

# Assessment of ASX Clearing and Settlement Facilities

September 2024

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# 1. Executive Summary

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The Reserve Bank of Australia (RBA) has carried out its annual Assessment of the ASX Clearing and Settlement (CS) facilities over the period 1 July 2023 to 30 June 2024. 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 RBA 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 RBA's assessment is that the ASX CS facilities observe many of the FSS. The RBA requires ASX to place high priority on board oversight and stakeholder engagement, as well as recommendations related to the management of risk, technology asset lifecycles and vendors.

## 1.1 Key findings

The ASX CS facilities were rated as *observed* or *broadly observed* for many of the FSS. There are three FSS for which all ASX CS facilities were rated as *partly observed*:

- **Governance:** There have been a number of improvements in ASX's governance arrangements, including progress in the effectiveness of ASX's Internal Audit function. However, ASX needs to continue its focus on the effectiveness of board reporting and facilitating constructive stakeholder engagement.
- **Framework for the Comprehensive Management of Risks:** The RBA continues to hold concerns about ASX's risk culture and its persistently heightened risk position.
- **Operational Risk:** The RBA undertook a detailed review of selected aspects of the Operational Risk FSS. The RBA has concerns regarding ASX's management of asset lifecycles, projects and vendors and has made a number of recommendations for their improvement.

Other key findings relating to the FSS include:

- **Segregation and Portability:** The RBA found that both CCPs' adherence to the FSS is consistent with a rating of *broadly observed*. The RBA considers that both CCPs should include porting in their default management 'fire drills' and benchmark their portability arrangements against international best practice.
- **General Business Risk:** The RBA downgraded ASX's CS facilities to *broadly observed*. The RBA expects ASX to complete work to develop a wind-down plan for its CS facilities.
- **Tiered Participation Arrangements:** The RBA downgraded both CCPs to a rating of *broadly observed*. The RBA expects ASX to develop a formal policy to identify, monitor and manage risks that arise from tiered participation arrangements and evaluate any gaps in its ability to manage these risks.
- **Regulatory Reporting:** The RBA rated all ASX CS facilities as *broadly observed*. The RBA expects ASX to review and improve its regulatory reporting processes, including for major inflight projects.

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

The RBA's Assessment of the ASX CCPs and SSFs has been undertaken against the RBA'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 RBA 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: 2024 Ratings of FSS Observance\***

Standard	ASX Clear	ASX Clear (Futures)	ASX Settlement	Austraclear
Legal Basis (CCP/SSF 1)	Observed	Observed	Observed	Observed
Governance (CCP/SSF 2)	Partly observed	Partly observed	Partly observed	Partly observed
Framework for the Comprehensive Management of Risks (CCP/SSF 3)	Partly observed	Partly observed	Partly observed	Partly observed
Credit Risk (CCP/SSF 4)	Broadly observed	Broadly observed	N/A	N/A
Collateral (CCP/SSF 5)	Observed	Observed	N/A	N/A
Margin (CCP 6)	Broadly observed	Broadly observed	N/A	N/A
Liquidity Risk (CCP 7, SSF 6)	Broadly observed	Broadly observed	Observed	Observed
Settlement Finality (CCP 8, SSF 7)	Observed	Observed	Observed	Observed
Money Settlements (CCP 9, SSF 8)	Observed	Observed	Observed	Observed
Central Securities Depositories (SSF 9)	N/A	N/A	Observed	Observed (↑)
Physical Deliveries (CCP 10)	N/A	Observed	N/A	N/A
Exchange-of-value Settlements/Settlement Systems (CCP 11, SSF 10)	Observed	Observed	Observed	Observed
Participant Default Rules and Procedures (CCP 12, SSF 11)	Observed	Observed	Observed	Observed
Segregation and Portability (CCP 13)	Broadly observed (↓)	Broadly observed (↓)	N/A	N/A
General Business Risk (CCP 14, SSF 12)	Broadly observed (↓)	Broadly observed (↓)	Broadly observed (↓)	Broadly observed (↓)

1 See RBA (2023), ['The Reserve Bank's Approach to Supervising and Assessing Clearing and Settlement Facility Licensees'](#), 15 December.

Standard	ASX Clear	ASX Clear (Futures)	ASX Settlement	Austraclear
<b>Custody and Investment Risks</b> (CCP 15, SSF 13)	Observed	Observed	Observed	Observed
<b>Operational Risk</b> (CCP 16, SSF 14)	Partly observed	Partly observed	Partly observed	Partly observed
<b>Access and Participation Requirements</b> (CCP 17, SSF 15)	Observed	Observed	Observed	Observed
<b>Tiered Participation Arrangements</b> (CCP 18, SSF 16)	Broadly observed (↓)	Broadly observed (↓)	Observed	Observed
<b>FMI Links</b> (CCP 19, SSF 17)	Observed	Observed	Observed	Observed
<b>Disclosure of Rules, Key Policies and Procedures, and Market Data</b> (CCP 20, SSF 18)	Observed	Observed	Observed	Observed
<b>Regulatory Reporting</b> (CCP 21, SSF 19)	Broadly observed	Broadly observed (↓)	Broadly observed	Broadly 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 RBA 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).

## 2.2 Recommendations

The RBA 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 RBA requires ASX to prioritise:

- ASX should continue to place high priority on remediating ageing technology assets. ASX should have an appropriate framework or policy for asset lifecycle management that ensures the proactive and timely upgrade or replacement of technology assets.
- ASX should reduce the complexity of its vendor management frameworks and ensure that fundamental controls and processes are mandatory for all key vendors supporting the CS facilities.
- ASX should complete an independent review (conducted by either its Internal Audit or an external expert) of its internal strategy to address its overall heightened level of risk.

## 2.3 Supervisory focus for the year to June 2025

The RBA has identified several areas that will be an important part of its supervisory engagement with ASX in the next assessment period (Table 2).

**Table 2: Supervisory Focus for 2025 Assessment**

Areas of supervisory focus	Standard	Facility
<b>Board reporting.</b> The RBA will monitor the outcome of changes to ASX board reporting to ensure their effectiveness in supporting the boards' ability to discuss and provide direction on key issues.	CCP/SSF 2	All
<b>Technology projects.</b> The RBA, working closely with ASIC, will continue to closely supervise ASX's management and delivery of key technology projects, in particular CHES Replacement, ClearStar and the migration of services to the cloud.	CCP 16, SSF 14	ASX Clear, ASX Settlement, ASX Clear (Futures)
<b>Cyber resilience.</b> The RBA, working closely with ASIC, will continue to monitor ASX's evaluation of its ability to recover from cyber-attacks in a timely manner. The RBA expects ASX to continue undertaking regular independent audits (conducted by either its Internal Audit or an external expert) of its compliance with at least two industry-accepted cyber security standards (e.g. ASD E8 and NIST).	CCP 16, SSF 14	All

## 3. Developments

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### 3.1 Governance

During the assessment period, ASX took steps to address previous concerns about the effectiveness of its Internal Audit function, and to further strengthen its executive accountability framework. Changes to board reporting were introduced towards the end of the period. Further time will be needed to determine whether these changes result in sustained improvement in reports to the ASX boards. This is important to ensure the boards are able to appropriately debate and provide direction on key issues. ASX also needs to maintain focus on facilitating constructive stakeholder engagement during the next phase of CHES Replacement and other projects to upgrade clearing systems. In the meantime, the RBA has maintained the rating of *partly observed* for the Governance FSS.

