

# Assessment of ASX Clearing and Settlement Facilities

October 2023

1. Executive Summary	1
2. Overview of Ratings, Recommendations and Areas of Supervisory Focus	2
3. Developments	5
4. Special Topic – The Current CHES	14
5. Special Topic – Credit Risk	19
6. Appendix A: Summary of Progress 2022/23	23

© Reserve Bank of Australia 2023

Apart from any use as permitted under the Copyright Act 1968, and the permissions explicitly granted below, all other rights are reserved in all materials contained in this publication.

All materials contained in this publication, with the exception of any Excluded Material as defined on the RBA website, are provided under a Creative Commons Attribution 4.0 International License. The materials covered by this licence may be used, reproduced, published, communicated to the public and adapted provided that the RBA is properly attributed in the following manner:

**Source:** Reserve Bank of Australia 2023 OR **Source:** RBA 2023

For the full copyright and disclaimer provisions which apply to this publication, including those provisions which relate to Excluded Material, see the RBA website.

ISSN 2201-1226 (Online)

# 1. Executive Summary

---

The Reserve Bank of Australia (the Bank) has carried out its annual Assessment of the ASX Clearing and Settlement (CS) facilities over the period 1 July 2022 to 30 June 2023. The Assessment covers the four ASX CS facilities: two central counterparties (CCPs) – ASX Clear and ASX Clear (Futures); and two securities settlement facilities (SSFs) – ASX Settlement and Austraclear. The Bank has assessed the CS facilities' compliance with applicable Financial Stability Standards (FSS), as well as the CS facilities' general obligation to do all other things necessary to reduce systemic risk.

The Bank's assessment is that the ASX CS facilities observe many of the FSS. The Bank requires that ASX place high priority on recommendations related to board oversight, the effectiveness of the Internal Audit function, stakeholder management and the management of ageing assets, including CHES.

## 1.1 Key findings

The ASX CS facilities were rated as *observed* or *broadly observed* for many of the FSS. The Regulatory Reporting FSS was upgraded from *broadly observed* to *observed* for ASX Clear (Futures) and Austraclear upon completion of the Bank's Financial Market Infrastructure (FMI) data project for these facilities and an overall improvement in regulatory reporting obligations. There are three FSS that are rated as *partly observed*:

- **Governance:** The Bank has downgraded ASX to *partly observed*. The Bank welcomes the progress that has been initiated under the leadership of a new Chief Executive Officer, including increased accountability for executives. However, the Bank's assessment is that the documentation supporting clear lines of accountability should be strengthened, along with the approach to stakeholder management and the effectiveness of ASX's Internal Audit function. The Bank has also determined that the information reported to the boards needs to be more effective in assisting their ability to oversee the management of the key issues raised in this Assessment.
- **Framework for the Comprehensive Management of Risks:** The Bank has downgraded ASX to *partly observed*. The Bank continues to hold concerns about ASX's risk management culture and the length of time ASX has operated at a heightened overall risk position.
- **Operational Risk:** The Bank rated ASX as *partly observed*. While ASX has made some progress towards addressing previous recommendations, ASX should place a high priority on the remediation of ageing assets. ASX should also continue to focus on the delivery of its cyber strategy and security capabilities in line with the rapidly changing threat landscape.

The Assessment also includes two detailed reviews:

- **The current CHES:** While the review found that the current CHES is broadly consistent with the FSS, high priority should be placed on the management of ageing assets supporting the current CHES, capacity requirements and bottlenecks, management of resources and risk management.
- **Credit Risk:** ASX's CCPs were rated as *broadly observed*. Several findings were identified relating to the adequacy of ASX's stress testing framework.

## 2. Overview of Ratings, Recommendations and Areas of Supervisory Focus

The Bank's Assessment of the ASX CCPs and SSFs has been undertaken against the Bank's *Financial Stability Standards for Central Counterparties* and *Financial Stability Standards for Securities Settlement Facilities*, as well as the CS facilities' more general obligation to do all other things necessary to reduce systemic risk.

The Bank has conducted this Assessment in accordance with its *Approach to Supervising and Assessing Clearing and Settlement Facility Licensees*.<sup>1</sup>

### 2.1 Ratings

The ratings for the current assessment period are set out in Table 1 below.

**Table 1: 2023 Ratings of FSS Observance\***

Standard	ASX Clear	ASX Clear (Futures)	ASX Settlement	Austraclear
<b>Legal Basis</b> (CCP/SSF Standard 1)	Observed	Observed	Observed	Observed
<b>Governance</b> (CCP/SSF 2)	Partly observed (↓)	Partly observed (↓)	Partly observed (↓)	Partly observed (↓)
<b>Framework for the Comprehensive Management of Risks</b> (CCP/SSF 3)	Partly observed (↓)	Partly observed (↓)	Partly observed (↓)	Partly observed (↓)
<b>Credit Risk</b> (CCP/SSF 4)	Broadly observed	Broadly observed	N/A	N/A
<b>Collateral</b> (CCP/SSF 5)	Observed	Observed	N/A	N/A
<b>Margin</b> (CCP 6)	Broadly observed	Broadly observed	N/A	N/A
<b>Liquidity Risk</b> (CCP 7, SSF 6)	Broadly observed	Broadly observed	Observed	Observed
<b>Settlement Finality</b> (CCP 8, SSF 7)	Observed	Observed	Observed	Observed
<b>Money Settlements</b> (CCP 9, SSF 8)	Observed	Observed	Observed	Observed
<b>Central Securities Depositories</b> (SSF 9)	N/A	N/A	Observed	Broadly observed (↓)
<b>Physical Deliveries</b> (CCP 10)	N/A	Observed	N/A	N/A
<b>Exchange-of-value Settlements/Settlement Systems</b> (CCP 11, SSF 10)	Observed	Observed	Observed	Observed
<b>Participant Default Rules and Procedures</b> (CCP 12, SSF 11)	Observed	Observed	Observed	Observed

1 See RBA (2021), [‘The Reserve Bank’s Approach to Supervising and Assessing Clearing and Settlement Facility Licensees’](#), 25 February.

Standard	ASX Clear	ASX Clear (Futures)	ASX Settlement	Austraclear
Segregation and Portability (CCP 13)	Observed	Observed	N/A	N/A
General Business Risk (CCP 14, SSF 12)	Observed	Observed	Observed	Observed
Custody and Investment Risks (CCP 15, SSF 13)	Observed	Observed	Observed <sup>(a)</sup>	Observed
Operational Risk (CCP 16, SSF 14)	Partly observed	Partly observed	Partly observed	Partly observed
Access and Participation Requirements (CCP 17, SSF 15)	Observed	Observed	Observed	Observed
Tiered Participation Arrangements (CCP 18, SSF 16)	Observed	Observed	Observed	Observed
FMI Links (CCP 19, SSF 17)	Observed	Observed	Observed	Observed
Disclosure of Rules, Key Policies and Procedures, and Market Data (CCP 20, SSF 18)	Observed	Observed	Observed	Observed
Regulatory Reporting (CCP 21, SSF 19)	Broadly observed	Observed (↑)	Broadly observed	Observed (↑)

\* Arrows in brackets indicate the ratings change from last year: an up arrow indicates an upgrade and a down arrow indicates a downgrade. 'N/A' means that the Bank has determined that the standard is not applicable, or an equivalent standard does not exist for the type of facility (e.g., for CCP Standard 6: Margin, there is no equivalent SSF Standard).

<sup>(a)</sup> In prior assessments, the Custody and Investment Risk FSS was previously assigned N/A for ASX Settlement.

## 2.2 Recommendations

The Bank has made new recommendations for the CS facilities to address. A complete list of open recommendations is provided in Appendix A. There are several recommendations that the Bank requires ASX to prioritise. These are as follows:

- ASX should redouble its efforts to ensure that key issues are appropriately raised with the ASX boards to enable a robust level of challenge and focus. ASX should undertake a review of its board agendas, papers and minutes to strengthen the ability of the boards to debate and provide direction on the key issues raised in this Assessment.
- ASX should assess and implement cultural changes required to remediate the relationship between Internal Audit and the executive, while ensuring that Internal Audit remains an independent source of challenge.
- ASX should prioritise the implementation of short-term controls to mitigate the immediate risks of ageing assets. The Bank also recommends that ASX promptly devise and implement a comprehensive roadmap to remediate its currently identified ageing assets. ASX should also develop and implement a robust long-term strategy to ensure that technology assets are proactively managed and renewed well before they approach obsolescence.
- ASX should implement a robust annual process of updating the CHES Roadmap (ASX's plan for addressing support and maintenance requirements for the current CHES) to ensure that all planned upgrades and material changes to CHES are incorporated.
- ASX should facilitate effective stakeholder engagement. In particular, it should actively consult stakeholders on the solution redesign, project and implementation timeline for CHES replacement.

Following the ASX announcement of a pause in the CHES Replacement Program in November 2022, the Bank published a letter on 15 December 2022 (the Letter of Expectations) setting out its

expectations for the current CHES and the CHES replacement.<sup>2</sup> These expectations have been updated as appropriate to reflect developments and restated as recommendations in this Assessment.

## 2.3 Supervisory focus for the year to June 2024

The Bank has identified several areas of supervisory focus for the next assessment period (Table 2). The Bank also intends to carry out detailed reviews on segregation and portability and selected aspects of operational risk as part of its 2024 Assessment.

**Table 2: Supervisory Focus for 2024 Assessment**

Supervisory focus	Standard	Facility
<b><u>Areas of supervisory focus</u></b>		
<p><b>Risk culture.</b> The Bank, along with ASIC, will monitor the operational effectiveness of uplifts made to risk culture and the first two lines of accountability.</p> <p>For more information, see section 3.2.</p>	CCP/SSF 3	All
<p><b>Cyber resilience.</b> The Bank, working closely with ASIC, will review:</p> <ul style="list-style-type: none"> <li>adjustments to the ASX Cyber Strategy</li> <li>adjustments to ASX’s cyber security practices, including plans to address any actions identified through ASX’s review of alignment with domestic and international cyber resilience frameworks and maturity models</li> <li>ASX’s analysis of technologies to support safe recovery of operations within two hours following an extreme cyber-attack.</li> </ul> <p>For more information, see section 3.3.</p>	CCP 16, SSF 14	All
<b><u>Special topics</u></b>		
<p>The Bank will carry out a detailed review of the ASX CS facilities management of:</p> <ul style="list-style-type: none"> <li>Segregation and portability</li> <li>Operational risk (including ageing assets, vendor management, resource sufficiency and the ASX Group Support Agreement).</li> </ul> <p>The Bank will also conduct a review of:</p> <ul style="list-style-type: none"> <li>Tiered participation.</li> </ul>	<p>CCP 13</p> <p>CCP 16, SSF 14</p> <p>CCP 18, SSF 16</p>	<p>Both CCPs</p> <p>All</p> <p>All</p>
<b><u>Other ongoing reviews progressing during 2024</u></b>		
<p><b>Legal certainty of intragroup agreements.</b></p> <ul style="list-style-type: none"> <li>The legal certainty of arrangements for ASX Limited to replenish ASX contributions to the CCPs’ default funds.</li> <li>The ASX Group Support Agreement, covering aspects outside the scope of the 2018/19 special topic assessment of the CS facilities’ legal basis (to be covered as part of the special topic on Operational Risk).</li> </ul> <p>For more information, see Appendix A, Table 5.</p>	CCP 1, 14 SSF 12	All
<p><b>Margin.</b> The Bank will continue engagement with ASX to review the processes and controls it uses to help ensure the reliability of its margin-related operations, as well as its back-up procedures in the event of an outage affecting the systems it uses to calculate and collect margin.</p>	CCP 6	Both CCPs

2 See RBA (2022), [‘RBA Expectations for the Current CHES and CHES Replacement’](#), 15 December.

## 3. Developments

---

### 3.1 Governance

There were several changes to ASX's executive team during the assessment period. Under the leadership of a new Chief Executive Officer, the Bank has observed improved engagement and an increased commitment to transparency in ASX's dealings with the Bank. The Bank welcomes this development and considers it important that it continues. Progress has also been made in addressing the Bank's previous recommendations relating to the governance of the CS facilities.

