.1, the external issuance of debt has since been placed on hold indefinitely. It is now particularly important that attention be paid to securing an alternative source of funding to replace default insurance. The Reserve Bank will remain in dialogue with ASX on this matter over the forthcoming period, in the context of a broader discussion on the composition of pooled risk resources. It is also anticipated that issues around composition will be referenced in ASX's forthcoming consultation on the central counterparties' risk frameworks.

Graph 11
SFECC: Highest Projected Stress-test Losses



Note: Participants are called to pay AIMs whenever their projected stress-test losses exceed their allocated STELs. STELs correspond to the ratings in the central counterparty's ICR model and are calibrated with reference to the size of SFECC's Clearing Guarantee Fund and its components. The upper panel presents the projected stress-test loss only for the participant with the highest projected loss, while the lower panel presents the aggregate of AIMs posted by all participants with projected stress-test losses in excess of their STELs.
Source: ASX

Comparison of projected stress-test losses with the level of available risk resources or participants' STELs offers some guidance as to the resilience of SFECC to a participant default in extreme market conditions. During the assessment period, AIMs calls were made on 66 occasions, with these highly concentrated and all driven by open positions in the SPI 200 futures contract (Graph 11).

In response to the volatility in markets late in 2008, SFECC reviewed the parameters underpinning its stress-test scenarios. The strength of 17 of the scenarios was increased, including all of the single contract upward price-change scenarios. This had the effect of increasing AIMs calls.

The Reserve Bank regards reliance on variable collateral called under the AIMs regime as an appropriate approach where projected stress-test excesses are relatively infrequent,

short-lived or typically concentrated on a small number of participants. This was broadly the case during the assessment period: while such calls were frequent during the December quarter, they remained very highly concentrated and did not persist into the first half of 2009. However, as noted in the 2007/08 Assessment, there are shortcomings to reliance on variable collateral, not least arising from the lag in calculation and settlement of additional collateral requirements. At SFECC, this lag can be up to 42 hours. There is, therefore, a case for establishing some guidelines as to when SFECC would increase either routine margin coverage or the size of the CGF. This guidance might consider factors such as the size, frequency and duration of calls for additional collateral, and their dispersion across participants.

Treasury investment policy

In the 2007/08 Assessment, it was noted that both ACH and SFECC had revised their treasury investment policies, setting counterparty exposure limits within capital for all counterparties with the exception of the four largest domestic banks. While acknowledging the improvement over previous arrangements, the Reserve Bank expressed concerns around the potential size and concentration of exposures to the major banks and undertook to continue to discuss these arrangements with ASX.

Some further changes were made to the central counterparties' treasury investment policies during the period. These were in part associated with the establishment of the treasury investment mandate for ASXCC, which was approved in October 2008. Among the most substantive changes, SFECC introduced a liquidity stress-testing model to assess the adequacy of its liquidity arrangements. The model, which is similar to that used by ACH for some time, calculates the maximum liquid funds that SFECC would need to access in order to meet obligations arising in the event of a clearing participant default and is based on SFECC's capital stress tests.

The outcome of the liquidity stress test is compared with the liquid component of SFECC's CGF: the so-called Default Liquidity Requirement (DLR). The DLR is currently set at $220 million, comprising SFECC's own capital ($100 million) and the clearing participants' paid-up commitments ($120 million). Breaches of the DLR trigger a review of the adequacy of the DLR. This review takes into account the outcome of the capital stress test, as any AIMs calls will provide extra liquidity.

During the period, ASX also formalised the concept of an OLR, a portion of the treasury portfolio to be kept in liquid assets to meet liquidity requirements unrelated to a participant default. Liquidity needs might arise, for instance, when initial margin is returned to a participant following the close out of a position. The OLR has been set equal to 10 per cent of the value of the treasury portfolio. The total liquidity requirement for SFECC is equal to the sum of the DLR and OLR.

As described in the Assessment of ACH in Section 5.1, the central counterparties increased further the scale of their treasury investments with the large domestic banks over 2008/09, reflecting the favourable relative credit standing of these banks as counterparty credit risk concerns mounted internationally. The Reserve Bank's continuing concerns around the resulting concentration in the treasury investment portfolio are also discussed in detail in Section 5.1, and ASX is encouraged to keep under review the various options for reducing such concentration.

Operational performance

SFECC's core system is the SECUR system. As noted in the 2007/08 Assessment, SFECC recently brought in-house some of the support for this system, which had previously been provided by NASDAQ OMX. In November 2008, SFECC finalised a new agreement with NASDAQ OMX in respect of 'third-level' support from the software developers.[36] Details of operational performance during the period and relevant policy changes are provided in Section 6.

Summary

It is the Reserve Bank's assessment that SFECC 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 the following:

- *Risk-management actions during the market turbulence*: As market conditions became more volatile during the assessment period, SFECC responded with more intensive participant monitoring, more frequent intraday margin calls, and pro-active increases in margin rates.
- *Review of default management processes*: ASX embarked on a thorough review of default-management processes for both central counterparties, identifying key decision points and reviewing capabilities. In a second phase of the work, ASX aims to further clarify the legal underpinning for intended actions, identify any necessary rule changes, and implement identified enhancements.
- *Continued refinement to the risk framework*: Some refinements to SFECC's risk framework were made during the period. Most notably, SFECC announced its intention to exit from its default insurance arrangement with Radian, following the insurer's ratings downgrade. As an interim measure, SFECC reduced the threshold beyond which calls would be made for additional initial margin. Further steps were taken through the period to provide the legal underpinning for migration of both central counterparties' treasury and funding arrangements to ASXCC, the central counterparties' holding company, though the proposed external issuance of debt by ASXCC has since been postponed indefinitely.

The Assessment also identifies a number of areas for further consideration by SFECC during the forthcoming period. These include:

- *Triggers for an increase in fixed risk resources*: The Reserve Bank regards collateral calls under the AIM regime as appropriate where such calls are infrequent, short-lived or highly concentrated among a few participants. This has generally been the case over the past year. Nonetheless, SFECC is encouraged to develop clear guidance on the circumstances under which it would increase its fixed risk resources (either routine margining or pooled resources), rather than relying on additional collateral. As noted in the 2007/08 Assessment, there are shortcomings to relying too heavily on variable calls for additional collateral, particularly given lags in the calculation and settlement of such calls.

36 *Similar new contractual arrangements were finalised for Austraclear's principal system, EXIGO.*

- *Review of the composition of pooled risk resources:* In light of the postponement of the proposed external debt issuance, the Reserve Bank will remain in dialogue with ASX in relation to the composition of the central counterparties' pooled risk resources. An important element of this will be ASX's plans in respect of an alternate long-term source of funding to replace the central counterparties' default insurance. It is anticipated that issues around composition will be referenced in ASX's forthcoming consultation on the central counterparties' risk control frameworks.
- *Treasury investment policy*: The Reserve Bank acknowledges that existing treasury investment alternatives are limited for the ASX central counterparties and that it would be difficult to reduce the concentration of investments among the largest domestic banks without compromising credit quality or liquidity. However, were the domestic repo market to deepen, perhaps due to continued expansion of government debt issuance, ASX would consider exploring this alternative for at least a portion of the treasury portfolio. The Reserve Bank encourages ASX to keep under review the various options for reducing concentration in the treasury investment portfolio.
- *Participant-monitoring arrangements*: The Reserve Bank welcomes the enhancements to capital- and liquidity-monitoring arrangements at ASXMS. It is noted, however, that the central counterparties' arrangements for monitoring clearing participants may change further in due course, in light of the recent government announcement of reforms to the supervision of Australia's financial markets. The Reserve Bank will remain in dialogue with ASX and ASIC over 2009/10 to examine any implications of the reforms for clearing participant-monitoring arrangements.

5.3 ASX Settlement and Transfer Corporation (ASTC)

Background

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

ASTC operates within a sound legal framework, based on its Settlement Rules. Under Section 822B of the *Corporations Act*, these rules constitute a contract under seal between ASTC and each of its participants, and between participants. Among other things, the rules set out the rights and obligations of ASTC and each of its participants, including in the event of default or suspension. ASTC'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 ASTC participant or a payment provider.

ASTC's securities settlement system is CHESS. Settlement risk in CHESS is mitigated by the use of a Model 3 DVP mechanism, whereby settlement of securities transfers and associated cash payments occurs in a multilateral net batch at around noon each day, with interbank payments made across ES accounts at the Reserve Bank. Securities title is updated upon notification of funds settlement.

Assessment of Developments in 2008/09

Following the disruption to the equity settlement process in January 2008, the Reserve Bank published a *Review of Settlement Practices for Australian Equities* and recommended that ASTC consider a number of enhancements to its settlement arrangements. In the 2007/08 Assessment, the Reserve Bank focused particular attention on two of the recommendations: modifications to improve the functioning of the existing batch-settlement model; and improving the transparency of securities lending activity. In the 2008/09 Assessment, the Reserve Bank focused on ASTC's progress towards meeting these recommendations. At the time of the 2007/08 Assessment, ASTC had already announced its intention to deliver enhancements in a third area of interest, the settlement-fails regime, which were ultimately implemented during this assessment period.

Modifications to improve the functioning of the existing batch-settlement model

Following significant delays to the completion of settlement of Australian equities transactions on two days in January 2008, the Reserve Bank carried out a detailed review of settlement arrangements.[37] The review recommended a number of potential enhancements to the equity settlement process, which were subsequently discussed in detail with ASX.