#### 3.1.1 Board oversight

In response to a recommendation in the 2023 Assessment, ASX commissioned an external review of its board oversight arrangements. The review considered board papers and minutes, interviews with directors and executives, and observation of the February meetings of the boards and board committees. The review found that directors readily provide challenge to management and other board members. The review also noted a culture of transparency and cooperation promoted by ASX's Chief Executive Officer (CEO). However, the review found that papers provided to the boards (particularly those relating to technology and risk-related reporting) were overly long and technical and did not sufficiently highlight key issues for the boards' attention. This is a longstanding issue of concern. The findings in the recent review are consistent with: those made in the RBA's 2021 Assessment; director feedback previously seen by the RBA; and previous reports from ASX external contractors providing assurance on the governance of key ASX projects. Following the review, ASX implemented a new board reporting template.

During the assessment period, the RBA saw examples, through the board minutes, of challenge and direction by the boards, which led to changes by management. However, the RBA considers that there were a few areas where further challenge could have occurred (e.g. with regard to ASX's strategy for managing its overall risk position – see section 3.2.2). The quality and effectiveness of ASX's updated reporting will remain an area of focus for the RBA over the next assessment period.

#### 3.1.2 Internal audit

A remediation of the relationship between Internal Audit and the executive was facilitated by a 'culture reset' following the commencement of the new General Manager of Internal Audit. The Internal Audit function was restructured and expanded to bring on additional resources and capabilities. A stronger stakeholder engagement program was put in place to strengthen Internal Audit's understanding of the business and to provide transparency over the internal audit process, plans and activities impacting the business. Executives' accountabilities were also updated to include specific accountabilities for constructive responses to Internal Audit. A follow-up external review confirmed the effectiveness of

these actions. Audits performed during the assessment period demonstrated effective independent challenge from Internal Audit, and constructive responses to the findings by the executives.

### 3.1.3 Stakeholder management

ASX has engaged with stakeholders through a number of channels during the assessment period, including bilateral meetings and industry forums. Engagement forums for CHES and CHES Replacement include the independently chaired industry Business Committee, the CHES Replacement Technical Committee and related working groups. In September 2023, at the initiative of ASIC, ASX established the ASX Cash Equities Clearing and Settlement Advisory Group (Advisory Group). ASX has facilitated the operation of the Advisory Group, which had an initial focus on CHES Replacement, but has discussed other strategic matters. ASX is undertaking industry consultations on the proposed implementation strategy, timelines and planning for the CHES Replacement project (see section 3.3.1). ASX has also developed a high-level plan for engaging with stakeholders regarding a planned upgrade to its derivatives clearing platforms (ClearStar program, see section 3.3.2).

The RBA is monitoring the effectiveness of these stakeholder management initiatives. Over the coming assessment period, the RBA will be looking for ASX to demonstrate effective management of stakeholder feedback and industry concerns regarding CHES Replacement and ClearStar.

## 3.2 Framework for the Comprehensive Management of Risks

ASX's overall risk culture lags that of major financial institutions. The RBA is concerned about the responsiveness of ASX's risk management priorities to the evolution of key risks. ASX also does not have an orderly wind-down plan (see section 3.5.2). Accordingly, the RBA has maintained the rating of *partly observed* for the Framework for the Comprehensive Management of Risks FSS.

### 3.2.1 Risk culture

ASX measures risk culture using a range of methods, chief among which is an annual staff survey. Since 2023, this survey has been based on the risk culture survey questions administered by the Australian Prudential Regulation Authority (APRA) to some financial institutions. In both 2023 and 2024, ASX's risk culture scores were found to be less mature than those of major financial institutions. This was particularly the case in the areas of risk capabilities and governance.

Following the 2023 survey, ASX developed an action plan to improve its risk culture. The action plan was reviewed by an external consultant, who recommended additional actions. These included defining a target state for risk culture and ensuring consistent communication and leadership on the approach to risk. The RBA expects ASX to continue implementing the action plan and the recommendations from the external review. The RBA agrees with ASX's plans to further assess the maturity of its risk culture against an externally developed model.

The RBA also considers that the risk appetite statement for the ASX CS facilities should expressly emphasise the safety of the CS facilities. It should also explicitly support the stability of the financial system and other relevant public interest considerations. While this is not expressly required by the FSS, the RBA considers this is in keeping with the intention of FSS 2.1. The RBA considers that this would set an appropriate tone for the risk culture of the CS facilities.

The RBA, along with ASIC, will continue to monitor ASX's risk culture and the effectiveness of its three lines of accountability in the next assessment period.

**Recommendation:** In the 2025 assessment period, ASX should continue implementing its plan to improve risk culture. ASX should also implement the recommendations of the external review of this plan, which include defining a target state and ensuring consistent risk communication and leadership.

### 3.2.2 Risk strategy

In 2022, ASX developed an internal strategy to address its heightened overall level of risk. This risk strategy focused on improving key risk indicators (KRIs) that had been historically high. During the assessment period, the RBA raised concerns with ASX about this strategy. Of key concern was the failure to update the risk strategy to focus on significant technology risks that had become apparent in the previous year and the importance of ASX's efforts to remediate them. Following continued RBA feedback, the risk strategy was revised in May 2024. ASX has also been reviewing selected KRIs to check whether they need revising to better measure risks. The RBA expects ASX to take a more proactive approach to updating its risk strategy to ensure that it remains focused on current sources of risk.

During the assessment period, ASX commenced more detailed reporting on its strategy to improve its risk position to the Audit and Risk Committee. It also adjusted the way its overall risk position is reported to the Committee. The RBA encourages ASX to assess over time whether the current reporting provides the boards with a clear view of the overall level of risk.

ASX's Internal Audit plan for 2025 includes an independent review of ASX's strategy to address the heightened level of risk, including a holistic consideration of its KRIs. Following this review, ASX should consider whether changes to its board reporting would be appropriate.

**Recommendation:** By 30 June 2025, ASX should obtain an independent review (conducted by either its Internal Audit or an external expert) of its strategy to address its heightened level of risk. This should include consideration of its KRIs. The review should also consider whether its strategy is responsive to evolving risks.

## 3.3 Technology developments

ASX has several major multi-year technology transformation initiatives underway. The safe and timely delivery of these initiatives is crucial to ensuring that ASX continues to provide critical CS services in a manner that supports financial stability. With such a large portfolio of critical projects, ASX must provide its boards with a clear view of interdependencies and resource contentions between initiatives. It is also important for ASX to have plans in place to manage any associated risks. During the assessment period, the RBA undertook a detailed assessment of ASX's management of operational risks, including in relation to current projects. The assessment and recommendations are presented in Chapter 5. Specific developments within each project are highlighted below.