ASX's improved transparency has provided the Bank with greater insight into several areas of ASX's governance that require further improvement, a number of which have been long-running concerns. One of these concerns is whether reporting to the boards assists their ability to oversee the management of the key issues raised in this Assessment. The Bank also remains concerned about the effectiveness of ASX's Internal Audit function. Other areas for improvement include the rigor and extent of the CS Lead Executives' ownership of ASX's self-assessment against the FSS, the documentation of clear lines of accountability within ASX, and the effectiveness of stakeholder engagement on the CHES Replacement Program.

As these are significant and increasingly pressing issues, the Bank has lowered ASX's rating to *partly observed* in relation to the Governance FSS.

#### 3.1.1 Board oversight

During the assessment period, there have been several issues of concern regarding the effectiveness of Internal Audit, ageing assets and ASX's risk position. Generally, over the course of the assessment period the Bank has not seen sufficient evidence that the boards have been able to provide direction with the required urgency in relation to these key risks. For example, the Bank acknowledges that the board Technology Committee has questioned management about ageing technology assets on a number of occasions during the reporting period. However, in the Bank's view there has been insufficient tangible progress to-date given the nature of the potential risks. The Bank also has ongoing concerns about the effectiveness and quality of reporting to the ASX boards to enable appropriate challenge to take place.

**Recommendation:** ASX should redouble its efforts to ensure that key issues are appropriately raised with the ASX boards. By 31 March 2024, ASX should undertake a review of its board agendas, papers and minutes to ensure they enable the boards to debate and provide direction on the key issues raised in this Assessment.

#### 3.1.2 Strategic objectives

Consistent with the Bank's previous recommendations, ASX introduced corporate strategies for each of the CS facilities. As required by the FSS, the strategies explicitly note that each CS facility 'places a high priority on the safety of the facility and promotes financial stability', with goals and current areas of focus including resilience, safe operations, robust operational performance and sound risk

management. In the coming assessment period, the Bank expects ASX to provide regular reporting to the CS boards on progress against the strategic goals. This reporting has been limited to-date.

### 3.1.3 Internal Audit

An external review of ASX's Internal Audit function found a low overall level of maturity and several deficiencies in its effectiveness. The review identified a poor relationship between Internal Audit and the executive, which compromises Internal Audit's authority and ability to appropriately fulfil its mandate. Other areas requiring improvement include quality assurance processes, the use of data analytics and succession planning to mitigate key person risks. The Bank also notes the six-month delay in ASX's appointment of a permanent General Manager of Internal Audit (GM IA) after the position became vacant in late 2022. A more junior member of the Internal Audit team acted in the position during this period. ASX has commenced a program of work to address the review findings. The new GM IA commenced shortly after the end of the assessment period.

**Recommendation:** ASX should complete its response to the recommendations made in the external review of its Internal Audit function. As part of the response, the ASX executive team and new GM IA should identify the cultural changes required to remediate the relationship between Internal Audit and the executive, while ensuring that Internal Audit remains an independent source of challenge. A plan to implement any required changes should be completed by 31 December 2023. The ASX boards and Chief Executive Officer must place a high priority on ensuring that the Internal Audit function is effective and appropriately supported. ASX should commission a follow-up external review by June 2024 to reassess line 3 effectiveness.

### 3.1.4 ASX self-assessment

In the 2021 Assessment, the Bank recommended that ASX's CS boards require the CS Lead Executives to complete an annual self-assessment of compliance with the FSS. ASX's self-assessment identified some gaps in addition to those already identified by the Bank. The Bank considers the self-assessment process to be an important method for ASX to identify potential or emerging risks in a timely way. For this first self-assessment, ASX enlisted a consultancy firm to facilitate the process. In subsequent self-assessments, the Bank expects a greater degree of involvement in the process by the CS Lead Executives as the accountable persons for meeting regulatory obligations.

Overall, the Bank is encouraged by ASX self-identifying several areas requiring improvement. The Bank has considered these self-assessed findings and any remediation efforts undertaken during the assessment period as an input to this year's Assessment.

In considering requirements for future annual self-assessments, the Bank has considered the expectation that ASX conduct, and publish on its website, self-assessments against the PFMI at least every two years.<sup>3</sup> Given the strong similarities between the *Principles for Financial Market Infrastructures* (PFMI) and the FSS, the Bank will accept the self-assessment against the PFMI as meeting its self-assessment requirement for that year, with ASX to additionally provide the Bank with ratings against each of the PFMI/FSS and a plan to address any identified compliance gaps.

**Recommendation:** The CS boards should continue to require the CS Lead Executives to complete a self-assessment of compliance with the FSS on an annual basis.

---

3 See RBA (2021), ['The Reserve Bank's Approach to Supervising and Assessing Clearing and Settlement Facility Licensees'](#), 25 February.



### 3.1.5 Accountability framework

ASX continued to progress outstanding recommendations to uplift the documentation of governance arrangements, and management roles and responsibilities. The accountability map and accountability statements for directors and individual executives have been updated to provide further clarity and specifics around accountabilities.

The Bank acknowledges that considerable effort has been invested in the preparation of the accountability framework. It also acknowledges the consequences for ASX executives arising from adverse outcomes over the past year, as set out in the ASX 2023 Remuneration Report. However, the process of holding senior executives to account on a continuing basis would be further assisted by additional refinement to documented governance arrangements. In the Bank's view, the current suite of accountability documentation should be strengthened to articulate desired outcomes and hold ASX senior executives to an appropriate level of accountability commensurate with their senior role in operating critical financial market infrastructure.

**Recommendation:** ASX should further strengthen and clarify lines of responsibility and accountability within its CS facilities. It should ensure that its accountability documents:

- are clear and specific, with no gaps or unintended overlaps in accountabilities, and
- articulate desired outcomes and hold executives to high standards.

ASX should complete planned testing of the accountability documents against a set of hypothetical outcome scenarios to validate their effectiveness.

### 3.1.6 Stakeholder management

ASX completed several initiatives to address recommendations relating to stakeholder management. A new Stakeholder Engagement Charter was published in August 2022, and new engagement forums were created to strengthen stakeholder consultation and collaboration. Despite these initiatives, there continue to be significant challenges, especially in relation to the CHES Replacement Program. Several industry stakeholders have publicly outlined their concerns around stakeholder management, with some also proposing alternative governance models for CHES replacement, which are intended to facilitate a greater voice for stakeholders in decisions that affect them.

The Bank's Letter of Expectations included several expectations regarding stakeholder engagement on the CHES Replacement Program, which are restated below as a recommendation. ASIC has also recently led an initiative to establish an industry Advisory Group for strategic matters relating to cash equities clearing and settlement, with an initial focus on CHES replacement. The Bank strongly supports the establishment of this Advisory Group and expects ASX to support its effective operation. On 30 August, ASIC and the Bank issued a joint letter of expectations regarding ASX's interaction with the Advisory Group.

**Recommendation** (from Letter of Expectations): ASX should actively consult stakeholders on the solution redesign, project and implementation timeline for the CHES replacement, and disclose to the regulators and stakeholders the risks and benefits of various transition options.

## 3.2 Framework for the Comprehensive Management of Risks

ASX has completed a program to uplift the operating effectiveness of its enterprise risk management framework. Nonetheless, the Bank continues to hold concerns about ASX's risk management culture

and the length of time ASX has operated at a heightened risk position. These concerns are strengthened by the issues identified in relation to ASX's Internal Audit function. Consistent with these concerns, the Bank has downgraded ASX to *partly observed* in relation to the Framework for the Comprehensive Management of Risks.

### 3.2.1 Three lines of accountability

Consistent with industry practice, ASX's arrangements for monitoring, assessing and managing risks are founded on a 'three lines' model. During the assessment period, ASX implemented recommendations from a 2022 external review to strengthen its risk culture and the operating effectiveness of the first two lines of accountability. As many of the changes were implemented late in the assessment period, their operational effectiveness will need to be further validated. This will be an area of focus for the Bank, working closely with ASIC, over the coming year.

**Area of supervisory focus:** The Bank, along with ASIC, will monitor the operational effectiveness of recent changes to risk culture, and the effectiveness of the first two lines of accountability.

### 3.2.2 Risk position

Reporting to the board Audit and Risk Committee indicates that, as at the end of the assessment period, ASX had operated at a heightened risk position for 10 of the past 11 quarters. Some factors contributing to this include the CHES Replacement Program and a deterioration in the operational risk position (see section 3.3).

The Bank is concerned that ASX has been operating at a heightened level of overall risk level for an extended period. In the Bank's view, there are a range of risks that are not being managed effectively. This is an issue of concern that the Bank views could become serious if not addressed promptly. This is consistent with a rating of *partly observed*.

The Bank has made several recommendations in relation to key risk areas, particularly in relation to the current CHES and Operational Risk and will monitor ASX's progress towards lowering its overall risk position.

## 3.3 Operational Risk

The Bank has maintained the rating of *partly observed* for ASX's adherence to the Operational Risk FSS. The Bank holds increasing concerns over ASX's ability to manage operational risk. This will be the subject of a special topic in next year's assessment. The Bank expects ASX to promptly take action to remediate its ageing assets to enable the longevity, safety and performance optimisation of assets that support critical financial market infrastructure.

### 3.3.1 Ageing assets

ASX's renewal of its technology is not keeping up with the ageing of its systems. On a semi-annual basis, ASX completes a system operational risk assessment (SORA) across selected systems and environments on its critical systems list. Over the assessment period, software currency and hardware age were consistently identified as areas of concern in SORA. When software reaches end-of-life, vendor support, updates and security patches may cease to be available, raising security and operational concerns. Aged hardware can also lead to problems with system processing and capacity. Maintaining appropriate controls for such systems is resource intensive.

While ASX has recently developed programs to address some of the problems of ageing assets in ASX Clear and ASX Clear (Futures), they do not include funded and prioritised remediations for all critical systems. The Bank considers ASX's current approach to managing ageing assets to be insufficient to fully ensure resilient, secure and operationally reliable systems. The Bank expects ASX to take steps to ensure that this ongoing risk is better managed in future.

**Recommendation:** By 31 December 2023, ASX should develop a comprehensive roadmap for the remediation of currently identified ageing assets. This roadmap should:

- include timelines and dependencies for remediation (e.g., key milestones such as business case and funding approval)
- clearly specify the prioritisation of system remediation
- include details of the key risks for assets that will reach the end of their support period or end-of-life before remediation or replacement
- include the implementation of short-term controls to mitigate these risks.

The roadmap should be approved by the ASX boards, and regular progress updates should be provided to the ASX boards.

**Recommendation:** By 30 June 2024, ASX should develop and begin implementing a long-term strategy to proactively identify ageing assets and remediate the risks before they materialise.

### 3.3.2 Vendor management and outsourcing

ASX relies significantly on external providers for the operation of the CS facilities. CS facilities remain responsible for the resilience, security and operation of their systems even where they rely on third-party providers for some services.

The development, implementation and consistent application of vendor management and outsourcing policies and processes are important to managing risks arising from reliance on third parties. An Internal Audit review of ASX's vendor management and procurement practices found a low level of awareness and use of the ASX vendor management framework among tested projects. ASX identified in its self-assessment that it does not have an overarching outsourcing policy and has worked on developing such a policy with the assistance of an external consultant. Vendor management was also the subject of several recommendations in the external review of the CHES Replacement Program (see section 4). The Bank expects ASX to implement these recommendations.

Over the coming assessment period the Bank will also monitor ASX's work to remediate self-identified gaps in its contracts with critical service providers in accordance with the FSS.

**Recommendation:** ASX's vendor management policy should be consistently applied for all vendor arrangements supporting the CS facilities. The outsourcing policy should be completed and applied to all outsourcing arrangements for the CS facilities.

### 3.3.3 Resourcing sufficiency

As an operator of critical financial market infrastructure, ASX has obligations to ensure that key systems are operated securely and reliably. To achieve this, ASX should ensure that it can reliably access appropriate financial, technological and human resources. In recent years, staff resourcing has been an ongoing challenge at ASX, reflecting the scarcity of people with specialist skills in a tight labour market.