37 *The document*, Review of Settlement Practices for Australian Equities, *is available at: http://www.rba.gov.au/PaymentsSystem/StdClearingSettlement/Pdf/review_sttlmt_prac_aus_equities_052008.pdf*

ASTC has since made a number of changes to equity settlement practices to improve the robustness of the settlement process. One important development was the introduction of an earlier start-of-day for CHESS applications. The problems in early 2008 were in part related to the participant receiving new settlement instructions close to 10.30am – the deadline for new batch-settlement instructions – leaving little time for arrangements to be made to meet any resultant change in its settlement obligations. Accordingly, from 1 December 2008, CHESS transaction processing commenced two hours earlier – at 6am rather than 8am – allowing final batch-settlement instructions to be received earlier and thus giving more time for settlement problems to be identified and resolved.

Steps have also been taken both to improve communication to participants about their responsibilities in the clearing and settlement processes, and to enhance the flow of information to the market more generally when incidents occur.

In December 2008, ASX released a consultation document *Enhancing Australia's Equity Settlement System*, in which participants' feedback was sought on some further potential enhancements.[38] The Reserve Bank remained in close dialogue with ASX throughout the consultation process. The changes due to be implemented in the near term, announced in early September 2009, include the following:[39]

- *A firm deadline for the back out of settlement obligations*: ASTC plans to establish a firm deadline for the back out of settlement obligations in the event that a participant fails to meet its payment obligations (although some flexibility will be retained in the event of operational problems). Had such arrangements 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 and spillover to the market at large.
- *Increasing ASTC's powers to facilitate same-day settlement of backed-out settlement obligations*: Since the incidence of batch recalculation could increase once a firm deadline for the back out of settlement obligations has been imposed, ASTC proposes to seek rules-based powers to require and facilitate the intraday settlement of certain backed-out settlement obligations if this was deemed necessary to avoid further disruption to the settlement process.
- *Removal of ACH derivatives margins from the CHESS settlement batch*: This will ensure that ACH's risk-management arrangements are not dependent on the completion of settlement in the cash equity market. This is discussed in more detail in Section 5.1.
- *Development of standards for payment providers*: ASX consulted on the possibility of pre-agreed settlement limits for payment providers (ie, those settling funds obligations on behalf of settlement participants), so as to avoid delays associated with the approval of settlement obligations for their clients. Following the consultation process, rather than proceed with pre-agreed limits, ASTC decided to work towards establishing a set of standards for payment providers.

38 *The document* Enhancing Australia's Equity Settlement System, *is available at: http://www.asx.com.au/about/pdf/consultation_paper_enhancing_equity_settlement_system.doc*

39 *The document* Enhancing Australia's Equity Settlement System: The Way Forward *may be found at: http://www.asx.com.au/about/pdf/market_information_paper_enhance_equity_settle.pdf*

Further to the consultation with participants, ASTC decided not to proceed with some other proposed changes. Amongst these, ASTC decided not to remove certain cash equity transaction types from the batch and will not require that all participants connect to CHESS RTGS (the settlement functionality in CHESS that allows individual securities and funds transfers to be settled on a DVP basis in real time, rather than in the once-daily net batch settlement).

The Reserve Bank views the real-time gross settlement (RTGS) mode of settlement as a useful contingency vehicle for DVP settlement: (i) should a batch-settlement problem arise and some settlement obligations have to be backed out and rescheduled; and (ii) should transactions not be submitted in time to enter the batch-settlement process. ASTC acknowledges these benefits and, although it has decided not to pursue mandatory connectivity, it will strongly encourage participants to connect. The Reserve Bank encourages ASTC to keep mandatory connectivity to CHESS RTGS under consideration, at least for the largest settlement participants in respect of which the systemic benefits of a contingent vehicle for same-day DVP settlement are likely to be greatest.

Transparency of securities-lending activity

The Reserve Bank made the case for improved transparency of equities securities lending in its *Review of Settlement Practices for Australian Equities*. The disruption to equity settlement in January 2008 arose, in part, from a participant's inability to meet obligations arising from securities-lending transactions. This episode revealed that, since securities-lending transactions are currently settled in the CHESS settlement batch alongside equity trades that have been novated to ACH, any disruption to their settlement can have spillover effects to settlement in the wider market. For this reason, the Reserve Bank saw a strong case for ASTC, regulators and market participants to have access to data on activity in the securities-lending market, and the scale of outstanding positions. With this information, participants would gain a better understanding of potential future settlement risks and the role of securities lending in broader market functioning. Transparency of this activity would also improve the balance of information in the market; currently, only those directly involved in these transactions have access to such information.

The Reserve Bank undertook extensive consultation with ASX and market participants on these issues during the assessment period. This process included the release of a consultation document in October 2008 proposing a variation to a measure of the *Financial Stability Standard for Securities Settlement Facilities* to require that facilities settling equity transactions collect and publish data on securities lending activity. Industry input to the design of the disclosure regime proved extremely valuable and the details of implementation were ultimately finalised (and the variation to the Standard given effect) in February 2009 (see Section 4). The key features of the implementation are:

- Real-time tagging of all securities loan-related settlement instructions submitted to CHESS. These data will be particularly useful for ASTC as operator of the securities settlement facility, to give visibility of loan-related transactions submitted for settlement and allow settlement performance of such trades to be monitored effectively.

- Daily reporting to ASX of settlement participants' outstanding on-loan and borrowed positions, by security. These data will offer a gauge of outstanding loans which might be subject to recall, and allow for separate identification of chains of loans. The Reserve Bank will also work with ASX and others to encourage non-settlement participants to provide similar data on a voluntary basis.
- Quarterly reporting of the aggregate number of shares committed to lending programs by settlement participants. The Reserve Bank will also work with ASX and the industry to obtain these data from non-settlement participants on a voluntary basis.
- Daily publication by ASX of the number and value of tagged transactions and the aggregate on-loan position in each security. These will be published alongside relevant comparative statistics and explanatory notes.

ASX is working towards implementation of real-time tagging by 2 November 2009. This will be implemented as part of a new release of the CHESS software. Direct positional reporting is due to be implemented in December 2009. In the meantime, a pilot phase for the direct positional reporting began in late May 2009, during which the Reserve Bank is working with ASX and reporting parties to refine the requirements, test systems and processes, and ensure data quality.

Settlement-fails regime

In the context of examining the incidents in January 2008, ASX and the Reserve Bank also considered measures to minimise the potential for settlement failures. Although low by international standards, at substantially less than one per cent, such failures can nevertheless impose costs on the wider market. Accordingly, a number of changes were made to ASTC's arrangements for dealing with settlement fails.

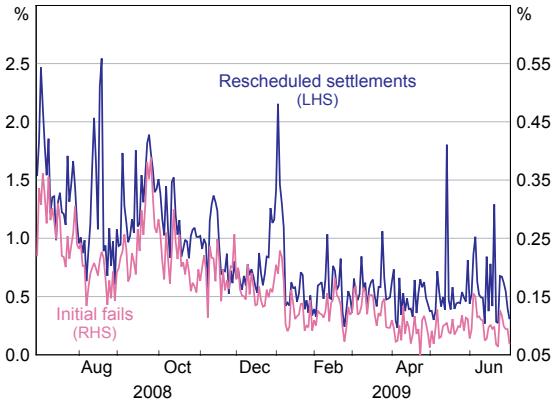
As reported in the 2007/08 Assessment, ASTC now provides participants with settlement performance statistics for themselves and their peer group. In order to further increase incentives to settle on time, as of 1 September 2008 the minimum daily settlement-delay fee charged to participants was raised from $50 to $100 per failed transaction, and the maximum fee was raised from $2 000 to $5 000. The value-based fee of 0.1 per cent of the transaction value was unchanged. ASX reported that under the previous fee structure participants often absorbed the minimum settlement-delay fee rather than passing it on to clients, with the majority of fails (by number) being for small amounts.

Action was also taken to limit the duration of any settlement delay. From 30 March 2009, ASTC Settlement Rules require participants to close out any position remaining unsettled two days after the scheduled settlement date (ie, on the fifth day after the trade date). Should such action not be taken, disciplinary procedures would be accelerated.

These changes appear to have succeeded in reducing the incidence of settlement fails. With the exception of a transitory increase in settlement fails during the period of market turbulence in late 2008, the settlement-fail rate has drifted lower throughout the assessment period.

Graph 12

Rate of Initial Fails and Settlements Rescheduled to Next Settlement Day*



* A trade is recorded as an initial fail if the trade cannot settle due to insufficient stock on the original scheduled settlement date, which is three business days after the trade date (ie, t+3). A trade is recorded as a rescheduled settlement if, having failed to settle on the scheduled settlement date, it is rescheduled for settlement on the next business date (ie, t+4). If that trade fails to settle on the rescheduled date, it will again be rescheduled for settlement on the next business date (ie, t+5) and will again be recorded as a rescheduled settlement.

Source: ASX

The average rate of initial fails was above 0.2 per cent in the September 2008 quarter; this had dropped to around 0.1 per cent by the June 2009 quarter (Graph 12).

Operational performance

ASTC's key system is CHESS. Details of operational performance during the period and relevant policy changes are provided in Section 6.

New market operators

As noted in the Assessment of ACH (Section 5.1), ASX has remained in dialogue with industry on clearing and settlement arrangements for trading platforms seeking licences to offer alternative markets in ASX-listed securities. A number of key decisions in respect of these arrangements are seen as being dependent on the detail of the ministerial decision on the licence applications. The Reserve Bank will assess the implications of any new arrangements for the risk profile of ACH and settlement processes at ASTC once a decision is made.

Summary

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

The Reserve Bank welcomes the measures taken by ASTC in response to the *Review of Settlement Practices for Australian Equities*, including the enhancement to the settlement-fails regime, and the preparations for implementation of securities-lending disclosure.