### 3.3.1 Current CHES and CHES Replacement

#### 3.3.1.1 Current CHES

ASX progressed work on its CHES Roadmap to ensure that the current CHES remains operationally reliable until its replacement is implemented. ASX successfully implemented a version upgrade of the CHES database, ensuring ongoing vendor support. In line with a 2023 RBA recommendation, ASX developed an annual process to review its CHES Roadmap and published an updated version in July 2024.

In response to another of the RBA's recommendations, ASX tested the capacity of CHES to identify bottlenecks and breakpoints at high trading volumes. The system was able to operate with only minor delays at a peak of 12.5 million trades per day. However, a peak of 15 million trades (more than 100 per cent headroom over the historical peak of 7 million) led to significant performance degradation and a break in the system. These issues would have delayed the market opening on the next trading day if such a volume had occurred in live trading. ASX remediated the identified breakpoint and is monitoring the need for further action to reduce the remaining bottlenecks prior to the system's replacement. ASX also implemented and tested guiding principles for managing the market impact in the event of delays relating to high-volume days.<sup>2</sup>

The RBA expects ASX to continue its focus on the operational resilience, reliability, integrity and security of the current CHES until it is replaced. This will require ongoing investment and maintenance. ASX should also ensure that the quantity and capability of its resources are sufficient to complete the items on the CHES Roadmap on schedule.

### **3.3.1.2 CHES Replacement**

ASX announced the solution design and selected vendors for the new CHES Replacement in November 2023. ASX selected a product-based solution, to be delivered by TATA Consultancy Services (TCS). Globally, the product is being used or implemented in several other markets. ASX also appointed Accenture to support project delivery by providing additional capacity, capability and industry experience. An external assurance report concluded that ASX's solution and vendor selection processes were appropriate for the delivery of critical market infrastructure.

ASX, through the industry CHES Replacement Technical Committee, evaluated different transition options and proposed a phased implementation approach to CHES replacement. Phased implementation was considered to provide lower overall delivery risk compared with a single cut-over approach. The first release, expected to go live in the first half of 2026, will provide a new messaging interface for Approved Market Operators. It will also replace clearing functionality, removing the current capacity constraints. The second release (the settlement and sub-register replacement) is estimated for 2029.

ASX has 'onboarded' the CHES Replacement vendors, and implemented an operating model that embeds TCS and Accenture staff in its project teams and governance forums. This is intended to support a consistent understanding of objectives and risks between ASX and the vendors. This addresses a finding from the external review of the previous CHES Replacement project. ASX has been undertaking a 'proof-of-technology' process using an 'out-of-the-box' version of TCS's product run on a public cloud platform. The process focuses on testing capacity and scalability to high trading volumes. ASX has also designed an assurance program to assist with risk management and decision-making at key milestones. The assurance program is intended to support the project's objective of implementing a solution that meets security, reliability, availability and performance requirements.

Industry consultation on the first release was completed in June 2024. A consultation paper on the second release was published in August. In April, ASX also issued a white paper seeking industry views on the costs, benefits and potential timing of shortening the equities settlement cycle to T+1. This was

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<sup>2</sup> Actual volumes over the past year were significantly lower than the tested capacity, at an average of 2.01 million and peak of 2.85 million trades per day. ASX's updated forecasting models predict two-year stress volumes of up to 8 million trades per day prior to the capacity constraint being addressed by the implementation of the first phase of CHES Replacement.

prompted by developments in American and European markets. An implementation of T+1 prior to the second release of CHES Replacement could result in a delay to the completion of the CHES Replacement project. The RBA expects the sequencing of any move to T+1 to be carefully considered in consultation with regulatory agencies. ASX's CHES Replacement project continues to be a key supervisory priority for the RBA and ASIC.

### 3.3.2 ClearStar

ASX is conducting a program of work to upgrade ASX's derivative clearing platforms over a six-year period, through its ClearStar program. ASX's Over-the-Counter derivative clearing platform and its Exchange Traded Derivative futures clearing platform will both be upgraded as part of the program. These upgrades are expected to remediate the risks caused by the age of the systems and the unavailability of long-term support. These risks remain a key concern for the RBA. As a result, the RBA considers the ClearStar program to be vitally important to ASX's ongoing ability to provide CS services in a manner that supports Australia's financial stability.

During the assessment period, there were deficiencies in the reporting of the status of the program to the ASX boards and regulators, delays in acquiring appropriate staff, turnover in program leadership and resource contention between business-as-usual activities and system upgrades. ASX has provided details of key changes that have been made to the program following these issues. The RBA has communicated its significant concerns about the issues encountered by ClearStar and is continuing to evaluate the effectiveness of these changes. Specific issues in relation to reporting to the RBA are dealt with below (see section 3.5.3).

Throughout the ClearStar program, ASX will need to ensure that the program's resource needs are managed appropriately. It is also important that ASX applies the lessons of past experience and ensures that it effectively engages stakeholders throughout this program. ASX will need to ensure that accurate and timely information regarding the ClearStar program is provided to its boards and regulators. The RBA agrees with ASX's plans to complete an internal audit of the ClearStar governance arrangements, and to establish an assurance program similar to that for CHES Replacement. The RBA, working closely with ASIC, will be closely monitoring ASX's management of the ClearStar program.

### 3.3.3 Cloud

ASX has begun the process of developing the capabilities needed to transition CS services to a public cloud environment. ASX's transition to cloud is part of a broader technology modernisation strategy and move to a platform-based design. While the adoption of cloud services can yield benefits to resilience, security and scalability, it also introduces technology and vendor-related risks that must be carefully managed. During the assessment period, the RBA and ASIC communicated to ASX their expectations in relation to the transition of any critical systems to the cloud. The RBA, working closely with ASIC, will continue to monitor ASX's progress, including through supervision of the CHES Replacement project, as it moves closer to migrating key CS systems to the cloud.

## 3.4 Credit Risk and Margin

Daily credit stress testing is an important tool used by the ASX CCPs for assessing the adequacy of their financial resources to cover current and potential future credit exposures. These tests compare each

CCP's available prefunded resources against the largest potential loss in the event of the default of two participants under a range of extreme but plausible scenarios (the Cover 2 requirement).<sup>3</sup>

During the assessment period, ASX Clear and ASX Clear (Futures) each experienced one instance where the Cover 2 requirement exceeded their prefunded financial resources. In both cases, the root cause was the accumulation of significant exposures by a participant late in the day. This led to a potential under-collateralisation if a stress scenario had eventuated. These potential shortfalls were covered by additional margin collected on the morning of the next business day. The breach by ASX Clear occurred on the day of an index rebalancing. As a result, ASX has adopted a more conservative approach to 'pre-collecting' margin on index rebalancing days. ASX is considering its response to the instance at ASX Clear (Futures).

ASX Clear also had an additional instance of exceeding its Cover 2 requirement after the 2024 assessment period. The RBA expects ASX to undertake a holistic consideration of the options available to reduce the likelihood of further instances.