This has resulted in project delays and the loss of corporate knowledge. Over the assessment period, ASX has focused on uplifting the skills, knowledge and capabilities of its staff to address resourcing issues; however, further capability uplifts are required. ASX should continue to address the key person risks it has identified in the context of the operation of several critical systems.

### 3.3.4 Cyber security<sup>4</sup>

ASX continued to implement its Cyber Strategy, including a further tightening of internal controls and cyber scenario testing. In line with international cyber guidance, ASX continued to consider technologies to support its ability to recover operations safely within two hours following an extreme cyber-attack.

**Area of supervisory focus:** The Bank, working closely with ASIC, will review:

- adjustments to the ASX Cyber Strategy
- adjustments to ASX's cyber security practices, including plans to address any actions identified through ASX's review of alignment with domestic and international cyber resilience frameworks and maturity models
- ASX's analysis of technologies to support safe recovery of operations within two hours following an extreme cyber-attack.

## 3.4 Margin

### 3.4.1 ASX Clear

A central counterparty should have the authority and operational capacity to call intraday margin to mitigate the build-up of credit exposures due to large market moves or significant trading activity since the previous margin call.

ASX Clear does not currently have a production standard method to collect intraday margin. In response to an expectation set by the Bank, ASX conducted a feasibility assessment of implementing intraday margin calls for cash market products in the current CHES.<sup>5</sup> ASX concluded that a scheduled margin call at 2pm could be practically implemented within the operating hours of settlement systems and would mitigate the build-up of realised credit exposures to participants throughout the day.

ASX should consider introducing any scheduled intraday margin call holistically, taking account of operational synergies in margin calls for derivative products or any additional margin requirements from participants that exceed stress test exposure limits at ASX Clear. Improved intraday margin collection will also reduce the materiality of under-collateralisation from late-in-day price moves.

**Recommendation:** ASX Clear should enhance its capacity to monitor the build-up of current exposures to participants and to make intraday margin calls to participants. ASX should provide the Bank with a detailed plan and timeline to address this recommendation by June 2024.

---

<sup>4</sup> A more detailed assessment of ASX's cyber resilience has been confidentially communicated to ASX.

<sup>5</sup> The feasibility assessment was in response to expectation at paragraph 7.a. of the Bank's Letter of Expectations for the Current CHES and CHES replacement.

### 3.4.2 ASX Clear (Futures)

In mid-2022, volatility in Australian interest rate derivatives was high, resulting in market moves that exceeded initial margin requirements at ASX Clear (Futures). This led to margin coverage rates for over-the-counter (OTC) interest rate derivatives that were slightly below regulatory standards for the period to end-June 2022, and extending into July 2022.<sup>6</sup> ASX responded by raising margin requirements using a scalar multiplier. ASX is looking more holistically at its approach to margining as part of its review of margin methodologies.

ASX Clear (Futures)'s clearing services are offered continuously from Monday morning to Saturday morning. Given Austraclear is closed during the Night Session, margin calls during this session are settled by participants in US dollars (USD) using commercial settlement banks. Two risks arise from this approach: credit exposures to these commercial settlement banks; and a currency mismatch between the settled margin call and the related exposures.<sup>7</sup>

During the assessment period, ASX Clear (Futures) investigated the feasibility of an Australian dollar (AUD) margin payment method that could be used for overnight margin payments. ASX found that limitations regarding the management of overnight AUD liquidity requirements by participants, as well as current availability of payment settlement infrastructure would make an AUD overnight solution unlikely to be feasible at this time.

ASX has indicated it will continue the overnight USD margin process in the short term, making improvements where appropriate, while developing a long-term strategy for its overnight margin operations. Relevant considerations for further improvements should include: reducing credit exposures to commercial settlement banks; mitigating currency risks; and the timing of scheduled margin calls and capacity for unscheduled margin calls to best mitigate risks from under-collateralisation of realised exposures. These considerations should be balanced against the operational costs and risk, as well as the impacts on clearing participants.

**Recommendation:** ASX Clear (Futures) should develop a long-term strategy for its overnight margin operations by December 2024.

## 3.5 Segregation and portability

Segregation of the positions and collateral of a clearing participant's customers (clients) from those of the clearing participant (house) can play an important role in reducing the impact of a participant's default or insolvency on clients and the financial system more broadly.

ASX Clear currently commingles house and client positions for cash market products, meeting the FSS through arrangements that were considered in the 2016 Assessment to provide protections for customers that were materially equivalent to those provided by segregated account structures. During the assessment period, ASX conducted an equivalence assessment. The equivalence assessment considered whether any changes have occurred since 2016 that would affect the material equivalence of ASX's commingled account to segregated account structures. ASX concluded that the material equivalence had not been affected.

---

6 The regulatory standards require initial margin to be sufficient to cover 99.5 per cent of movements that might occur during the close-out period for OTC interest rate derivatives and 99 per cent for the remaining products at ASX.

7 The exposure from the overnight margin call is unwound following the first intraday margin run in AUD the next morning.

ASX also undertook a feasibility assessment of whether the current CHES could support a segregated account structure. ASX found that it would not be prudent to implement account structure changes in the current CHES, in part because of concerns about the current CHES's ability to handle the additional load. The Bank is satisfied that ASX has fulfilled the requirement in the Bank's Letter of Expectations to conduct these assessments.<sup>8</sup>

Given the outcomes of these assessments, the Bank is satisfied that further consultation (expectation at paragraph 7.c.) is not required at this time.<sup>9</sup> Instead, the Bank will consider the outcomes of these assessments as part of a detailed review of ASX's adherence to the Segregation and Portability FSS in the 2024 Assessment. The Bank still considers it important for ASX to incorporate the ability to segregate client and house accounts into CHES replacement and to consult with industry on this as part of the redesign.

### 3.6 Regulatory reporting

ASX has undertaken several measures to uplift its regulatory reporting over the assessment period. ASX also put in place metrics to monitor and report on the effectiveness of its regulatory reporting controls. Following these measures, the Bank has observed an improvement in compliance with the regulatory reporting obligations. The Bank has not identified any significant breaches of these obligations during the assessment period.

ASX made significant progress on the provision of data to the Bank under the Bank's FMI Data Reporting project. This project significantly enhances the quality, scope and timeliness of regulatory reporting and data available to the Bank. The final set of reports covered by the FMI Data Reporting project, relating to CHES data (ASX Clear and ASX Settlement reporting obligations), are expected to go live in late 2023.

In line with the general improvement in regulatory reporting and progress on the FMI Data Reporting project, ASX Clear (Futures) and Austraclear have been upgraded to a rating of *observed* for Regulatory Reporting.

**Recommendation:** ASX should complete its FMI Data Reporting project by 31 December 2023.

### 3.7 Reviews of selected FSS

During the assessment period, the Bank conducted selected reviews into ASX's adherence to the following Standards: Access and Participation Requirements; Central Securities Depositories; and Exchange-of-value. These reviews are undertaken as part of the Bank's supervisory cycle process, where each FSS is assessed over the supervisory cycle period.<sup>10</sup>

#### 3.7.1 Access and Participation Requirements

Consistent with the FSS, the Bank's review found that ASX's CS facilities have objective participation requirements, which are publicly available. ASX's CS facilities also carry out monitoring of compliance

---

<sup>8</sup> The equivalence study and feasibility assessment were in response to the expectation at paragraph 7.b. of the Bank's Letter of Expectations for the Current CHES and CHES Replacement .

<sup>9</sup> The requirement for industry consultation regarding account segregation in current CHES was set out in the expectation at paragraph 7.c. of the Bank's Letter of Expectations for the Current CHES and CHES Replacement. ASX received feedback from a cross-section of participants as part of its equivalence and feasibility assessments.

<sup>10</sup> The expectation is this will be a four-year cycle of the FSS, taking into account events at the time.

with participation requirements on an ongoing basis. ASX's four CS facilities were found to be consistent with an *observed* rating for Access and Participation Requirements.

### 3.7.2 Central Securities Depositories

The Bank has downgraded Austraclear to *broadly observed* for the FSS that applies to SSFs that operate a central securities depository (CSD). The Bank has maintained a rating of *observed* for ASX Settlement. The downgrade of the rating for Austraclear is primarily due to an incident that occurred in June 2023. ASX identified the incident and notified the Bank of a material breach by Austraclear of the CSD FSS.

The breach arose when an issuer of a security series entered and verified an incorrect amount for the series in a deposit request. This resulted in the amount of the series that was deposited and available for settlement (deposit volume) significantly exceeding the face value of the series initially created by Austraclear. The discrepancy remained in the system for almost two months and was not identified through Austraclear's daily reconciliation processes. It was only identified by the issuer when the size of the Austraclear fee charged to the issuer (which is based on the deposit volume) was larger than expected.

The 'excess' securities were not traded and there were no broader financial implications resulting from this discrepancy. ASX's investigation concluded that no other securities were affected.

While there were no financial impacts caused by the incident, Austraclear was in breach of the CSD FSS due to a deficiency in its procedures and controls. The FSS requires SSFs to have appropriate rules, procedures and controls in place to safeguard the integrity of securities issues, and the rights of securities issuers and holders. The nature of the breach posed risks to financial system stability, which could have undermined confidence in critical financial markets infrastructure.

Following the end of the assessment period, ASX implemented a number of improvements to its controls to address the issue. ASX has also planned further enhancements within a defined time period. This response is consistent with the rating of *broadly observed*. The Bank will monitor ASX's ability to implement these enhancements and proactively assess and strengthen the resilience of its controls.

### 3.7.3 Exchange-of-value Settlement Systems

The FSS requires principal risk to be eliminated for SSFs that settle transactions comprising settlement of two linked obligations (e.g., the delivery of securities against the payment of cash). The Bank has assessed Austraclear's settlement processes and found them to be consistent with a rating of *observed*.



## 4. Special Topic – The Current CHES

---

### 4.1 Summary

This chapter presents results of a detailed review of the current CHES – ASX’s CS system for cash equities. The resilience and lifespan of the current CHES has become more critical following the pausing of the CHES Replacement Program. ASX has developed a plan for the support and maintenance of the current CHES over the next couple of years and has also made a public undertaking that they have the resources and capabilities to support the ongoing operation, maintenance and investment in the current CHES.<sup>11</sup> However, the Bank is still concerned about risks in a few key areas for which further evidence is needed to provide assurance that these risks are being mitigated. These key risk areas are:

- management of ageing assets supporting the current CHES
- capacity requirements and bottlenecks
- the management and sufficiency of resources
- the overall management of risks.

The expectations outstanding from the Bank’s Letter of Expectations have also been included as recommendations throughout this chapter. The findings in this chapter have been reflected in the ratings for the relevant FSS. An update on the CHES replacement is also provided.

### 4.2 Background

In November 2022, ASX announced it was pausing the CHES Replacement Program to reassess all its aspects. The Bank and ASIC have publicly noted the significant ramifications of this decision concerning the replacement of critical financial market infrastructure. Following this decision, ASX will need to focus more intensely on the longevity of the current CHES. The Bank and ASIC have taken regulatory actions since ASX’s announcement to ensure the highest priority is given to ensuring the stability and resilience of the current CHES and progressing the design and implementation of its replacement.

It is critical that ASX ensures the current CHES system continues to reliably service the market until after its replacement goes live. The Bank, alongside ASIC, will take any further regulatory response required to ensure ASX places high priority on maintaining and supporting the current CHES to meet ongoing resilience, reliability, integrity and security needs. This detailed review into the current CHES is part of the Bank’s regulatory response.

### 4.3 Scope of this special topic review of the current CHES

To determine the scope of this review, the Bank mapped the key risks of the current CHES to the FSS:

---

<sup>11</sup> The undertaking was an expectation from the Bank’s Letter of Expectations for the Current CHES and CHES replacement.