The Reserve Bank also welcomes the consultation process undertaken by ASX in respect of modifications to the existing settlement model, and in particular the decisions to introduce firm deadlines for completion of batch settlement and to remove settlement of ACH derivatives from the batch. The Reserve Bank does, however, encourage ASTC to keep under consideration making connectivity to CHESS RTGS mandatory, at least for the largest settlement participants.

5.4 Austraclear

Background

Austraclear operates a securities settlement facility for trades executed in the OTC market for fixed income securities, including government bonds and repos.

Austraclear operates within a sound legal framework, based on its Regulations. Under Section 822B of the *Corporations Act*, these have effect as a contract under seal between Austraclear and each of its participants, and 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 an 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, with simultaneous transfer of securities title in Austraclear.

Assessment of Developments in 2008/09

The operating framework of Austraclear was broadly unchanged during the assessment period, with only some small changes to the legal framework, and some expansion of its agency services. The principal focus of the 2008/09 Assessment was again operational risk management, in part reflecting a lengthy outage to Austraclear's EXIGO system in March 2009.

Operational risk management

As noted in the 2007/08 Assessment, Austraclear brought in-house some of the support for its key EXIGO system in April 2008. This had previously been provided by NASDAQ OMX.[40] In November 2008, Austraclear finalised a new agreement with NASDAQ OMX in respect of the so-called 'third-level' support provided by the products' suppliers (manufacturers, software developers etc).

Overall during the period, the EXIGO system achieved availability of 99.91 per cent. One significant operational outage occurred, however, with the system unavailable for 2½ hours on 25 March 2009. In the event, the system was restored shortly after 3.00pm and all of the day's transactions were successfully settled. However, a 30 minute extension to the RITS settlement day was required. The outage was caused by an accidental change to code within the live production database, carried out by a system support staff member who was simultaneously connected to both the live and test environments. Steps have since been taken to physically separate the test and production systems. ASX has also tightened its procedures around access to the production

40 *Similar new 'in-sourcing' arrangements were introduced for SFECC's principal system, SECUR.*

system, formalising arrangements for monitoring and auditing access, and obtaining senior approval. ASX does, however, see an advantage in certain staff retaining authority to access the production system without first obtaining formal procedural approval from senior staff. This flexibility might, for instance, be valuable to expedite system recovery following an operational failure. ASX emphasises, however, that such authority would be granted (and used) only rarely, under strict guidelines.

The Reserve Bank is satisfied that Austraclear is taking appropriate steps to address the specific issues raised by this incident and will follow up with Austraclear once the new arrangements have been fully implemented.

Some issues were also raised by a separate incident in December 2008, in which users accessing EXIGO via an internet connection were unable to do so. Although Austraclear switched to its business-recovery system to facilitate access for these users, it was found that some participants had misconfigured their firewalls, preventing access to the business-recovery system. So as to avoid a recurrence of this incident, ASX enhanced its testing plans to specifically test internet connectivity to the business-recovery system every six months. The next such test is scheduled for October 2009.

The Reserve Bank carried out a more detailed examination of operational risk issues for all four ASX facilities in this assessment period, with findings presented in Section 6.

Legal framework

During the year, Austraclear prescribed three additional circumstances in which a participant must withdraw securities from the system:

- An insolvency event occurs with respect to the obligor in relation to the security.
- Austraclear considers it is desirable to remove the security, under its obligations as a CS facility licence holder.
- An event occurs which, in Austraclear's opinion, is likely to result in the paying agent failing to effect a payment in relation to the security when it is due.

Changes to this effect were made to the Austraclear Procedures.

New products and services

Austraclear finalised operational changes required to introduce new agency arrangements. These included the following changes: clarifications to Austraclear's service offering; a new form of agency agreement; enhanced customer-relationship management; and revised fees for some services. Most of the changes came into effect on 1 July 2009, with new fee categories effective from 3 August 2009.

Summary

It is the Reserve Bank's assessment that Austraclear complied with the *Financial Stability Standard for Securities Settlement Facilities* during the assessment period. Further to the operational incident in March 2009, however, the Reserve Bank will continue to monitor closely the operational performance of Austraclear and the control procedures in place to ensure ongoing system resilience.

6. Special Topic: Operational Risk Management

Measure 9 of the *Financial Stability Standard for Central Counterparties* and the equivalent Measure 7 of the *Financial Stability Standard for Securities Settlement Facilities* set out the relevant requirements for licensed CS facilities in the management and control of operational risk. These measures require that the licensee as operator of a facility identify sources of operational risk and minimise these through the development of appropriate systems, controls and procedures.

These measures elaborate on this high-level requirement under four broad headings:

(i) Security and operational reliability;

(ii) Business continuity procedures;

(iii) Outsourcing; and

(iv) External administration of a related body.

Each of these aspects is assessed by reference to further requirements set out under the measures themselves or in the supporting guidance.

In this assessment period, the Reserve Bank undertook a detailed assessment against the operational risk measure for all four licensed CS facilities. While each facility's operational risk-management arrangements are consistent with the guidance for this measure, the Reserve Bank encourages ASX to keep its arrangements under review to ensure that they continue to meet evolving best practice in this area. The Reserve Bank will also continue to monitor implementation of enhancements to operational risk-management processes recommended by internal and external auditors, and some specific changes at Austraclear introduced in response to an operational outage in March 2009.

This section first describes the overarching framework for operational risk management in the ASX group, before identifying the key findings for each of the four elements outlined above. Since all four licensed facilities are part of the same corporate group, a common operational risk-management policy is applied. In what follows, therefore, the four facilities are treated collectively, unless stated otherwise.

Risk-management Framework

ASX's operational risk policies and controls have been developed within a group-wide risk framework. The broad framework is set out in an Enterprise Risk Management Policy, with responsibilities in respect of operational risk management delegated as follows:

- The *ASX Limited Board* is responsible for approving and reviewing high-level operational risk policy.
- The Board delegates certain activities to an *Audit and Risk Committee*. In particular, this Committee oversees the application of the Board's policy.

- An *Enterprise Risk Management Committee*, comprising executives from across the business units, is responsible for implementing Board-approved risk-management policy and developing controls, processes and procedures to identify and manage risks. This Committee is also responsible for formally approving significant operational risk policies prepared by individual business units.
- Individual *business units* are responsible for: identifying business-specific risks; applying controls; maintaining risk-management systems; reporting on the effectiveness of risk controls; and implementing enhancements and taking remedial action, as appropriate. Each business unit is required to maintain a record of its risk profile, reviewing this on a six-monthly basis and updating as appropriate. This record includes 'key risk indicators' and action plans to address any identified risk that is not adequately mitigated. Policies are formally reviewed every 18 months to three years. More frequent reviews may take place depending on potential changes to technology, legal or regulatory requirements, or business drivers.

Assessment against the Operational Risk Measure

(i) Security and operational reliability

This aspect of the measure covers the security, operational reliability and capacity of a CS facility's key systems. Technical change-management processes and the experience and expertise of relevant key personnel are also considered in this context.

In the case of ASX's clearing and settlement operations, the key systems are the following:

- CHESS – the system supporting central counterparty services and securities settlement services for cash equity products;
- DCS – the key system supporting ACH's central counterparty services in the derivatives market;
- SECUR – the system supporting SFECC's central counterparty services for the SFE market; and
- EXIGO – the settlement engine underpinning Austraclear's settlement service for fixed income products.

Key findings under this aspect of the measure for these systems are detailed below.

(i) (a) Key systems, such as computer and communication systems, are secure, reliable and have robust access controls, with security reviewed and tested periodically.

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

User access for the key systems is restricted to prevent inappropriate or unauthorised access to application software, operating systems and underlying data. The level of access is authorised by the system owner with users granted the minimum level of access to systems necessary to

perform their roles effectively. External access to ASX systems must pass through one or more layers of firewalls and intrusion prevention. Individual networks are segregated.

The process to request access to systems is documented, monitored and formally audited. User activities are uniquely identifiable and can be tracked via audit-trail reports. A re-validation process is also conducted periodically to confirm user access and privileges. ASX made changes to its access arrangements during the year as a result of an outage to EXIGO (see Section 5.4), which arose when a system support staff member was simultaneously connected to both the live and test environments. Steps have since been taken to physically separate the test and production systems.

Technology-security policy is considered by external auditors in the context of their reviews, which take place twice a year. Internal audit also routinely monitors compliance with such policy, reporting to the Audit and Risk Committee (and CEO) on a quarterly basis. Audit findings may prompt a review of policy, which would be conducted in consultation with key stakeholders.

Testing of technology-security policy is carried out against production infrastructure where possible. This includes penetration testing against the ASX perimeter and vulnerability testing within the perimeter. Application-level testing is carried out in test environments. Technology-security testing reports are documented, with identified problems escalated to management and tracked through to remediation. Similarly, any technology-based operational incidents are reported to senior management and issues are tracked through to resolution via regular updates.

(i) (b) Key systems are operationally reliable, with standards of operational reliability defined formally and documented.

Operational processes are documented and supported by internal procedures (eg, checklists and audit logs). Dual input checks, management sign-off and processing checklists are the primary preventative controls, supported by reconciliations and management reviews of activity.

The design and effectiveness of the control procedures supporting the core operational and system processes are subject to regular independent external audit and internal audit. Any deviations from internal control procedures (eg, extensions to scheduled times, transaction cancellations, etc) are recorded, reported and, as required, actioned and resolved.

Quality assurance for critical hardware and software is achieved via pre-release testing and fault monitoring. This includes both functional and non-functional testing, regression testing, and commissioning of new/changed capabilities.

Critical IT infrastructure is designed to ensure resilience against component failure. There is full redundancy at the primary site, with any single points of failure identified and processes developed to ensure that recovery can occur. Any additional procedures required are recorded in the system support and recovery documentation.