Separately, in response to recommendations in the 2023 Assessment, ASX developed a plan to improve its ability to monitor the accumulation of exposures to participants for cash market products at ASX Clear and to make intraday margin calls. It is also in the process of developing a long-term strategy for overnight margin processes at ASX Clear (Futures). These improvements should help mitigate against an unexpected build-up of risk at the ASX CCPs. The RBA expects ASX to progress these initiatives in the coming assessment periods. This work should be undertaken with due consideration to its potential impact on other strategically important projects, such as ClearStar and CHES Replacement.

## 3.5 Other developments

### 3.5.1 Tiered Participation Arrangements

Tiered participation arrangements occur when indirect participants rely on direct participants to use the services of a CCP or SSF. The RBA conducted a review of ASX's adherence to the Tiered Participation Arrangements FSS. The RBA rated both CCPs as *broadly observed* and has rated both SSFs as *observed*.<sup>4</sup>

Client clearing represents upwards of 60 per cent of initial margin at the ASX CCPs. ASX collects data from participants to monitor the build-up of large client positions and has arrangements in place that allow it to mitigate risks that arise because of such tiering. For example, the ASX CCPs impose additional margin requirements where client positions are highly concentrated at a clearing participant. However, the RBA did not find sufficient evidence that ASX is doing all it can to monitor and mitigate the risks that could arise from tiered participation arrangements. For example, ASX has operated without a formal policy for tiered participation arrangements since 2020. Although ASX has acknowledged the need to address some gaps in its approach to tiering risk, the lack of action to develop a formal policy suggests ASX is failing to place sufficient importance on the management of these risks.

**Recommendation:** By 30 June 2025, ASX should develop a formal policy to identify, monitor and manage risks that arise from tiered participation arrangements for all its facilities. In developing this

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3 RBA (2014), '[Supplementary Interpretation of the Financial Stability Standards for Central Counterparties](#)', 27 October.

4 The RBA does not consider the risks of the tiered participation arrangements at ASX Settlement and Austraclear to warrant a downgrade for the ASX SSFs. These facilities are not exposed to the same level of risk as the CCPs.

policy, ASX should consider whether there are additional actions that can be taken to enhance the monitoring and management of the risks that can arise from these arrangements.

### 3.5.2 General Business Risk

During the assessment period, ASX completed a review of its recovery plan against international regulatory guidance.<sup>5</sup> This review acknowledged that the ASX CS facilities ‘do not maintain an orderly wind-down plan as a possible response to a recovery situation’.

In previous assessments of ASX’s recovery and wind-down arrangements, the RBA has focused on recovery. This reflects the importance of effective arrangements to maintain critical services in extreme circumstances without external support. However, as recovery arrangements have reached a higher level of maturity, ASX should ensure that it addresses all aspects of the FSS. This includes the requirement to develop and maintain comprehensive plans for instances where recovery is ineffective.

A wind-down plan is an important complement to recovery and resolution for a CS facility in distress. Where a recovery plan proves ineffective and no resolution authority is present, the lack of a wind-down plan could result in a disorderly cessation of services that are important to the financial system. A wind-down plan also sets an important alternative path to the resolution of a CS facility in crisis. The absence of a wind-down plan can therefore inappropriately lower the bar for intervention by a resolution authority in circumstances where that would not otherwise occur.

Accordingly, the RBA has rated the ASX CS facilities as *broadly observed* for the General Business Risk FSS. Following discussions with the RBA, ASX has made progress in developing a wind-down plan and, following the end of the assessment period, has provided an advanced draft to the regulators. ASX is expected to complete this work in the coming assessment period.

### 3.5.3 Regulatory Reporting

All ASX CS facilities have been rated *broadly observed* against the Regulatory Reporting FSS. ASX failed to expressly notify the RBA of delays in its major program to upgrade its derivatives platforms, ClearStar, and the deterioration of the program risk status. Significant delays in this program could materially impact ASX’s ability to continue to provide CS services as the existing technology continues to age. Additional risks will arise if vendor support ceases due to the age of the technology. A change of program status is therefore a significant development in the risk position of the ASX CS facilities and should be reported to the RBA.

A similar lapse in project status reporting for the original CHES Replacement project occurred during the 2022 assessment period. This appears to be a pattern in the context of major projects that are essential to the ongoing provision of CS services.

Since the assessment period ended, there has been another regulatory reporting failure that, on this occasion, was not related to a technology project. These failures raise a broader concern that ASX’s approach to reporting is insufficient to ensure regulators are always kept informed in a timely and accurate way. The RBA’s expectation is that regulatory reporting processes, and particularly those for inflight projects, will be reviewed for all facilities over the next assessment period.

ASX has completed the Financial Market Infrastructure (FMI) Data Reporting project for ASX Settlement and ASX Clear, which finishes the project for all four facilities. The RBA acknowledges the work that has

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5 CPMI-IOSCO (2017), ‘Recovery of Financial Markets Infrastructures’, July. This guidance, first issued in 2014 and updated in 2017, is applied by the RBA in interpreting some FSS.

been undertaken to improve the quality, scope and timeliness of the data ASX provides to the RBA on its activities and risks.

#### 3.5.4 Central Security Depositories

Following an operational incident revealing deficiencies in ASX's procedures and controls in the previous assessment period, Austraclear's rating against the Central Securities Depositories FSS was downgraded to *broadly observed*. During this assessment period, ASX implemented several improvements to its controls to address the identified gaps. Given these improvements, Austraclear has been rated *observed* against the Central Securities Depositories FSS.

## 4. Special Topic – Segregation and Portability

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### 4.1 Summary and rating

During the assessment period, the RBA conducted a detailed assessment of the ASX CCPs' compliance with the Segregation and Portability FSS. This included reviewing information provided by ASX and conducting industry liaison with a small cross-section of clearing participants and clients.

The RBA rated both CCPs as *broadly observed*. Both CCPs should include porting of client positions in their default management 'fire drills' and benchmark their portability arrangements against international best practice. The outcomes of these processes could be used by ASX to identify whether there are further steps that could be taken to improve the likelihood of porting for clients.

### 4.2 Background

The majority of positions centrally cleared at the ASX CCPs are held by 'end user' clients of clearing participants rather than being held by clearing participants on their own behalf. There are over 10,000 end users (clients). A clearing participant acts as an intermediary, responsible for meeting the obligations of the clients, such as paying margin to the CCP.

The FSS require that clients' positions and collateral should be segregated from those of their clearing participant. Segregation plays an important role in protecting clients in the event of their clearing participant's default or insolvency. Segregation can improve a client's ability to identify and recover its collateral, which can support confidence in central clearing and the market. It can also reduce the potential for 'counterparty runs' on a clearing participant with a deteriorating financial position.

Segregation also facilitates the transfer (porting) of clients' open positions and associated collateral from a defaulting participant to an alternative solvent participant. Following the default of a clearing participant, the CCP needs to restore a 'matched book' through a combination of closing out positions in the market and porting client positions to an alternative clearing participant. During this time, the CCP carries the market risk associated with these positions. To minimise this risk, ASX specifies a 'porting window' of 24–48 hours in which to find a receiving clearing participant for clients of a defaulting participant before the client's positions are closed out. Effective porting arrangements reduce the risk of market disruption associated with position closures, especially during a period of market stress. Porting also helps clients maintain access to central clearing in the event of the default of their clearing participant.