- *Operational Risk – Performance, resilience and capacity*: The main risk for the current CHES stems from it being a 29-year-old system that was expected to be replaced by April 2023.<sup>12</sup> The FSS on Operational Risk requires ASX to ensure that the current CHES has a high degree of security and operational reliability as well as adequate, scalable capacity. ASX is also required to organise the current CHES's operations to ensure service continuity in a crisis.
- *Operational Risk – Availability of resources and vendor management*: ASX has significant key person risk in relation to the current CHES given the required skillset to service the ageing system, including resources with experience in the programming language. Furthermore, the current CHES's supporting technology and infrastructure rely on continued vendor support that cannot be assured long term. The FSS on Operational Risk requires ASX to ensure that it can reliably access well-trained and competent personnel and other resources to support the ongoing operation and maintenance of the current CHES. The Operational Risk FSS also requires ASX senior management to identify, monitor and control outsourcing risks and third-party dependencies.
- *Operational Risk – Risk management framework*: The FSS require that ASX should have a robust operational risk management framework to identify, monitor and manage operational risks.
- *Governance – Financial stability objectives and stakeholder interests*: The abrupt pause to the CHES Replacement Program has raised questions about ASX's compliance with its obligation to have governance arrangements that are clear and transparent, promote the safety of the central counterparty, and support the stability of the broader financial system. The FSS also impose obligations in relation to stakeholder consultation and engagement.
- *Governance – Conflicts of interest*: In its previous assessments of ASX, the Bank expressed concerns about potential conflicts between the commercial interests of ASX Limited and the financial stability obligations of the CS boards. The Bank's guidance accompanying the Governance FSS specifies that a CS facility that is part of a for-profit entity may need to place particular emphasis on managing any conflicts between income generation and safety. It is critical there are measures in place to appropriately manage any such conflicts, including to ensure the maintenance and support of the current CHES is given high priority.

## 4.4 Findings and recommendations

### 4.4.1 Operational Risk – Performance, resilience and capacity

The Operational Risk FSS requires ASX to have exacting targets for systems such as the current CHES. While the current CHES has been performing reliably to-date, the Bank's focus is on gaining assurance of future performance and resilience, which depends on ongoing vendor support for its hardware and software, including upgrades, security patches and bug fixes.

In December 2022, ASIC directed ASX to provide to ASIC and the Bank a Special Report on the current CHES. The Special Report was published in June 2023 and included a CHES Roadmap, and an action plan to enhance the current CHES and ensure it remains operationally reliable until a new solution is implemented.<sup>13</sup> The roadmap initiatives, however, only cover up to 2026. ASX confirmed that many vendors for the current CHES's supporting technology and infrastructure have not yet announced upgrade plans beyond 2025. This is a key risk that requires ongoing management. It will be important

<sup>12</sup> This was revised from the original go-live date of April 2021.

<sup>13</sup> ASX (2023) '[ASX CHES Special Report of ASX Clear Pty Limited and ASX Settlement Pty Limited](#)', June.

for ASX to frequently update its CHES Roadmap with new actions as vendor plans become clearer. A robust annual process for updating the CHES Roadmap is needed to ensure all actions related to the support and maintenance of the current CHES are clearly communicated as part of the management of risks related to the current CHES.

The Operational Risk FSS also requires ASX to ensure that the current CHES has scalable capacity adequate to handle increasing stress volumes and achieve its service level objectives, including required processing speed. ASX should monitor, review and test (including stress test) the actual capacity and performance of the system on an ongoing basis.

Throughout the assessment period, the current CHES operated with more than 100 per cent headroom to the maximum tested capacity of 10 million trades per day. The tested capacity is much higher than the average trading volume during the first five months of the 2023 calendar year of around 1.9 million trades, and a maximum of 2.9 million trades. ASX's existing forecast model predicts that daily trades are likely to reach the maximum tested capacity of 10 million by 2030.<sup>14</sup>

The CHES Roadmap envisages additional stress tests of the current CHES by the end of 2023. These will be breakpoint stress tests with the objective of identifying the number of daily trades that result in the system failing to meet its performance targets.

**Recommendation:** ASX should:

- by 30 June 2024, implement a robust annual process of updating the CHES Roadmap to ensure that all planned upgrades and material changes to the current CHES are incorporated
- provide ASX boards and the regulators with ongoing visibility of the CHES Roadmap, relevant risks, new deliverables and measures to ensure continued compliance with the FSS
- share the latest CHES Roadmap with the industry at least on an annual basis
- progress and safely implement currently identified and any new deliverables, including required upgrades.

**Recommendation:** By 31 January 2024, ASX should provide the regulators with details of the capacity bottlenecks identified during breakpoint stress tests.

**Recommendation:** By 30 June 2024, subject to the results of the breakpoint stress tests, ASX should test the effect on performance if daily trading volumes go up to 15 million (above 100 per cent headroom to the historical peak of 7 million), identify key bottlenecks and communicate those to the ASX boards and the regulators.

#### 4.4.2 Operational risk – Availability of resources and vendor management

As part of managing operational risk in accordance with the FSS, ASX should ensure that it can reliably access well-trained and competent personnel, and other resources to support the ongoing operation and maintenance of the current CHES. Given the limited pool of people with the requisite programming skills and other competing priorities within ASX, the Bank is concerned about ASX's ability to secure required resources to support the current CHES. The risk is currently being addressed through additional recruitment and training of existing and newly hired staff.

---

<sup>14</sup> It is important to note that the forecast model is being refined for outlier events, such as the COVID-19 pandemic when in mid-March 2020 the trading volumes reached 7 million trades a day.

The current CHES largely remains an internally developed and managed system. However, recognising challenges with maintaining sufficient internal resources, ASX has recently signed a new managed service agreement for the current CHES operational system and the database with an existing partner. This new arrangement will allow ASX to refocus some internal resources to other tasks but will not eliminate the key person risks entirely. The Operational Risk FSS requires ASX management to identify, monitor and control outsourcing risks. The Bank and ASIC will continue to engage with ASX on its outsourcing plans in relation to the current CHES.

#### 4.4.3 Governance – Financial stability and stakeholder interests

The Bank has requested ASX publish its governance arrangements, including responsibilities and accountabilities, in relation to the current CHES and the CHES replacement. This is expected in the December quarter of 2023. The accountabilities should also be clearly documented in the accountability documentation for the relevant executives.

Some stakeholders of the current CHES continue to express concerns about ASX’s engagement with the industry. Issues of this nature have also been raised at other times during the history of the paused CHES Replacement Program.

**Recommendation:** By 31 December 2023, ASX should ensure that responsibilities under the CHES Roadmap are included in ASX accountability documentation.

**Recommendation** (from the Bank’s Letter of Expectations):<sup>15</sup> ASX should publish its governance arrangements in relation to the current CHES and its replacement project by 31 October 2023.

**Recommendation** (from the Bank’s Letter of Expectations): ASX should identify any upgrades that are required for CHES to comply with the FSS and communicate its plans to consult stakeholders and implement these changes in a safe and timely way. ASX is to consult stakeholders in relation to any material changes to the current CHES and publish key details and timelines for all upgrades to CHES.

#### 4.4.4 Governance – Conflict of interests

The Governance FSS specifies that a CS facility that is part of a for-profit entity may need to place particular emphasis on managing any conflicts between income generation and safety. ASX has engaged an external consultant to provide expert advice to identify potential conflicts between the commercial interests of ASX Group and the regulatory obligations of the CS facilities. The external review found that ASX has effective controls to managing intra-group conflicts of interest relating to the current CHES and CHES replacement. The review recommended several enhancements, including additional staff guidance on intra-group conflicts management and further strengthening the role of non-ASX directors on the CS boards in the decision-making process. The Bank will monitor ASX’s implementation of these recommendations from the external review.

#### 4.4.5 Operational risk – Risk management

ASX should have a robust operational risk management framework to identify, monitor and manage operational risks. The Audit of the Special Report on the support and maintenance of CHES by EY

---

15 As noted above, the Bank will be monitoring all expectations in the Bank’s Letter of Expectations for the Current CHES and CHES replacement in the same manner as recommendations of this Assessment.

finalised on 31 May includes recommendations to enhance risk monitoring and reporting practices for the current CHES.<sup>16</sup>

**Recommendation:** By 31 December 2023, ASX should provide the Bank and ASIC with details of its progress on meeting the recommendations in the Audit Report.

## 4.5 CHES replacement update

During the next assessment period, the Bank, in coordination with ASIC, will continue working with ASX to ensure the previous failures of the CHES Replacement Program are not repeated. The Bank's expectations publicly stated in its Letter of Expectations have been reviewed and, as applicable, are restated below as recommendations.

**Recommendation** (from the Bank's Letter of Expectations): By 30 June 2024, ASX should implement the 45 recommendations from the independent review of CHES replacement, conducted by Accenture. ASX should also ensure that any relevant steps are taken to apply lessons learnt from the external review more holistically across the enterprise.

**Recommendation** (from the Bank's Letter of Expectations): ASX should assess the risks and benefits of various transition options during the solution redesign phase and choose a transition option that appropriately manages the transition risks.

**Recommendation** (from the Bank's Letter of Expectations): ASX should clearly communicate to regulators what their back-up plan will be in the event that the replacement system is not delivered before supportability of the current CHES is severely compromised. The risks around the back-up plan should be appropriately identified, assessed and monitored, with appropriate controls put in place to mitigate these risks. This communication to the regulators on the back-up plan should be at the same time as communication on the solution selection decision. ASX should also clearly communicate to stakeholders what their back-up plan will be if the selected CHES replacement solution is unable to be implemented. This communication to stakeholders should be well in advance of the current CHES being severely compromised to ensure stakeholders have sufficient and appropriate notice to test and implement the back-up plan in a safe manner.

**Recommendation** (from the Bank's Letter of Expectations): ASX should provide the regulators with full and unfettered access to their new delivery partners for the CHES Replacement Program and contractually require their delivery partners to cooperate with the regulators.

**Recommendation:** ASX should publish on its website its project and implementation timeline with dates for key milestones. This plan should have a new and credible go-live date for CHES replacement.

---

16 EY (2023) '[Audit of Special Report on the support and maintenance of current CHES](#)' (May).

## 5. Special Topic – Credit Risk

---

### 5.1 Summary and Rating

During the assessment period, the Bank conducted a detailed assessment of ASX CCPs' compliance with the Credit Risk FSS,<sup>17</sup> including the supplementary CPMI-IOSCO guidance – *Resilience of Central Counterparties (CCPs): Further Guidance on the PFMI* ('CCP Resilience Guidance').<sup>18</sup>

While both ASX Clear and ASX Clear (Futures) were generally found to have a robust framework to manage credit risks arising from their clearing processes, there were several gaps identified during the assessment. Three are considered issues of concern that should be addressed in a defined timeframe. Accordingly, ASX's adherence to the Credit Risk standard is consistent with a rating of *broadly observed* for both ASX CCPs; this rating has been unchanged since 2018.

### 5.2 Background

Credit risk is broadly defined as the risk that a counterparty will be unable to fully meet its financial obligations to the CCP as they fall due or at any time in the future. In the event of a participant default, the CCP assumes the obligations of that participant's portfolio, including any uncovered losses realised in closing out that portfolio. Under the FSS, the ASX CCPs are required to 'establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its clearing processes'.

There are five broad ways that both ASX CCPs manage credit risk exposures to clearing participants:

**Participation requirements:** This includes minimum capital requirements for participants.

**Variation margin:** ASX CCPs collect variation margin to prevent the build-up of current exposures between a CCP and its participants as prices move.

**Initial margin:** ASX CCPs collect initial margin from participants to mitigate potential future credit exposures during times of normal volatility.

**Default fund and stress testing:** ASX CCPs maintain a default fund that can be used to meet any losses in excess of initial margin collected to mitigate potential future credit exposures in the event of a participant default during times of stress.

**Recovery of credit losses:** If prefunded resources are inadequate upon the default of a participant, ASX CCPs have explicit rules and procedures to recover any credit losses it may face.

---

17 ASX SSFs (ASX Settlement and Austraclear) do not assume credit risk as principal and as such are not assessed against the credit risk standard.