Availability targets are documented and defined formally for critical services (a minimum target of 99.8 per cent). In the case of Austraclear, a 'Step-in and Service Agreement' established with the Reserve Bank demands a slightly higher target for system availability. This agreement reflects the interdependence between Austraclear and the Reserve Bank's high-value payments system, RITS. Actual system availability by system is shown in Table 1.

Should an infrastructure failure nevertheless occur at the primary site, failover to the back-up site is targeted to occur within one hour for all systems, allowing for up to two hours in the event that there is also an application and/or data problem.[41]

Where incidents do occur they are prioritised as high, medium or low, according to a pre-defined assessment of business impact by class of incident. Where appropriate (ie, for medium- and high-classified incidents), the incident is raised to both the relevant business unit and group managers and, in particularly critical instances, the CEO. Regular reporting of significant incidents to the Clearing and Settlement Boards and the Audit and Risk Committee also takes place.

*(i) (c) **Systems have sufficient capacity to process the expected volumes of transactions with the required speed, including at peak times and on peak days.***

Capacity for critical systems is monitored on an ongoing basis, with monthly reviews of current and projected capacity requirements. The results are reviewed against established guidance for capacity headroom over peak recorded values for all critical systems; that is, to maintain 50 per cent over peak recorded daily volumes, with the ability to increase to 100 per cent over peak within six months. Capacity data are reported monthly to the CEO. While there is no known limitation to scalability for any ASX key system, any infrastructure upscaling beyond verified target levels is preceded by appropriate analysis and testing. Capacity utilisation by system is shown in Table 1.

Table 1: System Availability and Capacity – 2008/09
Per cent

System	Average availability	Average capacity utilisation	Peak capacity utilisation
DCS	100.0	22	44
CHESS	100.0	35	67
SECUR	100.0	25	43
EXIGO	99.91	30	58

In addition to technical capacity, ASX policy also requires that it has sufficient human resource capacity to operate the clearing and settlement systems during peak periods, including in the event of operational incidents or system failure.

System monitoring is in place to identify and escalate issues, including potential performance issues. Regular management review of system performance is also undertaken, with monthly updates to the CEO and quarterly reporting to the Audit and Risk Committee.

*(i) (d) **Changes to technical systems and supporting infrastructure do not disrupt its usual operations.***

This measure requires that all procedures relating to change management be thoroughly documented, and that procedures include notification to participants where significant changes occur. It also requires that all changes be thoroughly tested outside a production environment.

41 *'Failover' refers to the capacity to switch over to a standby system in the event of an operational disruption.*

ASX operates separate test environments for each system and has a formal, documented change-management process. This includes procedures for emergency changes, whereby all system changes must be documented and formally signed off by stakeholders. All changes are reviewed on a weekly basis. External stakeholders may be consulted depending on the nature of the proposed change.

However, during the year, EXIGO experienced a significant operational outage that was caused by a change to code within the live production database that was intended for the test system (see Section 5.4). Steps have since been taken to physically separate the test and production systems and tighten access procedures for the production system. The Reserve Bank is satisfied that Austraclear is taking appropriate steps to address the specific issues raised by this incident and will continue to monitor the implementation of the new arrangements.

(i) (e) ***The system has well-trained and competent personnel to ensure that all key systems are operated securely and reliably.***

Staff are provided with relevant policies and guidelines from commencement of employment, with weekly communications thereafter. For particularly critical updates, policies are distributed to staff via e-mail with a required response from staff indicating that they have read, understood and agree to all aspects of the policy.

Clearing and settlement operational staff are evaluated with reference to each defined operational process. A rating scale is applied to each staff member in respect of a defined process. The rating, determined by the relevant team leader, establishes a staff member's ability in respect of particular processes, including exception processing and troubleshooting. This performance measure feeds through to future training and development needs. On-the-job training within a review/coaching process is provided for new staff. Thereafter, ASX maintains a process list and rotates staff to ensure that analysts are carrying out each task at a minimum every two months.

ASX has a formal succession-planning and management process in place. This aims to ensure leadership continuity in key positions, develop intellectual and knowledge capital, and encourage individual development. Succession and contingency planning is conducted for Group Executives, General Managers and key/critical staff. Related to this, a 'Key Person Framework' is reviewed by Group Executives and Human Resource officers on a quarterly basis. This tracks ASX critical employees in terms of career- and leadership-development opportunities. The framework enables the Human Resources unit to identify cross-training needs so as to minimise critical knowledge being held by a single individual.

ASX staff retention is within the range for financial services businesses more generally.

(ii) Business continuity procedures

This aspect of the measure requires that the system operator has in place arrangements to ensure the timely recovery of its operations in the event of a disruption, ie, the failure of one or more components of the system.

(ii) (a) ***The operator should have detailed contingency plans, including backup arrangements for its critical communications and computer systems and key personnel.***

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. ASX is in the process of revising its business continuity policy. External auditors recommended that this policy review be finalised and that it include periodic risk assessment. This process is expected to be complete by the end of the fourth quarter of 2009.

The risk that an operational incident at ASX's main site disrupts ASX functionality is mitigated through maintenance of a backup site. The ASX backup site is remote from the Sydney CBD and is supported by separate power, water, and telecommunications infrastructure. While there is full redundancy for all core systems at the primary site, this is currently true only for EXIGO at the backup site. The case for introducing dual architecture to ensure redundancy for all four systems is currently being examined in the context of ASX's ongoing review of business continuity policy.

ASX has procedures in place to manage the availability of specific staff skill sets in the event of a contingency. Migration to the backup site is targeted to occur within one to two hours, with clearing and settlement systems operable from the backup site for at least 30 days. The backup systems include real-time data mirroring, designed to ensure no data loss in the event of a contingency.

Best practice continues to evolve in the area of business continuity and ASX is encouraged to keep arrangements under review. One possible enhancement being considered is maintenance of a permanent operational staff presence at the backup site. Staff from ASX's data centre are currently permanently located at the backup site, but ASX is considering the case for also maintaining a core staff presence for other key operational functions. This would facilitate rapid recovery in the event of a disruption, and staff familiarity with the site.

ASX is also in the process of finalising an updated Pandemic Response Plan covering detailed business-unit plans and considerations. The Reserve Bank encourages ASX to complete this and in this context welcomes ASX's decision to review its remote-access capabilities. Currently, remote access capability covers 69 per cent of clearing risk operations staff, 29 per cent of clearing and settlement operations staff, and 90 per cent of information technology staff. ASX is conducting a feasibility assessment of further expansion of this capacity and the Reserve Bank will monitor progress on this matter.

In the extreme case that one or more participants were unable to access either the primary or backup sites, established procedures allow for the relevant CS facility to act as agent in communicating with the core operational systems.

(ii) (b) The operator should require its participants to have appropriate complementary arrangements in the event of a contingency.

The Operating Rules for each of the CS facilities 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 (matching ASX's own timetable for shifting operations to the backup site). Failure to comply with the rules may result in the application of a variety of sanctions, including immediate restrictions to functionality, or

referral to ASXMS, which may lead to further disciplinary action. ASX systems are designed to prevent disruption to clearing and settlement activities associated with the operational failure of any individual participant. Participants are also involved in business continuity tests (see (ii)(c)).

(ii) (c) The operator should undertake regular industry testing of its business-recovery arrangements.

Business-recovery arrangements are tested on a regular basis.

Representatives of ASX CS facilities attend the backup site on a monthly basis to perform connectivity and procedural testing. Live tests (ie, where market and clearing and settlement services are provided in real time from the backup site), are conducted on a two-year cycle for each system (full rehearsals are undertaken prior to such testing to minimise possible associated risks). In these tests, participants connect to systems at the ASX backup site from their primary sites via ASX primary site communications infrastructure, as do any interdependent systems.

Test results are formally documented and reported to ASX senior management and are also made available to internal and external auditors (internal audits may be driven by any material change to ASX's business continuity policy or related risk profile). Any issues arising from test results are recorded and tracked to resolution.

Recent external audit findings suggest some scope to enhance business continuity tests. Currently, the plans include testing whether systems fail over as planned. However, as this is achieved by way of a well-planned switchover of systems before start of business, rather than a simulated fail during the course of the day, a risk remains that failover may not occur as intended, leading to delay and potential loss of data. The external auditor has therefore recommended that ASX consider testing to validate failover capability for infrastructure and applications so as to confirm no data lag or loss for key systems. ASX has undertaken to review various failover test approaches and the Reserve Bank intends to follow up with ASX on this matter.

(ii) (d) Conduct regular reviews of the adequacy of these arrangements and make such changes as are necessary and desirable.

The adequacy of ASX's business continuity procedures is reviewed regularly, as part of broader reviews of ASX's operational risk policy.

(iii) Outsourcing

This aspect of the measure requires that security, operational reliability and business continuity procedures extend to systems and processes that have been outsourced. The CS facility licensee as operator must ensure that service providers meet the same standards as apply to the operator with respect to the function outsourced. Furthermore, even when systems and processes are outsourced, the operator remains responsible for those systems and processes.

No operational functions are outsourced by any ASX CS facility. 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.

In addition, both SFECC and Austraclear rely on NASDAQ OMX to provide third level support and development for software products. In the event that NASDAQ OMX should fail,

ASX has established escrow arrangements to allow the relevant source codes to be accessed, and hence such support to be provided internally (the same arrangements require NASDAQ OMX to provide assistance and training to allow such a transition). Similar arrangements would apply should NASDAQ OMX withdraw its service.