The account structure offered by a CCP and chosen by clients can have implications for the protection of client assets and the likelihood of successful porting of positions in the event of a participant default. In general, higher levels of segregation between client positions and their collateral and that of other parties can provide better outcomes for clients in the event of a participant default. ASX offers the following account structures:

**ASX Clear – cash equity market:** ASX Clear offers one client account type for cash market products – a single account where client and clearing participant proprietary (house) positions are commingled

together (commingled account). To date, this account structure has been considered compliant with the FSS, because of the existence of materially equivalent protections (discussed below) for client assets. Porting of unsettled positions is not likely given the short period of time before settlement.

**ASX Clear – derivatives:** ASX Clear offers one account type for exchange-traded options – an individual client account – which separates each client’s positions and collateral from those of their clearing participant as well as other clients. This account type offers the highest level of protection for clients and offers the highest likelihood of being ported to a willing receiving participant.

**ASX Clear (Futures):** ASX Clear (Futures) offers a choice of two account types – an individual client account or a ‘net omnibus account.’ In a net omnibus account, clients’ positions are netted with other clients of the same participant. Participants are only required to pay initial margin on the overall net client position to ASX Clear (Futures). The clients’ collateral in a net omnibus account is pooled and held by ASX Clear (Futures) in a single client collateral account for each participant. Porting of a net omnibus account to an alternative clearing participant would require *all* clients to be ported, which is not considered likely given the factors outlined below.

## 4.3 Detailed findings and recommendations

### 4.3.1 ASX Clear uses a commingled house/client account structure for cash equity market products

The Segregation and Portability FSS includes guidance that, under certain circumstances, CCPs clearing cash equity markets are permitted to achieve materially equivalent protections to segregation by alternative means.

ASX Clear does not segregate house and client positions for unsettled securities transactions, instead using a commingled account structure. It has put in place arrangements that involve the strict segregation of client cash and securities during the period between trade and settlement. This is designed to protect clients from the loss of their cash or securities during the processing of settlements in the event of a participant default.

In 2023, ASX assessed the continued material equivalence of the commingled account structure. The RBA has reviewed ASX’s assessment and considers that the existing protections provide materially equivalent protections for clients, compared with segregated house and client accounts.

The RBA considers it important for ASX to incorporate the ability to segregate house and client accounts into the CHES Replacement system. ASX intends to build this technical capability and is consulting with industry on this as part of the redesign. Following the consultation, the RBA expects ASX to discuss its proposed next steps with the RBA and ASIC.

### 4.3.2 Porting may be unlikely for many clients in a default management situation

Participants and clients have suggested that porting may be unlikely in practice for many clients. First, participants indicated that it would be challenging for an alternative or ‘receiving’ participant to accept a new client within the CCP’s porting window without a pre-existing relationship. Prior to receiving a new client, clearing participants need to conduct due diligence, including undertaking customer identification or ‘know-your-client’ checks under anti-money laundering/counter-terrorism financing requirements. The challenges faced by receiving participants would be exacerbated in times of market

stress, or if a receiving participant was considering multiple potential new clients. While ASX allows clients in an individually segregated account to nominate a secondary clearing participant, there are currently no individually segregated accounts with a nominated secondary clearing participant.

Second, most clients have chosen a net omnibus account structure at ASX Clear (Futures) rather than an individually segregated account. ASX requires participants to provide 'direct clients' with whom the participant has a clearing arrangement with a 'fact sheet' detailing the differences between the two account types.<sup>6</sup> The fact sheet advises that it is unlikely that positions in a net omnibus account would be transferred to an alternative clearing participant in a default management situation. A net omnibus account would be treated by ASX as a single account in the case of a participant default. If no clearing participant is willing to accept the transfer of *all* clients in the omnibus account or *all* clients do not agree to be ported to the receiving participant, then all client positions would be closed out.

The low uptake of individually segregated accounts at ASX Clear (Futures) and secondary clearing arrangements at both CCPs could result in many clients having their positions closed out in the event of a clearing participant default. As a result, clients may lose their ability to access central clearing, potentially exposing them to market risk. During the assessment period, ASX identified that it should develop a detailed playbook for the porting of client positions across both ASX CCPs. This would provide a framework to facilitate ASX's decision-making about whether to allow a client to port following a default. ASX has also stated that it intends to extend its default fire drills to include porting processes. This would include testing contacts for key clients, understanding secondary clearing relationships and assessing overall knowledge of the porting process and the pre-conditions to porting.

The RBA considers these to be appropriate actions to improve ASX's portability arrangements. In particular, the lack of comprehensive testing of porting processes in previous default management fire drills means that ASX cannot be confident that there are no further improvements it can make to the porting process.

Given the current low likelihood of porting for many clients in a default management situation, ASX should comprehensively consider whether there are further steps they should take to improve the likelihood of porting. The RBA recommends that ASX undertake benchmarking of their portability arrangements against international best practice, such as the practices outlined in a recent paper by CPMI-IOSCO on client clearing.<sup>7</sup> Any benchmarking should include: incentivisation of backup clearing arrangements; testing of porting processes in default management situations; improved transparency for clients about the likelihood of being ported if their clearing participant defaults; harmonisation of porting processes with international standards; opportunities for increased coordination with other relevant parties in the event of a participant default; and streamlining operational processes.

**Recommendation:** By 30 June 2025, ASX should benchmark its portability arrangements against international best practice and share the results with the RBA. Following this exercise, ASX should determine whether there are additional steps it should take to improve the likelihood of porting in a default management situation. ASX should also incorporate client porting into its default management fire drills.

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6 ASX (2016), 'ASX Client Clearing Service for Derivatives', Fact Sheet, January.

7 CPMI-IOSCO (2022), 'Client Clearing: Access and Portability', Discussion Paper, September.

## 5. Special Topic – Operational Risk

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### 5.1 Summary and rating

The RBA conducted a detailed review of ASX's compliance with selected aspects of the Operational Risk FSS and associated guidance.<sup>8</sup> The assessment identified several deficiencies relating to the complexity and implementation of ASX's frameworks and operational controls. The rating for all ASX CS facilities has been retained at *partly observed*. ASX should place high priority on addressing the following matters that could become serious issues of concern if not addressed promptly:

- ASX needs to continue placing high priority on the remediation of ageing assets, and ensuring appropriate frameworks and resources are in place to proactively upgrade or replace assets before they reach end-of-life.
- ASX needs to develop the maturity of its frameworks and capabilities for managing third-party vendor risks and implement consistent vendor management controls and processes.