18 CPMI-IOSCO (2017), ['Resilience of Central Counterparties \(CCPs\): Further Guidance on the PFMI'](#), July.

## 5.3 Detailed findings and recommendations

### 5.3.1 ASX Clear (Futures) excluded two historical scenarios from stress tests without following appropriate governance processes

ASX CCPs conduct stress tests including scenarios based on historical events. The CCP Resilience Guidance indicates that ‘historical scenarios carry an initial presumption of plausibility because they are based on events that have, in fact, occurred’ and ‘if a CCP’s management recommends removing any historical event from the margin assumptions or stress-testing scenarios, then the board should require management to perform a comprehensive, rigorous analysis’. As part of the 2020/21 Assessment, the Bank identified that ASX Clear (Futures) excluded the 1987 stock market crash from its stress test scenarios and accordingly introduced an Area of Supervisory Focus requiring ASX to validate whether its stress scenarios should cover an event of similar severity to the 1987 stock market crash, considering differences in the current market environment.

ASX engaged an external firm to validate its approach, which concluded that the exclusion was reasonable and in line with international practice. The report found that there were several changes to market infrastructure since that event that would make the magnitude of the scenario implausible in the current market environment.

During this assessment period, the Bank found that ASX Clear (Futures) also excluded the 1989 stock market crash as well as an intra-day ‘flash crash’ in the 10-year bond futures market in 2020 from its stress testing scenarios. ASX’s clearing risk policy specifies that the boards of ASX’s CCPs must review and approve the exclusion of historical scenarios that are determined to be implausible. However, the boards were not given an opportunity to review and approve the exclusion of these scenarios from stress tests. The Bank believes it is important that ASX ensures appropriate oversight and governance of such decisions.

**Recommendation:** ASX CS boards should review the exclusion of the historical scenarios by March 2024 and ASX management should put procedures in place to ensure proper governance processes are followed for future decisions.

### 5.3.2 ASX Clear should monitor and mitigate its exposure to wrong way risks

The CCP resilience guidance indicates that a CCP should consider potential wrong way risks in its stress test framework. Wrong way risk arises when the credit exposure to a counterparty increases with the risk of a counterparty’s default.

ASX Clear allows participants to clear equities for a related entity as well as posting equity of a related entity as collateral for client positions. The default of a clearing participant may coincide with a significant decline in the value of the securities of a related entity. This is not currently captured in ASX Clear’s stress test scenarios. During the assessment period, ASX Clear conducted a materiality assessment and found that some of the wrong way risks were material, and that stress test results may have understated potential exposures to some participants. In rare cases, the exposures were a significant fraction of the ASX Clear default fund size. Accordingly, the Bank sees this as an issue of concern that should be addressed in a defined timeframe.

ASX Clear plans to address this risk by introducing additional stress test scenarios that capture wrong way risks and collect additional margin where necessary.

**Recommendation:** ASX should introduce additional stress test scenarios to monitor and mitigate

specific wrong way risks at ASX Clear by 31 December 2024.

### 5.3.3 ASX CCPs assume margin requirements have been fully paid at the time of stress test calculations

Both ASX CCPs conduct stress tests at the conclusion of the day using closing prices and positions. These stress tests assume that, at the time of a stress test calculation, initial and variation margin have been fully paid. However, in practice, margin is called in arrears and is only required to be posted the following morning for any outstanding margin at the end of the day.<sup>19</sup> This means that any mark-to-market losses since the previous margin call or unpaid initial margin from new positions are not accounted for in the stress test calculation. As a result, the calculation may underestimate the potential losses faced by the CCP.

During the assessment, the Bank found several instances where stress test results may have been materially understated. The accuracy of stress test results is important to assess the adequacy of the ASX CCPs to handle participant default(s) in extreme but plausible scenarios. Accordingly, the Bank views this finding as an issue of concern.

**Recommendation:** ASX should account for outstanding margin payments in its stress test calculations. ASX should present a plan and timeline to the Bank to address this recommendation by 31 December 2023.

### 5.3.4 Some of ASX's internal policies have not been embedded in practice

The Bank noted several examples of ASX not following internal clearing risk policies in practice. These did not necessarily result in outcomes that were inconsistent with the Credit Risk FSS. However, internal policies play an important role in governing the way in which ASX satisfies the FSS and a cultural lack of adherence may increase the likelihood of future breaches.

Internal Audit reviews of the ASX CCPs policies and standards also identified gaps between documented requirements and observed practices. In response, ASX's clearing risk policy team has set up a schedule for monitoring key clearing risk reviews set out in the policies and standards, highlighting those that are overdue.

**Recommendation:** ASX should complete all overdue key clearing risk reviews set out in the policies and standards that are rated as high and medium materiality by 30 June 2024.

### 5.3.5 Rules are not in place to allow ASX to change the default fund size

Both ASX CCPs are systemically important in multiple jurisdictions and are therefore required to maintain sufficient financial resources that would withstand the default of any two participants (and their affiliates) in extreme but plausible scenarios. Over the assessment period, both CCPs had no situations where they were in breach of this requirement.

Clear processes should be in place to increase pooled financial resources when projected stress test losses for participants are frequent and widely dispersed across participants. While ASX monitors the frequency and dispersion of the extent to which stress test limits are exceeded, ASX self-identified that rule changes (e.g., changes to participant contributions) may be needed to allow for changes in the default fund size. This would require participant consultation before implementing.

---

<sup>19</sup> ASX Clear (Futures) also collects variation margin overnight on some products.



During the assessment period, the risk arising from not having these rules in place was low. The frequency and dispersion of the extent that participant stress test limits were exceeded was within ASX's appetite for both CCPs. Moreover, participants that exceed stress test limits must meet additional margin calls to limit credit risk to participants.

### 5.3.6 ASX CCPs do not conduct intraday stress testing across all products

The FSS CCP guidance indicates CCPs should be capable of calculating exposures to participants intraday and at short notice. Monitoring of intraday stress test exposures was implemented for exchange traded products on ASX Clear (Futures) during the assessment period. However, OTC products on ASX Clear (Futures) as well as all products on ASX Clear are yet to have intraday monitoring of stress testing results. In addition to monitoring, further work needs to be conducted to enable ASX CCPs to call additional margin in response to stress test exposure exceedances.

Without intraday stress testing, CCPs may accumulate significant potential exposures between daily stress tests that coincide with the default of a participant. ASX Clear (Futures) has implemented intraday stress testing for all products except OTC products. ASX Clear monitors the build-up of exposures based on end-of-day options positions and intraday cash market positions and prices. Given these tools ASX has in place during the interim period, this is seen as a minor gap that can be addressed in the normal course of business.

### 5.3.7 ASX could further enhance its framework to regularly review the risk factors to which the CCP is most exposed

CCPs are also required to identify risk factors they are most exposed to in estimating potential counterparty exposures. The definition of risk factors is broad, but examples include the movement in prices of key products such as equity prices, or scenarios that are modelled through a combination of products such as a steepening of the interest rate yield curve. The CCP Resilience Guidance further indicates that 'the set of risk factors used ... should be justified using a combination of expert judgment and reliable statistical techniques that allow a CCP to identify – on an ongoing basis – the risk factors to which it is most exposed'.

Without a robust framework to review the risk factors to which the CCP is most exposed, scenarios used in stress tests may understate the potential credit exposures a CCP may face. As an example, prior to this assessment period, ASX Clear (Futures) did not include electricity products as a driving risk factor in scenarios. During the assessment period, some participants had relatively concentrated positions in electricity products and the potential exposures of ASX Clear (Futures) to some clearing participants may have been materially understated in stress tests. Following the large moves in electricity prices in mid-2022, ASX remediated this issue by introducing additional scenarios driven by electricity products, which were further enhanced in December 2022. ASX is currently in the process of enhancing its credit stress test scenario selection methodology that will ensure scenarios provide appropriate risk coverage for all risk factors to which the CCP is most exposed.

ASX considers the adequacy of risk factors as part of regular reviews of participants' positions, and it plans to make improvements to its existing framework during the upcoming assessment period. Given ASX is already in the process of reviewing and updating its scenarios, the Bank sees this as a minor gap and is satisfied with ASX's planned approach.



## 6. Appendix A: Summary of Progress 2022/23

The tables below summarise actions taken by the ASX CS facilities during the 12 months to June 2023 (the assessment period) to address recommendations identified in the Bank's 2022 *Assessment of ASX Clearing and Settlement Facilities*, as well as outstanding recommendations from previous years. Table 3 summarises all open recommendations as of 30 June 2023, including a summary of progress against outstanding recommendations from previous years. Table 4 provides a summary of recommendations that have been closed or superseded during the assessment period. Table 5 provides a summary of work progressed in the 2022 areas of supervisory focus.

**Table 3: Summary of All Open Recommendations at 30 June 2023**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
2022-8	<b>Legal basis: PSNA.</b> ASX Settlement should apply for approvals as an approved RTGS system and as a multilateral netting arrangement under the <i>Payment Systems and Netting Act 1998</i> (PSNA), or in the case of the multilateral netting approval provide the Bank with legal analysis demonstrating why its existing approval remains valid once changes to the ASX Settlement operating rules required to support the introduction of the CHES replacement have been made.	CCP/SSF 1	ASX Settlement	This recommendation is linked to work on the CHES replacement. Progress is to be reviewed once the CHES Replacement Program has recommenced.	
2023-1	<b>Governance: Board oversight.</b> ASX should redouble its efforts to ensure that key issues are appropriately raised with the ASX boards. By 31 March 2024, ASX should undertake a review of its board agendas, papers and minutes to ensure they enable the boards to debate and provide direction on the key issues raised in this Assessment.  For more information, see section 3.1.	CCP/SSF2	All	New recommendation.	31 March 2024
2023-2	<b>Governance: Self-assessment.</b> The CS boards should continue to require the CS Lead Executives to complete a self-assessment of compliance with the FSS on an annual basis.  For more information, see section 3.1.	CCP/SSF 2	All	New recommendation. Replaces 2021-17.	Ongoing

**Table 3: Summary of All Open Recommendations at 30 June 2023**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
2023-3	<p><b>Governance: Accountability framework.</b> ASX should further strengthen and clarify lines of responsibility and accountability within its CS facilities. It should ensure that its accountability documents:</p> <ul style="list-style-type: none"> <li>are clear and specific, with no gaps or unintended overlaps in accountabilities, and</li> <li>articulate desired outcomes and hold executives to high standards.</li> </ul> <p>ASX should complete planned testing of the accountability documents against a set of hypothetical outcome scenarios to validate their effectiveness.</p> <p>For more information, see section 3.1.</p>	CCP/SSF2	All	New recommendation. Replaces 2021-4.	30 June 2024
2023-4	<p><b>Governance: CHES replacement stakeholder engagement.</b> ASX should actively consult stakeholders on the solution redesign, project and implementation timeline for the CHES replacement, and disclose to the regulators and stakeholders the risks and benefits of various transition options.</p> <p>For more information, see section 3.1.</p>	CCP/SSF 2	ASX Clear ASX Settlement	From the Letter of Expectations (paragraphs 9 and 12). In early 2023, ASX established a new industry consultation forum for the CHES replacement, called the Technical Committee.	
2023-5	<p><b>Governance: CHES – Accountability statements.</b> By 31 December 2023, ASX should ensure that responsibilities under the CHES Roadmap are included in ASX accountability documentation.</p> <p>For more information, see section 4.4.</p>	CCP/SSF 2	ASX Clear ASX Settlement	New recommendation.	31 December 2023
2023-6	<p><b>Governance: CHES – Governance arrangements.</b> ASX should publish its governance arrangements in relation to the current CHES and the CHES Replacement Program by 31 October 2023.</p> <p>For more information, see section 4.4.</p>	CCP/SSF 2	ASX Clear ASX Settlement	From the Letter of Expectations (paragraph 14).	31 October 2023
2021-1	<p><b>Governance: CS facility strategies.</b> The objectives, strategies and goals for each CS facility should be documented and communicated within the ASX group. The objectives should explicitly place a high priority on the safety of the facility and explicitly support the stability of the financial system and other relevant public interest considerations. This should include a statement as to how ‘financial stability’ can be practically understood by decision-makers within the CS facilities. It should also set out the strategies</p>	CCP/SSF 2	All	CS Strategy documents were developed and presented to CS boards in September 2022. The strategies explicitly note that each CS facility places a high priority on the safety of the facility and promotes financial stability, with goals and current areas of focus including resilience, safe operations, robust operational performance and sound risk	30 June 2024