ACH also currently relies on an external vendor for the software underpinning margining for DCS (that is, TIMS software, discussed in Section 5.1). Plans are underway to remove this reliance, and to integrate the TIMS margin calculations within DCS.

Dependencies on other system operators are also relevant. Both ASTC and Austraclear are 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

This aspect of the measure requires that the CS facility licensee as operator ensure that it would have access to the necessary human, technical and other resources needed to continue operating in circumstances where a related body became subject to external administration.

Within the ASX group 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 clearing and settlement corporate entities to continue operating, those entities would be able to retain use of resources under provisions within the written support agreement between each licensed operator and ASX Operations Limited (to the extent permissible by law).

Summary

Over time, ASX has developed detailed policies and procedures to ensure the operational robustness of the key systems supporting the four CS facilities. It is the Reserve Bank's assessment that ASX's arrangements are consistent with the operational risk measure of the *Financial Stability Standards*.

Nevertheless, the Reserve Bank notes that best practice in respect of operational risk continues to evolve and the licensed CS facilities should respond both to this evolution and to specific issues identified by unfolding events. ASX's review of business continuity policy is welcome in this regard, including review of the case for introducing full redundancy for all four key systems at the business-recovery site and potential extension of remote-working arrangements. Another possible enhancement being explored in this context is to permanently locate some operational staff at the site, so as to facilitate rapid recovery in the event of a disruption, and staff familiarity with the site.

The Reserve Bank will also continue to monitor implementation of enhancements to operational risk-management processes recommended by internal and external auditors. These include: completion of business-unit level pandemic planning; ongoing enhancement/update of detailed business-resumption plans; and an assessment of whether to include 'failover testing' within regular business continuity tests. Finally, the Reserve Bank will also monitor the implementation of process enhancements specifically related to the EXIGO outage in March 2009.

Attachment: Detailed Information Relevant to Assessment against the Financial Stability Standards

A1. Financial Stability Standard for Central Counterparties

There are 10 measures that the Reserve Bank considers relevant in determining whether a facility has met the *Financial Stability Standard for Central Counterparties*. The full text of the measures and associated guidance is available on the Reserve Bank's website. The following provides summary details of the information the Reserve Bank has used to assess ACH and SFECC against each of the relevant measures. This updates the information presented in the Reserve Bank's 2007/08 Assessment for material changes in policies and procedures over 2008/09.

A1.1 Australian Clearing House (ACH)

1. Legal framework

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

ACH Pty Limited is a wholly owned subsidiary of ASX Clearing Corporation, itself a wholly owned subsidiary of ASX Limited. It acts as the central counterparty for cash equities, equity derivatives, certain interest-rate products and warrants traded on the ASX market.

The legal basis for ACH's operations is set out in its Clearing Rules. Under Section 822B of the *Corporations Act*, these rules have effect as a contract under seal between ACH and each of its participants, and between each participant and each other participant. Furthermore, the netting arrangements contained in ACH's Clearing Rules 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. During the assessment period, ASX implemented some rule-book clarifications around the protections afforded by this Act.

ACH's Clearing Rules 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 Clearing Rules 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;

ACH has objective and transparent participation requirements, which are publicly available and form part of the Clearing Rules and Procedures. The Clearing Rules 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 2009, ACH had 57 participants – 55 of these were also ASX market participants, while two 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;

ACH'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 maintaining a minimum of $2 million in 'core liquid' 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. Work on an additional risk category, underwriting risk, continues, and a project was launched during the assessment period to refine the risk-calculation methodology for a number of other transaction types (including securities lending and margin lending). Participants that clear futures only may elect to be covered by an alternative capital regime, based either on a net tangible asset requirement[42] or compliance with the regime of another prudential supervisor. At the end of the assessment period all but two of ACH's 57 participants were subject to the risk-based regime; the remaining two were subject to net tangible asset requirements.

ACH has announced its intention to implement a further increase in the minimum capital requirement for participants operating under the risk-based regime. This was the subject of a joint review by ASIC and the Reserve Bank in early 2009. Following this review, ACH adjusted the time-line for implementing this increase and now intends to raise minimum requirements in two stages: $5 million in mid-2010, and $10 million in January 2012 (with a higher requirement for third-party clearers).

Participants are subject to ongoing monitoring by ACH, with this conducted by two units within ASX, ASXMS and Clearing Risk Operations:

- The monitoring, assessment and investigation of matters relating to financial requirements is dealt with by the capital- and liquidity-monitoring unit of ASXMS, a separate subsidiary within the ASX group with its own board. Participants are required to submit capital and liquidity returns on a monthly basis, which ASXMS then monitors for exceptions (an improved technical solution is under development for the delivery of these reports). ASXMS applies a number of triggers for follow-up enquiries, including: a fall to below 1.7 in the ratio of liquid capital to the total risk requirement; sustained losses on outstanding positions; and a significant fall in liquid capital held. More stringent reporting requirements apply where a participant's capital falls below certain stated thresholds.
- Clearing Risk Operations, a unit located within the central counterparties, focuses on day-to-day participant activity and monitors risk profiles, open positions and settlement of obligations to the central counterparties. It also determines and reviews participants' ICRs,

42 *Under this regime, participants must hold a minimum of $5 million in NTAs.*

drawing on information provided by participants in their returns to ASXMS. The ICR is based on the participant's 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. ASX Clearing Risk Operations 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 ASXMS, 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.

ACH has developed policies that allow for relevant information to flow between ASXMS and other business units within ASX. These are embodied in a 'Supervisory Code of Conduct' and 'Commercial and Supervisory Conflict of Interest Policy', which together aim to ensure that potential conflicts between ASX's supervisory responsibilities and its commercial interests are avoided. During the assessment period a formal monthly liaison meeting between ASXMS, Clearing Risk Operations and Clearing and Settlement Operations was introduced, to facilitate the exchange of clearing risk-relevant information on clearing participants.

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

ACH participants are subject to requirements regarding technical and operational capacity, including business continuity. Standards for business and management integrity also apply, aimed at ensuring compliance with the ACH Clearing Rules.

(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.

ACH has wide-ranging powers to sanction its participants in order to preserve the integrity of the central counterparty. ACH may 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 Clearing Rules which 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 is suggestive of negligence, incompetence or dishonesty. Where a breach has been identified and the participant has taken appropriate steps to rectify it, ACH 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 ASXMS.

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.

ACH's Clearing Rules and Procedures are comprehensive and publicly available. The Rules and Procedures explain the role and responsibilities of each category of participant and ACH.

Some background information on ACH's operations and risk management is also available on the ASX website.

ACH must lodge any changes to its Clearing 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. ACH consults with its participants on important rule changes, and notifies participants of all changes to the Clearing Rules or 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 ACH's Clearing Rules. Through the process of novation, ACH takes on the financial obligations of the seller to the buyer, and the buyer to the seller. The obligations of ACH are to each clearing participant as principal, irrespective of whether that participant is acting as an agent 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 Clearing Rules. These specify that a broker-to-broker transaction on the ASX market is novated to ACH upon the acceptance and registration of the details of that market transaction within the clearing system. For physical equities transactions, novation occurs almost immediately after the matching of the trade on the market. In the case of derivatives transactions, novation takes place on the evening of the day of the trade, when trade details are allocated to participants' accounts.

5. Settlement

Settlement arrangements must ensure that the central counterparty's exposures are clearly and irrevocably extinguished on 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, ACH utilises the settlement facility provided by ASTC.
- Payments to or from the central counterparty, including margin payments relating to derivatives positions. In this instance, the facilities provided by either ASTC or Austraclear may be used.

In each case, ACH 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 ACH's Clearing Rules and are protected as a 'netting market' under Part 5 of the *Payment Systems and Netting Act*.

ASTC's settlement process involves the use of a Model 3 DVP mechanism, whereby cash payments and securities transfers are settled simultaneously in a single daily multilateral net batch. As the outcome of this process, ASTC participants face a net cash settlement obligation to or from ASTC and a net securities settlement obligation in respect of each line of stock. Once participants' net obligations have been calculated, ASTC confirms that sufficient securities are

available in each participant's securities account in CHESS. The transfer of securities within the system is then restricted until the settlement process has been completed. Net cash payment obligations are forwarded for settlement in RITS across payment providers' ES accounts. Once cash settlement has been confirmed, ASTC effects the net transfer of securities within CHESS.

Under current arrangements, ACH participants can choose whether to settle routine margin payments in respect of ASX derivatives positions via Austraclear or alongside securities-related settlement obligations in the daily batch-settlement process in CHESS. Where a participant elects to settle derivatives margin obligations using Austraclear, settlements are made via cash transfers. These settle in real time across ES accounts, again via RITS. Having consulted with industry, ACH intends to require that all derivatives margins payments be settled via Austraclear. This is consistent with the requirement that all intraday margin payments and obligations under the CAC regime be settled via Austraclear.

Settlement in both ASTC and Austraclear is final and irrevocable. In the case of ASTC, finality is supported both by its Settlement Rules and ASTC's approval under Part 3 of the *Payment Systems and Netting Act*. Settlement according to Austraclear's Regulations is also final and irrevocable by virtue of its approval under Part 2 of the *Payment Systems and Netting Act*.[43]

In a related development, foreshadowed in the 2007/08 Assessment, ACH recently gained approval to operate an ES account with the Reserve Bank. ACH will use the account for margin-related funds movements and treasury investment-related settlements in RITS. These payments were previously settled under an agency agreement with a commercial bank. This agency arrangement will continue to be used in relation to securities-related settlements in CHESS.

ACH also clears grain and wool futures. These instruments may be physically settled through commodity warehouses, with ACH 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. In meeting this requirement, the CS facility licensee as operator of the central counterparty must:

(a) require its participants to inform it 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.