### 5.2 Background

This review examined ASX's overall frameworks and governance for identifying and managing operational risks. It also included detailed assessments in the following key risk areas:

- **Technology asset lifecycles.** The RBA assessed ASX's frameworks and practices for managing technology asset lifecycles and remediating assets approaching end-of-life or end-of-support.
- **Technology transformation.** The RBA noted the findings of an external report on ASX's project, program and portfolio management (PPPM) capabilities.
- **Third-party dependencies.** The RBA assessed ASX's frameworks and practices for managing risks relating to third-party vendors and outsourcing arrangements.
- **Cyber resilience.** The RBA considered ASX's approach to cyber resilience and the maturity of its cyber security arrangements.

ASX's management of operational risks is an ongoing area of focus for the RBA.

### 5.3 Detailed findings and recommendations

#### 5.3.1 Managing technology asset lifecycles

The FSS require CS facilities to ensure their systems are able to operate with a high degree of security and reliability to support trust in the financial system. While progress has been made on upgrading or replacing some critical systems (see section 3.3), the RBA continues to hold concerns about risks to ASX's systems arising from the ageing of its technology assets. These concerns extend to ASX's approach

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<sup>8</sup> Cyber resilience is also assessed against the CPMI-IOSCO (2016), 'Guidance on Cyber Resilience for Financial Market Infrastructures', June.

to managing the lifecycle of its technology assets to ensure that systems are remediated before the risks associated with ageing arise. Similar issues relating to ASX's technology asset lifecycle management were identified by an internal audit completed towards the end of the assessment period.

#### **5.3.1.1 ASX must continue to address risks associated with ageing assets**

Software currency and hardware age continued to be key drivers of operational risk. 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, leading to lower performance, delays and outages. ASX has not experienced a major operational incident in the past few years, but the ageing of assets increases the risk of operational failure. ASX's risk appetite for such failure is very low. The RBA would consider any significant disruption to critical CS services to be a matter of serious concern.

In response to the RBA's recommendations in the 2023 ASX Assessment, ASX has developed a Technology Issues Remediation Roadmap to track the remediation of high severity issues relating to aged assets. ASX is also implementing additional short-term controls to mitigate key risks in the interim. These remediation efforts must continue to receive high priority and progress to scheduled timelines. ASX should also ensure that it has sufficient resources to maintain the health of its critical systems and manage key person risks for projects and systems.

ASX has outlined a process for updating the roadmap on a quarterly basis to incorporate any new issues or initiatives that need to be addressed with respect to ageing assets. As part of this process, ASX should consider incorporating reports on critical ageing asset remediation projects that are not currently linked to a high severity issue. This will assist in ensuring that ASX has a holistic view of the effort and resource commitment required to remediate ageing assets. An example of a project that falls into this category is CHES Replacement Release 2, which is a critical part of the remediation of a CS system. ASX should also consider further ways in which its board reporting can provide a clear view of how the ageing of systems and remediation activities are expected to change the risk status of its critical systems.

#### **5.3.1.2 ASX should establish enterprise-wide frameworks and tools to manage asset lifecycles proactively**

In the 2023 ASX Assessment, the RBA recommended that ASX develop a long-term strategy to proactively identify and remediate ageing assets before risks materialise. This will help to ensure that ASX's technology environment does not further deteriorate even as it focuses on remediation, and that risks associated with aged assets do not recur in the future.

The long-term strategy developed by ASX includes plans for improved prioritisation of asset remediation. It also includes a multi-year move to a platform-based environment, which ASX expects will support its ability to maintain the currency of technology assets.

However, by the end of the assessment period there were no enterprise-wide frameworks, policies or expectations covering current asset lifecycle management. ASX's ageing asset issue is partly due to the failure to systematically identify and manage risks as assets age. Without an appropriate framework for the identification and management of these risks, the underlying cause remains unaddressed.

ASX has acknowledged the need to develop a central asset lifecycle management policy or framework. The RBA expects ASX to prioritise this development. This policy or framework should ensure that all accountable individuals are aware of their responsibilities. Accountable individuals should also be able

to access sufficient resources for the proactive management of assets in a consistent manner across the enterprise. The RBA will closely monitor further development of ASX's strategy.

Appropriate management of the technology asset lifecycle also relies on the robust documentation of assets. ASX's underlying tools for documenting and tracking assets through their lifecycle are fragmented. The RBA agrees with ASX's plans to consolidate and streamline its asset tracking tools.

**Recommendation:** Throughout the 2025 assessment period, ASX should continue to place high priority on remediating ageing technology assets and ensure that major technology remediation activities progress to scheduled timelines. As part of this, ASX should continue to assess whether its short-term controls remain sufficient and appropriate. ASX should also ensure it has sufficient resources and capabilities to support the health of critical systems and remediation activities. ASX should provide regular reporting to the boards that clearly shows:

- progress against its Technology Issues Remediation Roadmap
- a holistic view of the health of all critical systems, and the expected impact of planned remediation activities on the risk attributes of critical systems.

**Recommendation:** By 30 June 2025, ASX should ensure that it has an appropriate framework or policy for asset lifecycle management that mandates the proactive upgrade or replacement of technology assets before they reach end-of-life. As part of this, ASX should explicitly outline responsibilities around asset lifecycle management and ensure that the tools used to track technology assets are fit for purpose.

### 5.3.2 Project, program and portfolio management

During the assessment period, ASIC (under statutory direction) required ASX to produce a special report, along with an external audit report, into ASX's project, program and portfolio management (PPPM Reports). Several recommendations for ASX to improve its practices were made in the PPPM Reports. These were further to recommendations from the previous external reviews into the CHES Replacement project and November 2020 ASX Trade outage.

The RBA expects ASX to address all the recommendations in the PPPM Reports. During the assessment period, ASX began this work. The RBA's view is that ASX should prioritise recommendations relating to the following: useability of frameworks; the clarity of roles and responsibilities; resource forecasting and allocation; and project assurance.

- **ASX should improve the useability of its project framework.** The FSS require CS facilities to establish clear policies and procedures to mitigate operational risks. The PPPM Reports found that ASX's project framework documentation is extensive and spread across multiple formats, which makes it difficult to locate and understand. The RBA's view is that this increases the chances of project governance and risk management processes not being followed. This, in turn, raises the probability that ASX projects that are critical to supporting financial stability are not delivered appropriately. The RBA expects ASX to prioritise the review's recommendations to improve the useability and readability of its framework documentation.
- **Responsibilities under the PPPM framework should be clearer.** The PPPM Reports found that there is inconsistent understanding of portfolio management and change management roles. Project and portfolio decision-making responsibilities are also not well defined and there is limited decision-

making authority below the executive level.<sup>9</sup> This results in an over-reliance on executive decision-making, including in circumstances where lower-level subject matter experts may be more appropriate decision-makers. These findings are inconsistent with the FSS requirements to define clear roles and responsibilities for operational risks. ASX has started taking steps to address the PPPM Reports' recommendations for clarifying roles and decision-making responsibilities and the RBA expects ASX to complete this work.

- **ASX should improve its processes of planning project resourcing.** Given the number and complexity of ASX's technology renewal projects, it is critical that resource requirements are appropriately managed. Resource management failures could significantly delay large technology upgrades or replacement projects, forcing existing outdated systems to remain operating for longer.