**Table 3: Summary of All Open Recommendations at 30 June 2023**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
	that have been adopted to safeguard system stability. CS board processes should include a system for monitoring progress against the strategy and objectives.			management. ASX plans to review the strategies annually.  In the coming assessment period, the Bank will look for ASX to embed regular reporting to the CS boards on progress against the strategic goals.	
2021-15	<b>Governance: Stakeholder management.</b> The ASX boards should continue their emphasis on stakeholder management, potentially through the creation of a stakeholder committee. This should also include more regular meetings with key stakeholders.	CCP/SSF 2	ASX Clear ASX Settlement	ASX introduced several new or enhanced initiatives to improve stakeholder management. These include bilateral meetings between customers and the CEO, invitation of issuer representatives to the Austraclear user forum and a new industry Technical Committee for the CHESSE Replacement Program. New metrics were developed to improve measurement and reporting of stakeholder sentiment.  This recommendation is closed for Austraclear and ASX Clear (Futures). However, the ASX boards need to continue their emphasis on stakeholder engagement in relation to the CHESSE replacement. ASIC has recently led an initiative to establish an industry Advisory Group for strategic matters relating to cash equities clearing and settlement.  See section 3.1	
2018-1d	<b>CCP Resilience Guidance.</b> The ASX CCPs should ensure that roles and processes in relation to the governance of financial risk management are appropriately formalised and documented in order to ensure that the CS boards have sufficient information to effectively oversee the CCPs.	CCP 2, 4, 6, 7	Both CCPs	ASX expects to develop a Model Risk Policy standard in the next assessment period.	Develop Model Risk Policy by December 2023
2018-1e	<b>CCP Resilience Guidance.</b> The ASX CCPs should ensure that their arrangements for disclosure to, and soliciting feedback from, stakeholders cover all relevant aspects of the CCPs' risk management frameworks, including margin sensitivity analysis, reverse stress testing and management of procyclicality.	CCP 2, 4, 6, 7	Both CCPs	ASX expects to update its Reporting and Disclosures Policy in the next assessment period.	Update Reporting and Disclosures Policy by December 2023
2023-7	<b>Internal audit.</b> ASX should complete its response to the recommendations made in the external review of its Internal Audit function. As part of the	CCP/SSF 2, 3	All	New recommendation.	Plan to implement cultural change by

**Table 3: Summary of All Open Recommendations at 30 June 2023**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
	<p>response, the ASX executive team and new GM IA should identify the cultural changes required to remediate the relationship between Internal Audit and the executive, while ensuring that Internal Audit remains an independent source of challenge. A plan to implement any required changes should be completed by 31 December 2023. The ASX boards and CEO must place a high priority on ensuring that the Internal Audit function is effective and appropriately supported. ASX should commission a follow-up external review by June 2024 to reassess line 3 effectiveness.</p> <p>For more information, see section 3.1.</p>				<p>31 December 2023</p> <p>External review by 30 June 2024</p>
2021-18	<p><b>Comprehensive management of risks: Risks to and from other entities.</b> ASX should establish a process to periodically conduct systematic assessments of the range of potential risks other entities may pose to its CS facilities and the risks ASX CS facilities could potentially pose to other entities.</p>	CCP/SSF 3	All	ASX has completed its initial assessment.	ASX plans to address by December 2024
2023-8	<p><b>Credit risk: Historical scenario exclusion.</b> ASX CS boards should review the exclusion of the historical scenarios by March 2024 and ASX management should put procedures in place to ensure proper governance processes are followed for future decisions.</p> <p>For more information, see section 5.3.</p>	CCP 4	Both CCPs	New recommendation.	31 March 2024
2023-9	<p><b>Credit risk: Specific wrong way risk.</b> ASX should introduce additional stress test scenarios to monitor and mitigate specific wrong way risks at ASX Clear by 31 December 2024.</p> <p>For more information, see section 5.3.</p>	CCP 4	ASX Clear	New recommendation.	31 December 2024
2023-10	<p><b>Credit risk: Outstanding margin in stress tests.</b> ASX should account for outstanding margin payments in its stress test calculations. ASX should present a plan and timeline to the Bank to address this recommendation by 31 December 2023.</p> <p>For more information, see section 5.3.</p>	CCP 4	Both CCPs	New recommendation. Replaces 2018-1b.	Plan by December 2023
2023-11	<p><b>Clearing risk policy reviews.</b> ASX should complete all overdue key clearing risk reviews set out in the policies and standards that are rated as high and medium materiality by 30 June 2024.</p> <p>For more information, see section 5.3.</p>	CCP 4, 6, 7	Both CCPs	New recommendation.	30 June 2024

**Table 3: Summary of All Open Recommendations at 30 June 2023**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
2018-1a	<b>CCP Resilience Guidance.</b> The ASX CCPs should enhance the comprehensiveness of stress testing to ensure risks are appropriately identified, captured and stressed.	CCP 4, 7	Both CCPs	<p>During the assessment period, ASX Clear (Futures) introduced intraday credit stress testing for exchange traded products and expanded its credit stress testing scenario suite.</p> <p>ASX completed a liquidity stress testing methodology review with a CCP specialist risk consultant and is expecting to commence model development in the following assessment period.</p> <p>ASX is also looking to enhance its credit stress testing scenarios at ASX Clear and introduce collateral stress testing at ASX Clear (Futures) in the next assessment period.</p>	Expected completion by June 2026
2023-12	<b>Margin: Overnight variation margin.</b> ASX Clear (Futures) should develop a long-term strategy for its overnight margin operations by December 2024. For more information, see section 3.4.	CCP 6	ASX Clear (Futures)	New recommendation. Replaces 2022-4 and 2020-2.	Update by 30 June 2024
2023-13	<b>Margin: ASX Clear intraday margin.</b> ASX Clear should enhance its capacity to monitor the build-up of current exposures to participants and to make intraday margin calls to participants. ASX should provide the Bank with a detailed plan and timeline to address this recommendation by June 2024. For more information, see section 3.4.	CCP 6	ASX Clear	New recommendation. Replaces 2022-9 and 2020-2.	Update by 30 June 2024
2022-2	<b>Margin.</b> ASX should develop and implement a plan to review its margin methodologies and systems that takes into consideration international best practice and is designed to produce coherent and consistent risk outcomes from its margin models that are transparent to participants. ASX should discuss its implementation plan with the Bank by 30 September 2023.	CCP 6	Both CCPs	ASX has engaged an external consultant to assist with this work. Replaces 2017-1.	Implementation plan by 30 September 2023
2020-1	<b>Margin.</b> Consistent with the CCP Resilience Guidance, by 30 June 2024 the ASX CCPs should develop a systematic framework to avoid destabilising increases in margin and other financial risk requirements during periods of heightened market volatility. This framework should include an appropriate methodology for measuring the degree of procyclicality in the CCPs' risk models and should consider the potential effect of expert judgement on	CCP 6	Both CCPs	<p>ASX developed an approach to 'what-if' margin simulation to inform potential levels of margin increases and extended the margin floor methodology to include volatility risk factors at ASX Clear (Futures).</p> <p>ASX further intends to: implement 'what-if' margin simulation to inform potential level of prospective</p>	30 June 2024

**Table 3: Summary of All Open Recommendations at 30 June 2023**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
	procyclicality when determining margin and other financial risk requirements.			margin increases; enhance the measurement of procyclicality; and complete the design and implementation of a systematic procyclicality framework.	
2023-14	<p><b>Operational risk: Ageing asset roadmap.</b> By 31 December 2023, ASX should develop a comprehensive roadmap for the remediation of currently identified ageing assets. This roadmap should:</p> <ul style="list-style-type: none"> <li>include timelines and dependencies for remediation (e.g., key milestones such as business case and funding approval)</li> <li>clearly specify the prioritisation of system remediation</li> <li>include details of the key risks for assets that will reach the end of their support period or end-of-life before remediation or replacement</li> <li>include the implementation of short-term controls to mitigate these risks.</li> </ul> <p>The roadmap should be approved by the ASX boards, and regular progress updates should be provided to the boards.</p> <p>For more information, see section 3.3.</p>	CCP 16 SSF 14	All	New recommendation.	31 December 2023
2023-15	<p><b>Operational risk: Evergreen strategy.</b> By 30 June 2024, ASX should develop and begin implementing a long-term strategy to proactively identify ageing assets and remediate the risks before they materialise.</p> <p>For more information, see section 3.3.</p>	CCP 16 SSF 14	All	New recommendation.	30 June 2024
2023-16	<p><b>Operational risk: Vendor management.</b> ASX's vendor management policy should be consistently applied for all vendor arrangements supporting the CS facilities. The outsourcing policy should be completed and applied to all outsourcing arrangements for the CS facilities.</p> <p>For more information, see section 3.3.</p>	CCP 16 SSF 14	All	New recommendation.	31 December 2023
2020-6	<p><b>Operational risk: IBM Review.</b> Consistent with the 2021 Licence Conditions, ASX should continue to address the findings from the IBM Review of the Trade Refresh project, and ensure that any relevant steps are taken to apply lessons learned to its CS operations and in particular to the CHES Replacement Program.</p>	CCP 16 SSF 14	All	56 of the 59 IBM Review recommendations have been implemented and assessed by an independent expert (EY) as closed. The remaining three recommendations are expected to be closed by	September quarter 2023

**Table 3: Summary of All Open Recommendations at 30 June 2023**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
				August 2023. ASX will then engage EY to perform further spot-checks of embedment.	
2020-7	<b>Operational risk: Management.</b> The ASX CS facilities should continue to embed the use of new systems and processes supporting change management, incident management and knowledge management, and use these systems to identify, monitor and manage operational risks at an enterprise-wide level. ASX Internal Audit should complete its review of the effectiveness of these systems and processes in practice.	CCP 16 SSF 14	All	ASX completed recommendations from an external review by KPMG of the operating effectiveness of its enterprise risk management framework. These included recommendations on risk identification, management, and reporting. One of the recommendations, relating to control testing, was partially implemented, with testing of all key controls to be completed by 30 June 2024. Implementation of the recommendations was verified by KPMG.  Enhancements were also made to the IT Service Management tool. A business-as-usual (BAU) process to ongoing enhancement has been established. All KPMG ERM recommendations have been closed. ITSM releases and enhancements are on track.	June 2024
2020-8	<b>Operational risk: Risk management systems.</b> The ASX CCPs should implement plans to ensure that their core systems have the functionality to fully support their risk management approach, including by migrating processes currently operated on non-core systems to core systems.	CCP 16	Both CCPs	ASX intends this work to be included in the scope of the ASX derivatives project, which has extended the timeline for completion.	ASX aims to have closed this recommendation by June 2029
2023-17	<b>Operational risk: CHES – Independent review recommendations.</b> By 30 June 2024, ASX should implement the 45 recommendations from the independent review of CHES replacement, conducted by Accenture. ASX should also ensure that any relevant steps are taken to apply lessons learnt from the external review more holistically across the enterprise.  For more information, see section 4.5.	CCP 16 SSF14	ASX Clear ASX Settlement	From Letter of Expectations (paragraph 8).	30 June 2024
2023-18	<b>Operational risk: CHES – The CHES Roadmap.</b> ASX should: <ul style="list-style-type: none"> <li>by 30 June 2024, implement a robust annual process of updating the CHES Roadmap to ensure that all planned upgrades and material changes to the current CHES are incorporated</li> </ul>	CCP 16 SSF 14	ASX Clear ASX Settlement	New recommendation. Replaces 2022-7.	30 June 2024