ACH's Clearing Rules set out notification requirements that participants must meet in relation to a default. A participant is required to inform ACH should it default under the Clearing Rules.

43 *As noted, interbank transactions arising from settlements in ASTC and Austraclear are settled in RITS across ES accounts held with the Reserve Bank. RITS is also approved under Part 2 of the* Payment Systems and Netting Act.

A range of default events are set out in the Clearing Rules, including: the appointment of an external administrator (or a reasonable expectation that one will be appointed); a breach of ACH's capital requirements; or a failure to meet payment or settlement obligations to ACH.

(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.

The Clearing Rules provide ACH with the authority and flexibility to deal with a participant default and to ensure that settlement of novated positions occurs. For equities, ACH is able to reschedule any settlements involving the failed participant, or those affected by its failure. ACH may also enter into market transactions to sell or purchase securities to facilitate the settlement of novated transactions. For derivatives, ACH has the ability to close out a defaulted participant's positions, or to seek to transfer the client positions of the defaulted participant to a surviving participant.

These rules are supplemented by an internal default-management plan. ASX is working to enhance default-management processes for both central counterparties, with the aim of managing legal, operational and liquidity risk, and minimising potential losses and spillovers that could arise in a default scenario. In a first stage of this work, ASX has sought to clarify key decision points and 'default intentions'. In a second stage, ASX will establish whether any changes are required to its Clearing Rules to support its default intentions. Some steps have already been taken, including the conclusion of a formal *ex-ante* agreement with a broker to assist in the close out of a defaulting participant's positions.

ACH also has a range of financial resources available to ensure that it can meet its obligations in the event of a participant default (Measure 7).

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 on ensuring that the combination of risk controls applied achieves a very low probability of failure of the central counterparty.

At the core of ACH's risk controls is its financial resources. 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 ACH's participation requirements and participant-monitoring arrangements (Measure 2).

i. Margins

ACH levies margin on equity derivatives products, but does not do so for cash equities.

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 distribution of price movements until a position can be closed out, assuming a close-out period of either one or two days. ACH 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 in volatile market conditions.

ACH calculates total initial margin requirements across each participant's portfolio using the internationally accepted TIMS methodology, developed by the Options Clearing Corporation. ACH has a project underway to migrate the calculation of margin under the TIMS methodology to ACH's in-house DCS.

Margin requirements are calculated overnight based on closing contract prices each day, and are notified to participants the next morning. If settled via Austraclear, margin obligations must be met by 10.30am; if settled via ASTC's CHESS batch process, obligations are typically met by around noon. Participants generally meet their margin obligations using cash, although they may also use non-cash collateral. In this regard, ACH recently introduced new collateral eligibility criteria. These new criteria place greater emphasis on credit quality and liquidity. As such, some less-liquid assets are no longer accepted (eg, warrants, perpetual income securities and partly-paid shares), and only the top-200 equities are eligible under the new rules, unless these are posted as specific cover for an options position. Changes have also been made to better manage the potential risk of correlated default of a participant and collateral issuer (eg, where parental collateral is posted). Appropriate haircuts are applied where non-cash collateral is posted.

In the event of sharp price movements intraday, ACH may also call mark-to-market margin intraday. This must be met by participants within two hours of notification. In order to facilitate timely settlement of intraday margin calls, ACH has imposed a requirement that these be settled via Austraclear. While at present ACH is only able to calculate intraday margin calls on the basis of price movements, planned system enhancements will also enable calls to be made on the basis of changes in participants' positions.

Under the so-called CAC regime, a participant is also required to post additional collateral should stress-test outcomes (see below) reveal that the projected stress loss arising from its positions as at the close of the previous day exceed a common STEL of $150 million. Until recently, this was the sum of ACH's fully paid-up risk resources. Calls under this regime are typically made on participants by 9.30am 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 ADI.

ACH has announced that it will introduce a regime whereby STELs are linked to a participant's ICR. Furthermore, in normal market conditions, highly rated counterparties will be required to cover only a proportion of the excess exposure beyond the stated threshold.[44] Such a regime is already in place at SFECC (see A1.2).

ii. Guarantee Fund

ACH maintains additional pooled financial resources to protect against losses in excess of margin and other collateral assets posted by a defaulting participant. ACH 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); subordinated debt issued to ASX Limited ($75 million); and a fully-drawn subordinated loan from a commercial bank ($100 million, which replaced ACH's default insurance in June 2009). ACH also has the right under its Clearing Rules 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.

ACH uses daily capital stress tests to monitor the risks undertaken by individual participants and the adequacy of the central counterparty's financial resources. In December 2008, ACH implemented a new range of stress-test scenarios which significantly increase the information it has to undertake this analysis. Stress tests are based on 99 scenarios, each calibrated to a one-in-30-year probability of occurring. The scenarios cover extreme price moves and volatility shifts at the market-wide, sector, and individual stock levels.

In respect of both cash margin collected and pooled risk resources, ACH invests funds in accordance with a defined treasury investment policy, endorsed by the ACH Clearing Board. 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. Eligible investment counterparties are APRA-supervised ADIs, with a minimum short-term credit rating of A1. With the exception of instruments issued by the four largest domestic banks, individual counterparty limits are set within the value of ACH's

44 *ACH would suspend discounting if the EWMA of SPI volatility was 20 per cent higher than historical volatility. ACH uses seven years of daily SPI movements for both volatility measures.*

capital resources. Concentration limits also apply (the maximum exposure to any investment counterparty is 33 per cent).

The policy also sets upper limits for the average maturity of investments and the market risk of the portfolio (ie, price value of a basis point), and an overarching liquidity requirement based on assumed 'ordinary' liquidity needs (eg, for the return of margin to participants) and liquidity needs in the event of a default (a so-called DLR). To ensure the adequacy of the DLR, ACH carries out regular liquidity stress tests. The DLR is currently set at $300 million and is met by liquid assets held in respect of its paid-up capital resources of $250 million, and a further $50 million available under a committed standby facility from a commercial bank.

iii. Loss sharing

ACH does not use loss sharing arrangements.

8. Governance

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

The ACH Clearing Board is responsible for oversight of the operation of the central counterparty. It meets between six and eight times each year, and receives detailed reports on ACH's business and operations, risk management and financial performance. It is responsible for approving capital, liquidity and stress-testing arrangements.

The Clearing Board consists of eight directors. These include four executive directors from ASX management (including the CEO and finance director), two ASX Limited non-executive directors, and two independent directors. The independent directors are appointed for their skill and expertise in clearing and settlement operational and risk-management matters. The eight directors filling these positions are also on the boards of SFECC, ASTC and Austraclear. SFECC and Austraclear share a common chair, as do ACH and ASTC.

The risk policy and risk operations areas within the ASX group are functionally separate, with each having separate reporting lines to the Clearing Board. In addition, an internal Capital and Liquidity Committee provides focus to capital and liquidity issues across the ASX group.

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.

Details of the operational risk-management procedures across all four licensed CS facilities in the ASX group are provided in Section 6.

10. Regulatory reporting

CS facility licensees, as operators of central counterparties, are required to meet certain reporting obligations to the Reserve Bank under the *Financial Stability Standard 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. ACH satisfied all reporting obligations during the assessment period.

A1.2 SFE Clearing Corporation (SFECC)

1. Legal framework

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

SFECC is a wholly owned subsidiary of ASX Clearing Corporation, itself a wholly owned subsidiary of ASX Limited. It acts as the central counterparty for the SFE.

The legal basis for SFECC's operations is set out in its Clearing Rules. Under Section 822B of the *Corporations Act*, these rules have effect as a contract under seal between SFECC and each of its participants, and between each participant and each other participant. Furthermore, the netting arrangements contained in SFECC's Clearing Rules 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. During the assessment period ASX implemented some rule-book clarifications around the protections afforded by this Act.

SFECC's Clearing Rules 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 Clearing Rules 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;

SFECC has objective and transparent participation requirements, which are publicly available and form part of the Clearing Rules and Procedures. The Clearing Rules 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 2009, SFECC had 15 participants. Of these, 13 were also participants of the SFE, while two provided specialist clearing and settlement 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;

SFECC's 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. SFECC has announced that this minimum will be raised to $10 million for clearing participants that are not ADIs, and to $20 million for those clearing for third parties. The timing of this change has not yet been finalised, although it is likely to be linked to the timing of increases to minimum capital requirements for ACH participants. Participants are obliged to lodge a detailed financial report with the capital- and liquidity-monitoring unit of ASXMS on a monthly basis, or more frequently in the event that their NTAs fall below a certain threshold.

Participants are subject to ongoing monitoring by SFECC, with this conducted by two units within ASX, ASXMS and Clearing Risk Operations:

- The monitoring, assessment and investigation of matters relating to financial requirements are dealt with by the capital- and liquidity-monitoring unit of ASXMS, a separate subsidiary within the ASX group with its own board. Participants are required to submit NTA returns on a monthly basis, which ASXMS then monitors for exceptions.
- Clearing Risk Operations, a unit located within the central counterparties, focuses on day-to-day participant activity and monitors risk profiles, open positions and settlement of obligations to the central counterparties. It also determines and reviews participants' ICRs, drawing on information provided by participants in their returns to ASXMS. The ICR is based on the participant's 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. ASX Clearing Risk Operations 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 ASXMS, 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.

SFECC has developed policies that allow for relevant information to flow between ASXMS and other business units within ASX. These are embodied in a 'Supervisory Code of Conduct' and 'Commercial and Supervisory Conflict of Interest Policy', which together aim to ensure that potential conflicts between ASX's supervisory responsibilities and its commercial interests are avoided. During the assessment period a formal monthly liaison meeting between ASXMS, Clearing Risk Operations and Clearing and Settlement Operations was introduced, to facilitate the exchange of clearing risk-relevant information on clearing participants.