The PPPM Reports found that ASX does not have a structured way of forecasting expected resource requirements for its projects. During the assessment period there was resourcing and scheduling pressure for multiple projects. The RBA expects ASX to consistently implement the external review's recommendations on project resource forecasting, capacity planning and standardising portfolio management functions. ASX should continuously ensure that its projects are sufficiently resourced.

- **ASX should improve its project assurance requirements.** A structured approach to projects, with project assurances built in at key stages, is important to ensure that risks are appropriately identified and managed throughout a project. ASX has a risk-based project assurance framework, under which assurance programs are being established for the CHES Replacement project and ClearStar program. However, assurance and stage-gate reviews are not mandated. The RBA expects ASX to demonstrate consistent and sustained implementation of assurance review and stage-gate requirements for its projects and programs.

The RBA will monitor the completion and sustainable implementation of these recommendations.

**Recommendation:** By 30 June 2026, ASX should complete and sustainably implement the recommendations from the PPPM Reports. ASX should prioritise those regarding:

- the useability of the PPPM framework documents
- project resource forecasting, forecasting capacity/demand planning and portfolio management functions
- clarifying roles and decision-making responsibilities
- stage-gate reviews.

### 5.3.3 Vendor management

CS facilities need to manage their dependencies on third-party providers to ensure their critical operations meet the resilience, security and operational performance requirements of the FSS. An internal audit in 2022 found deficiencies in ASX's vendor management in relation to the previous CHES Replacement project. ASX recognised that its vendor management framework is unduly complex and that the knowledge and practices of its staff in this area need to be strengthened. Relevant knowledge and practices include awareness of the framework, transparent and consistent application of the requirements, and maintaining updated relevant documentation. The RBA's assessment is that ASX needs to place high priority on significantly developing its frameworks and practices to manage vendors.

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<sup>9</sup> In addition, the PPPM Reports found that ASX should continue work to develop a program management framework.

Several specific issues of concern were identified. Some of these were also raised in ASX's Internal Audit review of vendor management in the previous assessment period.

#### **5.3.3.1 ASX's third-party vendor policies and responsibilities should be clearer**

ASX's third-party vendor policies are complex and difficult to navigate. The core vendor management policy is long and repetitive, and the overall framework comprises various overlapping documents. For example, the framework contains four different definitions of 'critical vendors' to which heightened vendor management requirements apply. The responsibilities of key roles within the framework are also overlapping and not clearly delineated. This is inconsistent with the FSS requirement to clearly allocate responsibility for operational risk management. This creates a risk that vendor and third-party risks are not identified or appropriately monitored and managed.

ASX has started work to improve its vendor policies and frameworks, including the introduction of a new Critical Third-Party Policy at the end of 2023. ASX's intention is that these changes will create simpler, harmonised documents that are consistent with industry best practice. It is important that ASX achieves this goal. As part of this, the RBA expects ASX to clearly document individual responsibilities.<sup>10</sup>

#### **5.3.3.2 ASX needs to ensure vendor management processes are consistently applied**

The RBA has concerns that several key controls to manage vendor risks are not applied consistently. This reflects the ambiguity of some requirements in ASX's framework and policies, as well as variation in knowledge, practices and tools across the organisation. The RBA agrees with ASX's recent and planned efforts to improve capabilities and requirements, and the rollout of the new Critical Third-Party Policy. The RBA also expects ASX to address the following three issues for all key vendors that serve the CS facilities, as a matter of high priority:<sup>11</sup>

- **Vendor risk assessment.** Vendor risk assessments should be consistently performed for all key vendors that serve the CS facilities. These should include assessments of the vendor's strategic alignment with ASX and technical ability to deliver the relevant services. The new Critical Third-Party Policy does require risk assessments, but it does not cover all key vendors that serve the CS facilities. This should be addressed. ASX should also continue to consider how its risk assessment processes for CS facility vendors align with the expectations set out in Annex F of the *Principles for Financial Market Infrastructures*.<sup>12</sup>
- **Vendor performance management.** CS facilities need to ensure that services provided by their vendors meet the resilience, reliability and security requirements of the FSS on an ongoing basis. ASX's policies require vendor performance monitoring. A key risk indicator for material vendor performance issues is also reported to the ASX boards. However, ASX's vendor performance monitoring and management is not applied consistently in practice, with tools and processes largely dependent on varying knowledge and practices across the different lines of business.
- **Vendor contingency plans.** CS facilities need to ensure the continuity of their services and have in place robust arrangements for the substitution of their vendors. ASX's vendor management

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<sup>10</sup> This includes for integration of the vendor management framework into the project delivery framework in response to a recommendation from the PPPM Reports.

<sup>11</sup> Key vendors include any vendors that provide goods or services that are necessary to support the efficient and secure operation of the CS facilities (irrespective of how they are classified within ASX's vendor frameworks). This goes beyond 'critical' vendor arrangements that, in the event of failure or disruption to supply the goods or services, would result in immediate disruption to ASX's services.

<sup>12</sup> CPMI-IOSCO (2012), *Principles for Financial Market Infrastructures*, April.

framework requires consideration of contingency plans for situations where a vendor is no longer willing or able to provide services. However, this requirement is not consistently implemented. In cases where alternative vendors are not available, ASX was unable to demonstrate that it had formally acknowledged and accepted the risks posed by those circumstances.

### **5.3.3.3 ASX should actively manage single points of failure arising from vendor dependencies**

Vendor concentration increases exposure to the operational and general business risk of a given individual entity and can create single points of failure. This may occur not only in relation to direct service providers but also to sub-contractors (fourth parties). ASX does not have a formal approach for measuring, monitoring and decision-making in relation to vendor concentration. ASX has considered concentration risk in certain vendor selection decisions, but a formal approach would facilitate consistent consideration of this risk.

**Recommendation:** By 28 February 2025, ASX should simplify and streamline its frameworks and policies relating to the management of vendor risks. The frameworks and policies should ensure that requirements and responsibilities are clear, unambiguous and consistent.

**Recommendation:** By 28 February 2025, the following should be made clearly mandatory for all key vendors supporting the CS facilities:

- vendor risk assessments
- implementation of consistent enterprise processes for monitoring vendor performance
- contingency plans for when a vendor ceases to provide services.

**Recommendation:** By 30 June 2025, ASX should improve its organisation-wide capabilities for vendor management. ASX should identify the skills and training required for staff with vendor management responsibilities and develop a plan for putting these skills and training in place.

**Recommendation:** By 31 December 2026, ASX should have developed and implemented formal frameworks to monitor and manage fourth-party and concentration risks for vendors servicing the CS facilities. This should include identification of fourth-party single points of failure.