**Table 3: Summary of All Open Recommendations at 30 June 2023**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
	<ul style="list-style-type: none"> <li>provide ASX boards and the regulators with ongoing visibility of the CHES Roadmap, relevant risks, new deliverables and measures to ensure continued compliance with the FSS</li> <li>share the latest CHES Roadmap with the industry at least on an annual basis</li> <li>progress and safely implement currently identified and any new deliverables, including required upgrades.</li> </ul> <p>For more information, see section 4.4.</p>				
2023-19	<p><b>Operational risk: CHES – Capacity bottlenecks.</b> By 31 January 2024, ASX should provide the regulators with details of the capacity bottlenecks identified during breakpoint stress tests.</p> <p>For more information, see section 4.4.</p>	CCP 16 SSF 14	ASX Clear ASX Settlement	New recommendation.	31 January 2024
2023-20	<p><b>Operational risk: CHES – Capacity test.</b> By 30 June 2024, subject to the results of the breakpoint stress tests, ASX should test the effect on performance if daily trading volumes go up to 15 million (above 100 per cent headroom to the historic peak of 7 million), identify key bottlenecks, and communicate those to the ASX boards and the regulators.</p> <p>For more information, see section 4.4.</p>	CCP 16 SSF 14	ASX Clear ASX Settlement	New recommendation.	30 June 2024
2023-21	<p><b>Operational risk: CHES – Upgrades to comply with the FSS.</b> ASX should identify any upgrades that are required for CHES to comply with the FSS and communicate its plans to consult stakeholders and implement these changes in a safe and timely way. ASX is to consult stakeholders in relation to any material changes to the current CHES and publish key details and timelines for all upgrades to CHES.</p> <p>For more information, see section 4.4.</p>	CCP 16 SSF 14	ASX Clear ASX Settlement	From the Letter of Expectations (paragraph 5).	
2023-22	<p><b>Operational risk: CHES – Audit of the special report.</b> By 31 December 2023, ASX should provide the Bank and ASIC with details of its progress on meeting the recommendations in the Audit Report.</p> <p>For more information, see section 4.4.</p>	CCP 16 SSF 14	ASX Clear ASX Settlement	New recommendation.	31 December 2023



**Table 3: Summary of All Open Recommendations at 30 June 2023**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
2023-23	<p><b>Operational risk: CHES – Transition option.</b> ASX should assess the risks and benefits of various transition options during the solution redesign phase and choose a transition option that appropriately manages the transition risks.</p> <p>For more information, see section 4.5.</p>	CCP 16 SSF 14	ASX Clear ASX Settlement	From the Letter of Expectations (paragraph 9), due date added.	31 December 2023
2023-24	<p><b>Operational risk: CHES – Back-up plan.</b> ASX should clearly communicate to regulators what their back-up plan will be in the event that the replacement system is not delivered before supportability of the current CHES is severely compromised. The risks around the back-up plan should be appropriately identified, assessed and monitored, with appropriate controls put in place to mitigate these risks. This communication to the regulators on the back-up plan should be at the same time as communication on the solution selection decision. ASX should also clearly communicate to stakeholders what their back-up plan will be if the selected CHES replacement solution is unable to be implemented. This communication to stakeholders should be well in advance of the current CHES being severely compromised to ensure stakeholders have sufficient and appropriate notice to test and implement the back-up plan in a safe manner.</p> <p>For more information, see section 4.5.</p>	CCP 16 SSF 14	ASX Clear ASX Settlement	From the Letter of Expectations (paragraph 10), due date added.	31 December 2023
2023-25	<p><b>Operational risk: CHES – Vendor access.</b> ASX should provide the regulators with full and unfettered access to their new delivery partners for the CHES Replacement Program and contractually require their delivery partners to cooperate with the regulators.</p> <p>For more information, see section 4.5.</p>	CCP 16 SSF 14	ASX Clear ASX Settlement	From the Letter of Expectations (paragraph 11).	
2023-26	<p><b>Operational risk: CHES – Implementation timeline.</b> ASX should publish on its website its project and implementation timeline with dates for key milestones. This plan should have a new and credible go-live date for CHES replacement.</p> <p>For more information, see section 4.5.</p>	CCP 16 SSF 14	ASX Clear ASX Settlement	From the Letter of Expectations (paragraph 13), due date added.	31 December 2023
2020-5	<p><b>Operational risk: CHES – Capacity and system replacement.</b> ASX should implement the new clearing and settlement system for cash market transactions as soon as this can be safely achieved by ASX and users of</p>	CCP 16 SSF 14	ASX Clear ASX Settlement	Solution decision targeted to be announced by December 2023 and the consultation on the implementation plan to follow. The delivery plan of the replacement system may be done in a phased	

**Table 3: Summary of All Open Recommendations at 30 June 2023**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
	<p>CHESS. In the short term, ASX should complete work underway to increase the joint capacity of the current CHESS and CORE systems.</p> <p>For more information, see section 4.4.</p>			<p>manner that could address the capacity issues in the current trade registration process in CHESS.</p> <p>ASX envisages that it will remove dependency on CORE by end-2024 and will complete Phase 1 of capacity improvement by March 2025, after it implements the new stress testing described in section 4.<sup>20</sup></p>	
2022-6	<p><b>Operational risk: CHESS – CHESS replacement go-live.</b> ASX should prepare for cutover, margin and go-live of the CHESS replacement system, including by:</p> <ul style="list-style-type: none"> <li>• having comprehensive and effective contingency plans in place for dealing with an issue on the go-live weekend or subsequent to go-live</li> <li>• successful execution of migration dress rehearsals</li> <li>• effective arrangements for go-live decision-making, including ASX’s compliance with relevant 2021 License Conditions.</li> </ul> <p>For more information, see section 4.5.</p>	<p>CCP 16</p> <p>SSF 14</p>	<p>ASX Clear</p> <p>ASX Settlement</p>	<p>ASX has begun consideration of potential solution options.</p>	<p>Solution design targeted to be announced by December 2023</p> <p>Consultation on the implementation plan to follow</p>
2023-27	<p><b>Regulatory reporting.</b> ASX should complete its FMI Data Reporting project by 31 December 2023.</p> <p>For more information, see section 3.6.</p>	<p>CCP 21</p> <p>SSF 19</p>	<p>All</p>	<p>Replaces 2021-19.</p> <p>ASX completed work to identify, analyse and uplift documentation of its regulatory obligations. The regulatory reporting framework was updated to clarify processes and responsibilities for reporting controls.</p> <p>ASX made significant progress in uplifting its data reporting. The remaining CHESS-related data are expected to be submitted into the upgraded FMI data collection by December 2023.</p>	<p>31 December 2023</p>

\* Referencing indicates the year the recommendation was first raised and the order in which the recommendation appears in this table. Recommendations have been grouped by standard and topic.

<sup>20</sup> CORE is an ASX internal system responsible for feeding trades submitted to the ASX trade platform into CHESS.

**Table 4: Previous Recommendations Closed or Superseded**

Reference	Previous Recommendation	Standard	Facility	Progress and outcome
2021-3	<b>Governance.</b> As soon as practicable in the circumstances of the current transition to ASX's new operating model, ASX should document governance arrangements that set out clear and direct lines of responsibility and accountability for each of the CS facilities' businesses as required by CCP Standard 2.2/SSF Standard 2.2. This can be done by way of an accountability map that contains the names of staff with senior executive responsibility for all or part of each CS facility's operations. The accountability map could contain details of the reporting lines and lines of responsibility for those senior executives. Such a map would demonstrate the lines of reporting from those senior executives through to a board or board committee within the ASX Group and specify the relevant board or board committee.	CCP/SSF 2	All	Outcome: Closed.  A revised version of the accountability map was provided to the Bank in June 2023. This was updated for new senior executives and included additional detail and clarity on lines of responsibility and accountability for senior executives and other accountable persons.
2021-4	<b>Governance.</b> ASX should clearly specify the roles and responsibilities of directors and of the senior executives referred to in Governance Recommendation 3. This can be done by creating, for each such person, an accountability statement containing details of: (a) the part of the CS facility's business for which that person has senior executive responsibility; and (b) the responsibilities of that person. The accountability statement for the CEO and Managing Director should document his or her responsibility for ensuring that the CS Lead Executive has access to sufficient resources for the operation of the CS facility.	CCP/SSF 2	All	Outcome: Replaced by recommendation 2023-3.  ASX has developed accountability statements for each of the executive and non-executive Accountable Person. The accountability statements were effective from 1 July 2022 and have been revised, as needed, to reflect changes in Accountable Persons and their responsibilities. ASX also introduced a reasonable steps framework whereby accountable persons are required to demonstrate that they have taken the appropriate actions to discharge their accountabilities.  Further work is required to ensure the accountability statements are sufficiently clear and specific, and articulate desired outcomes.  See section 3.1.
2021-16	<b>Governance.</b> The CS facilities should publish a Stakeholder Management Charter, which identifies groups of stakeholders and articulates the ASX's	CCP/SSF 2	All	Outcome: Closed.  ASX published a Stakeholder Charter in August 2022. The charter articulates:

**Table 4: Previous Recommendations Closed or Superseded**

Reference	Previous Recommendation	Standard	Facility	Progress and outcome
	approach to engaging with each group of stakeholders.			<ul style="list-style-type: none"> <li>key principles of stakeholder engagement</li> <li>the engagement framework, including key stakeholders and how we convey important information and consult with them</li> <li>the channels for feedback across stakeholder groups.</li> </ul> <p>See section 3.1.</p>
2021-17	<b>Governance.</b> The CS boards should require the CS Lead Executives to complete a first self-assessment of compliance with the FSS by 31 December 2022. ASX should implement a robust annual self-assessment process that provides the CS boards with ongoing visibility of the CS facilities' compliance with the FSS by June 2023.	CCP/SSF 2	All	<p>Outcome: Replaced by recommendation 2023-2.</p> <p>ASX completed its first self-assessment of their compliance with the FSS in December 2022. The Bank will continue to monitor the quality of subsequent self-assessments.</p> <p>See section 3.1.</p>
2018-1b	<b>CCP Resilience Guidance.</b> To enhance analysis and justification of assumptions used in stress testing models so that risks are adequately captured.	CCP 2, 4, 6, 7	Both CCPs	<p>Outcome: Replaced by recommendation 2023-10.</p> <p>ASX completed work to justify and improve the parameterisation of its stress testing framework.</p> <p>ASX should include outstanding margin obligations in its stress test results.</p> <p>See section 5.3.</p>
2018-1c	<b>CCP Resilience Guidance.</b> To remove the assumption made by ASX Clear that excess collateral will not be withdrawn or decreased during periods of stress to more accurately reflect the extreme but plausible conditions appropriate for stress testing.	CCP 2, 4, 6, 7	Both CCPs	<p>Outcome: Closed.</p> <p>ASX Clear completed work to remove excess collateral from its stress tests.</p>
2022-1	<b>Framework for the Comprehensive Management of Risks.</b> ASX should present the Bank with plans to strengthen the operating effectiveness of ASX's three lines model by 31 December 2022.	CCP/SSF 3	All	<p>Outcome: Closed.</p> <p>ASX presented its plan to the Bank in November. In line with this plan, ASX implemented recommendations from an external review by KPMG of the operating effectiveness of its enterprise risk management framework. These include recommendations on uplifting risk culture, improving the risk management effectiveness of business areas (line 1), and ensuring the independence of the risk management function (line 2). Implementation of the recommendations was verified by KPMG.</p> <p>See section 3.1.</p>
2022-3	<b>Margin.</b> ASX Clear should ensure that its margin period of risk (MPOR) for securities products is	CCP 6	ASX Clear	<p>Outcome: Closed.</p>