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

Under the Clearing Rules, the SFECC Board 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 Clearing Rules, a clearing participant may be automatically suspended under a number of circumstances, including the participant's default, the appointment of external management, or the breach of financial requirements. The SFECC Board can also suspend a clearing participant for misconduct, breaches of the Clearing Rules, 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.

SFECC's Clearing Rules and Procedures are comprehensive and publicly available. The Rules and Procedures explain the role and responsibilities of participants and SFECC. Background information on SFECC's operations and risk management is also available on the ASX website.

SFECC must lodge any changes to its Clearing 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. SFECC consults with its participants on important rule changes. Announcements affecting participants are issued as 'SFE Notices'.

4. Novation

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

(a) the nature and scope of novation;

The nature and scope of novation is set out in SFECC's Clearing Rules. Through the process of novation, SFECC takes on the financial obligations of the seller to the buyer, and the buyer to the seller. The obligations of SFECC are to each participant as principal, irrespective of whether that participant is acting as an agent 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 Clearing Rules. These specify that a transaction on the SFE market is novated to SFECC upon the registration of a matched trade by the market. Non-market trades are novated once their details have been approved and registered by SFECC.

5. Settlement

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

The vast majority of SFECC 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, SFECC calculates the net obligations of each of its participants. SFECC participants calculated to have a net obligation to the central counterparty are required to make payments to SFECC in Austraclear by 11.00am each morning. Once these payments have been received, SFECC makes payments to those participants with a net obligation from the central counterparty. Interbank settlement of these payments occurs between participants' appointed bankers across ES accounts at the Reserve Bank. SFECC holds an ES account.

In some cases, the settlement of derivatives contracts cleared by SFECC involves the transfer of a security or physical asset, with a corresponding transfer of cash. For each type of security or asset, SFECC's arrangements ensure that delivery occurs if, and only if, payment occurs and vice versa. For 90-day bank accepted bill futures, SFECC utilises the standard settlement process in Austraclear. The delivery of greasy wool is via a warehouse, with SFECC retaining title documentation until payment has been made.

The settlement of obligations is final and irrevocable according to the terms of SFECC's Clearing Rules and SFE's Market Rules, 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 its approval under Part 2 of the *Payment Systems and Netting Act*. Any interbank transactions arising from these settlements are settled 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. In meeting this requirement, the CS facility licensee as operator of the central counterparty must:

(a) require its participants to inform it 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.

SFECC's Clearing Rules require that participants inform SFECC immediately in the event of a default, or if there is a reasonable expectation of such an event. The Clearing Rules envisage a

number of possible events of default. These include: becoming subject to external administration; being unable to meet obligations relating to open contracts; and being in breach of the central counterparty's risk-control requirements, such as failing to fulfil margin or other payment obligations to the central counterparty.

(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.

The Clearing Rules provide SFECC with the authority and flexibility to deal with a participant default. SFECC has the ability to close out any open contracts, to exercise or terminate open contracts, or to seek to transfer client positions along with related margin payments.

These formal rules are supplemented by an internal default management plan. ASX is working to enhance default-management processes for both central counterparties, with the aim of managing legal, operational and liquidity risk, and minimising potential losses and spillovers that could arise in a default scenario. In a first stage of this work, ASX has sought to clarify key decision points and 'default intentions'. In a second stage, ASX will establish whether any changes are required to its Clearing Rules to support its default intentions. Some steps have already been taken, including the negotiation of an *ex-ante* agreement with a broker to assist in the close out of a defaulting participant's positions.

SFECC also has a range of financial resources available to enable it to act on the default powers set out above and to meet its obligations as central counterparty (see Measure 7).

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 on ensuring that the combination of risk controls applied achieves a very low probability of failure of the central counterparty.

At the core of SFECC's risk controls are its financial resources. These comprise: margin and other collateral calls based on participants' positions; and pooled financial resources of $400 million (of which $220 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 SFECC's participation requirements and participant-monitoring arrangements (Measure 2).

i. Margins

SFECC levies margin on the derivatives products it clears.

Initial margin is calibrated so as to cover three standard deviations of the distribution of price movements until a position can be closed out, assuming a close-out period of either one or two days. All margin rates are reviewed on a three-monthly cycle, with the possibility of more frequent *ad hoc* reviews in times of market volatility.[45]

SFECC calculates total initial margin requirements across each participant's portfolio using the internationally accepted SPAN methodology. Margin requirements are calculated overnight based on closing contract prices each day, and are notified to participants by 7am the next morning. Margin obligations must be met via Austraclear by 11.00am – breaches of any margin payment deadline are escalated to ASXMS 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, certain equities, and foreign-currency deposits. Haircuts are applied in respect of all non-cash collateral posted. Among recent changes to its collateral eligibility criteria, SFECC excluded parental/self guarantees, so as to reduce the possibility that SFECC faced the correlated default of a clearing participant and a collateral issuer.

SFECC 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, SFECC is also able to call variation margin intraday, based on movements in either positions or 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.

SFECC also uses a system of AIMs, based on participants' exposures in SFE's four largest contracts. AIMs are intended to cover potential losses from large, concentrated positions with the central counterparty in extreme market conditions. SFECC calculates potential exposures using a system of stress tests (see below) and makes AIMs calls to cover projected stress losses in

45 *With the exception of electricity contracts which are subject to a monthly review.*

excess of a stated threshold – the participant's STEL – which is linked to the value of SFECC's risk resources and varies according to the credit quality of the participant. Highly rated participants with NTAs above a minimum threshold are eligible for discounts on their AIMs calls of up to 50 per cent of the projected stress loss in excess of the STEL in normal market conditions (up to a maximum discount of $500 million).[46]

This 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 participant default exceed SFECC's pooled risk resources (see below). Like other margins, AIMs are calculated overnight, notified to participants at 7.00am the next day, and must be met by 11.00am. Participants may meet these obligations using cash or non-cash collateral, including Commonwealth Government securities and bank bills or letters of credit from ADIs.

In accordance with the Clearing Rules, in the event of a default by a participant, SFECC would first apply margin, securities or other property from the defaulter to satisfy its obligations to other participants.

ii. Guarantee fund

SFECC 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 SFECC's Clearing Guarantee Fund is $400 million, comprising SFECC's own capital ($30 million); a subordinated loan from ASX Limited ($70 million); paid-up participant commitments ($120 million); second-level (promissory) participant commitments ($30 million); and insurance coverage ($150 million). The SFECC Clearing Rules state that the SFECC Board shall be entitled to apply these 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.

SFECC has announced its intention to exit its default insurance arrangements in due course. SFECC has indicated that if its insurer's credit rating falls further in the near term, it will accelerate its exit from these arrangements. Indeed, an 'in principle' subordinated-loan agreement, similar to that negotiated by ACH, has been reached with a commercial bank which it is anticipated could be triggered at relatively short notice.

SFECC uses daily stress tests of its four major contracts to monitor the risks undertaken by individual participants and the adequacy of the Clearing Guarantee Fund. SFECC 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 SFECC's 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.

In respect of both cash margin collected and pooled risk resources, SFECC invests funds in accordance with a defined treasury investment policy, endorsed by the SFECC Board, which is designed to ensure that risk resources can be reliably accessed on a timely basis. The policy

46 *SFECC applies discounts only under normal market conditions. It will suspend discounting – thereby reverting to full collateralisation of AIMs – if EWMA volatility is 20 per cent higher than historical volatility. SFECC uses seven years of daily SPI movements for both volatility measures.*

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. Eligible investment counterparties are APRA-supervised ADIs, with a minimum short-term credit-rating of A1. With the exception of instruments issued by the four largest domestic banks, individual counterparty limits are set within the value of SFECC's capital resources. Concentration limits also apply (the maximum exposure to any investment counterparty is 33 per cent).

The policy also sets upper limits for the average maturity of investments and the market risk of the portfolio (ie, price value of a basis point), and an overarching liquidity requirement based on assumed 'ordinary' liquidity needs (eg, for the return of margin to participants) and liquidity needs in the event of a default: a so-called DLR. During the assessment period, SFECC introduced a liquidity stress-testing model to assess the adequacy of its liquidity arrangements. The model, which is similar to that used by ACH, calculates the maximum liquid funds that SFECC would need to access in order to meet obligations arising in the event of a clearing participant default. The model is based on SFECC's capital stress tests.

The results of the liquidity stress test are compared with the DLR. The DLR is currently set at $220 million, comprising SFECC's own capital ($100 million) and the clearing participants' paid up commitments ($120 million). Breaches of the DLR trigger a review of the adequacy of the DLR. This review will take into account the outcome of the capital stress tests, as any AIMs calls will provide extra liquidity.

iii. Loss sharing

SFECC does not use loss sharing arrangements.

8. Governance

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

The SFECC Clearing Board is responsible for oversight of the operation of the central counterparty. It meets between six and eight times each year, and receives detailed reports on SFECC's business and operations, risk management and financial performance. It is responsible for approving capital, liquidity and stress-testing arrangements.

The Clearing Board consists of eight directors. These include four executive directors from ASX management (including the CEO and finance director), two ASX Limited non-executive directors, and two independent directors. The independent directors are appointed for their skill and expertise in clearing and settlement operational and risk-management matters. The eight directors filling these positions are also on the boards of ACH, ASTC and Austraclear. SFECC and Austraclear share a common chair, as do ACH and ASTC.

The risk policy and risk operations areas within the ASX group are functionally separate, with each having separate reporting lines to the SFECC Board. In addition, an internal Capital and Liquidity Committee provides focus to capital and liquidity issues across the ASX group.

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.

Details of the operational risk-management procedures across all four licensed CS facilities in the ASX group are provided in Section 6.

10. Regulatory reporting

CS facility licensees, as operators of central counterparties, are required to meet certain reporting obligations to the Reserve Bank under the *Financial Stability Standard 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. SFECC satisfied all reporting obligations during the assessment period.

A2. Financial Stability Standard for Securities Settlement Facilities

There are eight measures that the Reserve Bank considers relevant in determining whether a facility has met the *Financial Stability Standard for Securities Settlement Systems*. The full text of the measures and associated guidance is available on the Reserve Bank's website. The following provides summary details of the information the Reserve Bank has used to assess ASTC and Austraclear against each of the relevant measures. This updates the information presented in the Reserve Bank's 2007/08 Assessment for material changes in policies and procedures over 2008/09.

A2.1 ASX Settlement and Transfer Corporation (ASTC)

1. Legal framework

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

ASTC Pty Limited is a wholly owned subsidiary of ASX Limited. It provides settlement services for ASX markets, as well as a transfer service for a small number of transactions undertaken on the National Stock Exchange.

The legal basis for ASTC's operations is set out in its Settlement Rules. Under Section 822B of the *Corporations Act*, these rules have effect as a contract under seal between ASTC and each of its participants, and between each participant and each other participant. The Settlement Rules set out the rights and obligations of participants and ASTC, including in the event of default or suspension.

The netting arrangements undertaken by ASTC 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 ASTC 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;

ASTC has objective and transparent participation requirements, which are publicly available and form part of the Settlement Rules and Procedures. The Settlement Rules also provide for an appeals process should an application for participation be rejected or a participant's access be terminated. ASTC had 107 participants as at end-June 2009.

(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 participant that is neither subject to prudential supervision as an ADI, nor monitored as either a clearing or market participant under ACH Clearing Rules or ASX Market Rules, must post a performance bond of $500 000. In addition, a sponsoring participant (ie, a participant that also acts in ASTC on behalf of non-participants) that is not subject to prudential or market supervision and is not covered by the NGF 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 ASTC in the event that the participant breached ASTC Settlement rules. In a similar vein, funds held under a sponsorship bond would be drawn upon to meet any losses suffered by an issuer, participant-sponsored holder, or ASTC, arising from a breach of the rules or other offence. The monitoring, assessment and investigation of matters relating to financial requirements is dealt with by ASXMS, a separate subsidiary within the ASX group, 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.

ASTC's Settlement Rules allow it to suspend or terminate a participant from its facility in the event of a failure to comply with the Settlement Rules, or where a payments provider fails to authorise a participant's payment for interbank settlement.

ASTC also levies fail fees on a participant that does not meet its settlement obligations on a timely basis. With effect from 1 September 2008, the minimum and maximum fees applied in respect of fails are set at $100 and $5 000, respectively (with an *ad valorem* fee of 0.1 per cent). With effect from end-March 2009, participants are also required to close out any positions remaining unsettled on the fifth day after trade date (ie, two days after the scheduled settlement date). ASTC also operates a benchmarking regime for settlement-fails performance. This regime makes use of peer-group benchmarking and provides a participant's compliance unit with a ranking of its settlement-fails 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.

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

ASTC must lodge any changes to its Settlement 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. ASTC consults with its participants on important rule changes, and notifies participants of all changes to the Settlement Rules or Procedures.

Further to a variation to this measure of the Standard in February 2009, a licensed CS facility as operator of a securities settlement facility is required to make publicly available any relevant information on settlement activity. In this regard, the Reserve Bank is working with ASX and industry participants to implement a regime for the disclosure of data on equities securities lending. With effect from November 2009, settlement participants will be required to 'tag' securities-loan-related settlement instructions submitted to CHESS and, from December 2009, will be required to disclose outstanding on-loan and borrowed positions. A pilot phase for this reporting regime commenced in May 2009.

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;

All securities held by ASTC are dematerialised and held in CHESS. Title is held in the name of clients of ASTC participants. The system does not record any details of encumbrances, other than collateral lodged in favour of ACH.

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 ASTC 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;

The transfer of title to securities in CHESS is given effect by book entry, with ownership details updated electronically. Settlement occurs via a DVP process in a daily scheduled batch-settlement cycle (see Measure 5). ASTC's Settlement Rules 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 ASTC's insolvency, the rules and arrangements for title within ASTC provide a high degree of assurance that participants' securities will be immune from claims by ASTC's creditors. ASTC 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:

(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.

(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.

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

Settlement of securities transactions in ASTC occurs on a Model 3 DVP basis.[47] This involves the simultaneous transfer of net payment and net securities obligations between buyers and sellers at the end of the processing cycle. ASTC also currently provides for the settlement of cash obligations in relation to derivatives, which are also settled on a net basis.[48] ASTC's Settlement Rules 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. On 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 2008/09, an average of around 69 per cent (by value) of net securities settled in the final batch was in respect of non-novated transactions. The majority of these transactions were

47 *There is provision for DVP to occur on a trade-by-trade basis using CHESS RTGS, but this option has yet to be used.*

48 *ASX has announced that it intends to require that all ACH derivatives margin-related payments be settled in Austraclear. The timing of this change has not yet been announced.*

related to the priming of clearing participants' accounts to facilitate settlement of novated trades (ie, the transfer of securities to a clearing participant's securities account to ensure that they can be delivered in accordance with scheduled obligations).

By 6.00am on the settlement day, ASTC notifies each participant of its net cash and securities settlement obligations. Participants have until 10.30am to negotiate any additional non-novated trades necessary to 'prime' their accounts for settlement. After the cut-off for new instructions, transfer of securities positions is restricted in CHESS and participants' payment providers are requested to authorise net funding demands. 'Payment providers' hold ES accounts at the Reserve Bank and act on behalf of ASTC settlement participants. There were 12 payment providers operating in ASTC as at 30 June 2009. Payment obligations are settled between payment providers in the Reserve Bank's RITS system in a single daily multilateral net batch. Immediately upon notification that the funds transfer has been completed, ASTC completes the net securities transfers in CHESS, thus ensuring DVP settlement. This typically occurs at around noon.

The finality of ASTC'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, ASTC's settlement rules allow for 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, ACH may assume an obligation for novated settlements in accordance with its default-management arrangements. ASTC's back-out algorithm seeks to remove as few transactions from the batch as possible, maximising settlement values and volumes, while minimising both the spillover to other participants and the potential injection of liquidity from ACH. Non-novated settlement obligations are typically backed out first.

Further to a delay to settlement in late January 2008, ASX has consulted on modifications to the settlement process. Following this consultation, ASTC plans to establish a firm deadline for the back out of settlement obligations in the event that a participant fails to meet its payment obligations.

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.

(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;

ASTC's Settlement Rules 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 ASTC 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.**

ASTC's Settlement Rules 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.

ASTC's Settlement Rules allow it to remove transactions from batch settlement under certain circumstances, including where a participant is subject to external administration. ASTC 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.

Details of the operational risk-management procedures across all four licensed CS facilities in the ASX group are provided in Section 6.

8. Regulatory reporting

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

A2.2 Austraclear

1. Legal framework

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

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

The legal basis for Austraclear's operations is set out in its Regulations. Under Section 822B of the *Corporations Act*, these regulations have effect as a contract under seal between Austraclear and each of its participants, and between each participant and each other participant. The Regulations 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;**

(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 781 participants as at end-June 2009. 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 financial and operational issues, such as capital adequacy, business integrity and business continuity arrangements.

Austraclear's Regulations 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 Rules 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 'SFE 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.

(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 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 Commonwealth 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 which 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'.[49] This legal structure imposes rights and obligations which 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;

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.[50] 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.

49 *This is a legal right to intangible property. It allows the holder (in this case, the relevant Austraclear participant) to direct Austraclear to deliver to it securities of a specified description and number.*

50 *Allonges are separate sheets of paper attached to a bill of exchange for the purpose of documenting endorsements. As a bill of exchange is transferable through endorsement, the allonge attached to the bill acts as a legal extension of the document.*

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 payment 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 establish the basis for settlement of transactions entered into the system. By volume, DVP settlements accounted for around 41 per cent of total settlements during the assessment period, and one-way cash transfers around 59 per cent. There was also a small volume of free-of-payment securities transfers (less than 0.5 per cent). By value, however, DVP payments predominate, accounting for 76 per cent of total transfers in the year to end-June 2009.

(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.

'Participating banks' hold ES accounts at the Reserve Bank and act on behalf of other Austraclear participants. 57 participating banks were operating in Austraclear as at 30 June 2009. Settlement of payment obligations occurs between participating banks across ES accounts on a RTGS basis. As such, settlement occurs in central bank money. Austraclear is notified immediately upon settlement of the payment leg of a securities trade, allowing for the immediate transfer of securities title so as to ensure DVP settlement.

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

The finality of Austraclear's settlement process is reinforced 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.

Austraclear's Regulations 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 on a participant changing its participating bank, including where that entity is insolvent.

As a facility supporting bilateral agreements negotiated on an OTC basis, without the presence of a central counterparty, Austraclear does not have centralised arrangements for dealing with the unsettled transactions of its participants. Consequently, replacement risk for any trade left unsettled due to the insolvency of a participant is borne directly by trade counterparties. By virtue of the application of a Model 1 DVP arrangement, unsettled obligations do not give rise to principal risk.

7. 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.

Austraclear's key system is EXIGO. A detailed assessment of operational risk management across all four licensed CS facilities is provided in Section 6.

8. Regulatory reporting

CS facility licensees are required to meet certain reporting obligations to the Reserve Bank under the *Financial Stability Standards*. 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.