**Table 4: Previous Recommendations Closed or Superseded**

Reference	Previous Recommendation	Standard	Facility	Progress and outcome
	consistent with its approach to mark-to-market margin for these products.			ASX demonstrated that the existing flat-rate margin was sufficient to account for the mark-to-market margin approach for these securities. See section 3.4.
2022-4	<b>Margin.</b> By 30 June 2023, ASX Clear (Futures) should review the feasibility of options to remove or mitigate exposures to commercial settlement banks arising from overnight margin processes and develop a plan to implement option(s) found to be feasible.	CCP 6	ASX Clear (Futures)	Outcome: Replaced by recommendation 2023-12.  ASX investigated potential options for an Australian dollar overnight margin call. ASX identified that there were no options found to be feasible in the short term. ASX indicated it would continue the existing US dollar solution in the short term, while developing longer term improvements to the process. These improvements should consider the mitigation of credit exposures to commercial settlement banks.  See section 3.4.
2022-9	<b>Margin.</b> ASX Clear should report to the Bank ahead of the CHES replacement system go -live on how it intends to introduce the intraday margining of cash market positions.	CCP 6	ASX Clear	Outcome: Replaced by recommendation 2023-13.  ASX identified that a scheduled intraday margin call might be feasible for ASX Clear. ASX Clear should enhance its capacity to monitor the build-up of current exposures to participants and to make intraday margin calls to participants.  See section 3.4.
2020-2	<b>Margin.</b> The ASX CCPs should put in place arrangements that allow them to monitor and manage exposures from large late-in-day price movements, including movements that exceed the coverage provided by initial and additional margin. By 30 June 2023, ASX should review the feasibility of options to address this recommendation and develop a plan to implement option(s) found to be feasible.	CCP 6	Both CCPs	Outcome: Replaced by recommendations 2023-12 and 2023-13.  ASX investigated potential options for an Australian dollar overnight margin call at ASX Clear (Futures), which could potentially also be used for margin payments to cover late-in-day price movements for both CCPs where existing payment settlement facilities are not available. ASX identified that there were no options found to be feasible in the short term. ASX Clear (Futures) will consider improvements to overnight margin (including late-in-day movements) as part of its long-term strategy.  ASX Clear identified that introducing a 2pm margin call could be feasible. Making enhancements to its intraday margin process would significantly reduce the materiality of late-in-day movements by collateralising exposures during the day.  See section 3.4.
2020-3	<b>Liquidity risk.</b> The ASX CCPs should take all steps possible to ensure that ASX Clearing Corporation (ASXCC) enters into an updated RITS membership agreement that is consistent with ASXCC's management of collateral and other assets held as trustee for the CCPs.	CCP 7	Both CCPs	Outcome: Closed.  An amended RITS membership agreement (and associated deed poll executed by the ASX CCPs) recognising that ASXCC was acting as trustee were executed with the RBA in November 2022.

**Table 4: Previous Recommendations Closed or Superseded**

Reference	Previous Recommendation	Standard	Facility	Progress and outcome
2017-1	<b>Liquidity add-ons.</b> ASX Clear should complete its review of add-ons to manage liquidity risk for cash market products and implement these add-ons if the review concludes they are needed.	CCP 6	ASX Clear	Outcome: Replaced by recommendation 2022-2.  ASX completed its review on the need for liquidity add-ons for cash market products. The review found that existing margin parameters were sufficiently conservative to cover liquidation costs.  ASX intends to monitor concentration risks in the near-term and will consider the introduction of liquidity add-ons as part of its comprehensive review of margin methodologies (see recommendation 2022-2).
2020-4	<b>Exchange-of-value settlement.</b> ASX Settlement should complete analysis of the legal certainty of powers used to support deferral of the movement of securities if this cannot be achieved on the same day as transfer of cash.	CCP 11 SSF 10	ASX Clear ASX Settlement	Outcome: Closed.  A near final draft confirming the legal certainty of ASX's powers was provided to the Bank. The opinion will be finalised once a proposed change to the ASX Settlement Rules is in its final form.
2019-1	<b>Segregation and portability.</b> ASX Clear should conduct an assessment of whether the protections from arrangements utilising a commingled house/client account structure remain materially equivalent to those provided by omnibus or individual client segregation. ASX should provide the Bank with a plan for implementing omnibus or individual client segregation, or a satisfactory explanation of how any alternative arrangements satisfy the requirements of the FSS, after consulting with industry stakeholders and within 12 months of the CHES replacement system going live.	CCP 13	ASX Clear	Outcome: Replaced by 2024 special topic on 'Segregation and Portability'.  ASX conducted an equivalence assessment of the protections afforded by the current commingled structure compared with client omnibus or individually segregated accounts and found they remain materially equivalent.  ASX also conducted a feasibility assessment which found that moving away from a commingled account structure within the existing CHES system would not be prudently feasible.  The equivalence and feasibility assessments were in response to paragraph 7.b. of the Bank's Letter of Expectations for the current CHES and CHES replacement.  The Bank will consider these issues in more detail as part of the 2024 special topic on 'Segregation and Portability'.  See section 3.5.
2022-5	<b>Operational risk.</b> Consistent with the 2021 licence conditions, ASX should make any necessary adjustments to the assurance program for CHES replacement as part of its broader replan of the program and to take into account lessons learned from the delays to program timelines. ASX should implement the revised assurance program and address findings from assurance reviews.	CCP 16 SSF 14	ASX Clear ASX Settlement	Outcome: Closed.  An overarching assurance program over all of the CHES workstreams has been established and an experienced assurance program director is in place. Regular updates have been provided to the Bank.
2021-15	<b>Governance.</b> The ASX boards should continue their emphasis on stakeholder management, potentially through the creation of a stakeholder committee.	CCP/SSF 2	All	Outcome: Closed.

**Table 4: Previous Recommendations Closed or Superseded**

Reference	Previous Recommendation	Standard	Facility	Progress and outcome
	This should also include more regular meetings with key stakeholders.			<p>ASX introduced a number of new or enhanced initiatives to improve stakeholder management. These include bilateral meetings between customers and the CEO, invitation of issuer representatives to the Austraclear user forum and a new industry Technical Committee for the CHES Replacement Program.</p> <p>ASX updated its risk management system (ERMF) to include greater focus on stakeholder management. New metrics were developed to improve measurement and reporting of stakeholder sentiment.</p>
2022-7	<b>Operational risk.</b> ASX should engage with the Bank and ASIC on its plans to address findings from a planned external review of its key vendor dependency on DA for delivery of the CHES replacement application.	CCP 16 SSF 14	ASX Clear ASX Settlement	<p>Outcome: Replaced by recommendation 2023-18.</p> <p>The Digital Asset (DA) agreement was terminated following the findings of the independent review of CHES Replacement, conducted by Accenture.</p>
2021-19	<b>Regulatory reporting.</b> ASX should complete work under way to review the quality controls and systems it has in place to systematically identify and bring to the Bank's attention information required to be reported to the Bank, and address any gaps identified as part of this review. By June 2023, ASX should implement metrics to monitor the effectiveness of these measures and put processes in place to address gaps. ASX should ensure that these controls are in place for its implementation of the Bank's upgraded FMI data collection.	CCP 21 SSF 19	All	<p>Outcome: Replaced by recommendation 2023-27.</p> <p>ASX completed work to identify, analyse and uplift documentation of its regulatory obligations. The regulatory reporting framework was updated to clarify processes and responsibilities for reporting controls.</p> <p>ASX made significant progress in uplifting its data reporting. The remaining CHES-related data are expected to be submitted into the upgraded FMI data collection by December 2023.</p>

\* Referencing indicates year the recommendation was first raised and the order in which the recommendation appears in Table 3.

**Table 5: Summary of Progress Against 2022 Areas of Supervisory Focus**

Development	Standard	Facility	Actions
<b>Special topics</b>			
<p><b>2022/23 special topics.</b> The Bank will carry out a detailed assessment of the ASX CS facilities' management of credit risk.</p> <p>The Bank will also conduct reviews of:</p> <ul style="list-style-type: none"> <li>• exchange-of-value settlements</li> <li>• central securities depositories</li> <li>• access and participation requirements.</li> </ul>	<p>CCP/SSF 4</p> <p>SSF 10</p> <p>SSF 9</p> <p>CCP 17, SSF 15</p>	<p>All</p> <p>Austraclear</p> <p>Austraclear</p> <p>All</p>	<p>These assessments were completed. Refer to Chapter 3: Developments and Chapter 5: Special Topic – Credit Risk.</p>
<b>Review of planned work</b>			
<p><b>CHES replacement.</b> The Bank will continue to engage with ASX, working closely with ASIC, on the implementation of the CHES replacement system, including on:</p> <ul style="list-style-type: none"> <li>• EY's assessment of the CHES replacement assurance program, and ASX's compliance with the 2021 Licence Conditions</li> <li>• the effectiveness of ASX's arrangements for managing any intragroup conflicts of interest in the CHES Replacement Program between the CS facilities and the wider ASX Group</li> <li>• evidence that key non-functional requirements have been met, including through testing and the broader assurance program</li> <li>• updates to legal analysis confirming the effectiveness of arrangements to protect securities holdings from creditor claims in the event of ASX Settlements insolvency.</li> </ul>	<p>CCP 1, 2, 16</p> <p>SSF 1, 2, 9, 14</p>	<p>ASX Clear</p> <p>ASX Settlement</p>	<p>This remains open given the status of CHES replacement and will be revised again during the next assessment period.</p>
<p><b>CCP Resilience Guidance.</b> The Bank will monitor implementation of ASX's plans to address gaps against the CCP Resilience Guidance.</p>	<p>CCP 2, 4, 5, 6, 7, 15</p>	<p>Both CCPs</p>	<p>ASX continued to make progress against resilience guidance findings, particularly in enhancements to its stress test scenarios and methodology.</p>
<p><b>Enterprise Risk Management Framework.</b> The Bank, working closely with ASIC, will engage with ASX on actions to address recommendations from the 2022 external review of ASX's ERMF and strengthen its risk culture.</p>	<p>CCP/SSF 3</p>	<p>All</p>	<p>During the assessment period, ASX addressed the recommendations in the external review and had those reviewed by the same external consultant. During the next assessment period, ASX needs to address the follow up recommendations by the external reviewer and incorporate the risk management review into ASX's Internal Audit plan to check how well the recommendations have been embedded in practice.</p>
<p><b>Cyber resilience.</b> The Bank will monitor the continued enhancement of ASX's cyber resilience via:</p> <ul style="list-style-type: none"> <li>• the implementation of actions identified in ASX's Cyber Strategy</li> <li>• ASX's evaluation of current and emerging technology that could lead to further enhancements to the abilities of ASX to recover from cyber-attacks in a timely manner.</li> </ul>	<p>CCP 16</p> <p>SSF 14</p>	<p>All</p>	<p>During the assessment period, ASX delivered several cyber resilience uplift initiatives identified in its Cyber Strategy. ASX has also continued the implementation and embedding of its cyber assurance and testing program. ASX engaged with the government on industry-wide initiatives, analysing the potential impact of cyber threats and known vulnerabilities on its environment and any implications for its security posture.</p>



**Table 5: Summary of Progress Against 2022 Areas of Supervisory Focus**

Development	Standard	Facility	Actions
			ASX continued to consider technologies to support its ability to recover operations safely within two hours following an extreme cyber-attack.
<b>Other</b>			
<b>Stress test severity.</b> The Bank will discuss with ASX the outcome of the independent validation of whether its stress scenarios could cover an event of similar severity as the 1987 stock market crash, taking into account differences in the current market environment.	CCP 4, 7	Both CCPs	ASX engaged an external consultant to validate its approach to excluding the 1987 stock market crash from its stress test scenarios. The exclusion was found to be reasonable based on several factors, including changes to market structure since that time. The Bank is satisfied with this conclusion.
<b>Legal certainty of intragroup arrangements.</b> The Bank will conduct reviews of: <ul style="list-style-type: none"> <li>the legal certainty of arrangements for ASX Limited to replenish ASX contributions to the CCPs' default funds</li> <li>the ASX Group Support Agreement, covering aspects outside the scope of the 2018/19 special topic assessment of the CS facilities' legal basis.</li> </ul>	CCP 1, 14 SSF 12	All	These reviews will be progressing in 2024.
<b>Margin.</b> The Bank will discuss with ASX the processes and controls it uses to help ensure the reliability of its margin-related operations, as well as its back-up procedures in the event of an outage affecting the systems it uses to calculate and collect margin.	CCP 6	Both CCPs	During the assessment period, ASX implemented several improvements to margin operations. It will explore further improvements to its margin systems in the coming assessment period, through an end-to-end review of its margin control framework.