## 5.3.4 Cyber resilience

During the assessment period, ASX assessed itself against two cyber standards and refreshed its strategy for the continuous improvement of its cyber resilience. ASX continued to develop its cyber resilience testing and assurance capabilities, to test its preparedness for different cyber risk scenarios. ASX is expected to take a more active role in promoting its ecosystem's preparedness to respond to and recover from cyber events (e.g. by organising industry-wide tests).<sup>13</sup>

## 5.3.5 Overall operational risk management framework

The RBA has found ASX's operational risk policies to be complex and fragmented. ASX does not have an overarching operational risk framework that provides a comprehensive view of how the various policies related to operational risk interact with each other. This may have contributed to the observed lack of consistent application of some policies across the enterprise. ASX plans to introduce a simple document that covers the key principles and policies for ensuring operational resilience. The RBA encourages ASX to broaden the scope of this document to encompass other areas of operational risk.

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13 A more detailed assessment of ASX's cyber resilience has been confidentially communicated to ASX.

## Appendix A: Summary of Progress 2023/24

The tables below summarise actions taken by the ASX CS facilities during the 12 months to June 2024 (the assessment period) to address recommendations identified in the RBA's 2023 *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 2024, 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 2023 areas of supervisory focus.

**Table 3: Summary of All Open Recommendations at 30 June 2024**

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 RBA 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 work on the second release of the CHES Replacement Program (settlement and sub-register replacement) has progressed.	
2023-4	<b>Governance: Stakeholder engagement.</b> The ASX boards should continue their emphasis on stakeholder management. ASX should continue to actively consult stakeholders on the detailed design, project timeline, testing and implementation for the CHES replacement and ClearStar.	CCP/SSF 2	All	Recommendation updated and extended to include ClearStar. Timeframe updated.  ASX has engaged with stakeholders on the solution design, project and implementation timeline through the industry Business Committee, Technical Committee, and related working groups. ASX also supported the Advisory Group that was instigated by ASIC. ASX disclosed its analysis of transition options. ASX has consulted with stakeholders on the first release of CHES Replacement (clearing), as well as the possible shortening of settlement cycles to T+1.	December 2029

**Table 3: Summary of All Open Recommendations at 30 June 2024**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
				A consultation on the second release of CHES Replacement (settlement and sub-registry) was published in August 2024.	
2021-18	<b>Framework for the 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.	CCP/SSF 3	All	ASX has completed its initial assessment to profile risks posed to and from other entities. The profiles are expected to be finalised by end 2024.	31 December 2024
2024-1	<b>Framework for the comprehensive management of risks: Risk culture.</b> In the 2025 assessment period, ASX should continue implementing its plan to improve risk culture. ASX should also implement the recommendations of the external review of this plan, which include defining a target state and ensuring consistent risk communication and leadership.	CCP/SSF 3	All	New Recommendation.	30 June 2025
2024-2	<b>Framework for the comprehensive management of risks: Methodology of return to risk appetite strategy.</b> By 30 June 2025, ASX should obtain an independent review (conducted by either its Internal Audit or an external expert) of its strategy to address its heightened level of risk. This should include consideration of its KRIs. The review should also consider whether its strategy is responsive to evolving risks.	CCP/SSF 3	All	New Recommendation.	30 June 2025
2023-9	<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.	CCP 4	ASX Clear	During the assessment period, ASX developed a proposal to stress test additional scenarios to monitor and mitigate specific wrong way risks at ASX Clear. ASX expects to finalise and implement the scenarios in the following assessment period, taking into account participant feedback.	31 December 2024
2023-10	<b>Credit risk: Outstanding margin in stress tests.</b> ASX should account for outstanding margin payments in its stress test calculations.	CCP 4	Both CCPs	Recommendation updated. Timeframe updated. During the assessment period, ASX presented a plan and timeline to account for outstanding margin payments in its stress test calculations. ASX currently expects to implement the required changes prior to September 2025.	30 September 2025

**Table 3: Summary of All Open Recommendations at 30 June 2024**

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	During the assessment period, ASX commenced model development on a new liquidity stress testing model for both CCPs. ASX also increased the comprehensiveness of stress testing scenarios.  Over the next two assessment periods, ASX intends to introduce collateral stress testing at ASX Clear (Futures) and implement its new liquidity stress testing model at both CCPs.	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.	CCP 6	ASX Clear (Futures)	ASX is in the process developing a long-term strategy for overnight margin processes.	Strategy by 31 December 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.	CCP 6	ASX Clear	Recommendation updated. At the end of the assessment period, ASX delivered a plan to enhance its technological capability to monitor the build-up of current exposures to participants and to make intraday margin calls.  The RBA will discuss the plan with ASX in the coming assessment period.	Indicative timing is prior to June 2029
2020-1	<b>Margin.</b> Consistent with the CCP Resilience Guidance, by 31 December 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 procyclicality when determining margin and other financial risk requirements.	CCP 6	Both CCPs	Recommendation updated. Timeframe updated. During the assessment period, ASX completed the implementation of margin floors for all products. ASX also implemented a margin forward guidance framework and developed a methodology for measuring procyclicality.  ASX is still finalising updates to its procyclicality framework. ASX requested an extension to this recommendation to ensure their proposed framework is consistent with potential new international regulatory guidance. The RBA will review this framework and monitor whether it has been embedded over the following assessment period.	31 December 2024

**Table 3: Summary of All Open Recommendations at 30 June 2024**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
2024-3	<b>Segregation and Portability:</b> By 30 June 2025, ASX should benchmark its portability arrangements against international best practice and share the results with the RBA. Following this exercise, ASX should determine whether there are additional steps it should take to improve the likelihood of porting in a default management situation. ASX should also incorporate client porting into its default management fire drills.	CCP 13	Both CCPs	New recommendation.	Benchmarking by 30 June 2025
2023-15	<b>Operational risk: Evergreen strategy.</b> ASX should develop and begin implementing a long-term strategy to proactively identify ageing assets and remediate the risks before they materialise.	CCP 16 SSF 14	All	Timeframe updated.  In May 2024, ASX presented the RBA with its Long-Term Technology Sustainability Strategy. Over the 2025 assessment period the RBA will monitor and assess whether this strategy proves to be fit for purpose.	30 June 2025
2024-4	<b>Operational risk: Aged asset reporting.</b> Throughout the 2025 assessment period, ASX should continue to place high priority on remediating ageing technology assets and ensure that major technology remediation activities progress to scheduled timelines. As part of this, ASX should continue to assess whether its short-term controls remain sufficient and appropriate. ASX should also ensure it has sufficient resources and capabilities to support the health of critical systems and remediation activities. ASX should provide regular reporting to the boards that clearly shows: <ul style="list-style-type: none"> <li>• progress against its Technology Issues Remediation Roadmap</li> <li>• a holistic view of the health of all critical systems, and the expected impact of planned remediation activities on the risk attributes of critical systems.</li> </ul>	CCP 16 SSF 14	All	New recommendation.	30 June 2025
2024-5	<b>Operational risk: Asset-lifecycle management framework.</b> By 30 June 2025, ASX should ensure that it has an appropriate framework or policy for asset lifecycle management that mandates the proactive upgrade or replacement of technology assets before they reach end-of-life. As part of this, ASX should explicitly outline responsibilities around asset lifecycle management and ensure that the tools used to track technology assets are fit for purpose.	CCP 16 SSF 14	All	New recommendation.	30 June 2025

**Table 3: Summary of All Open Recommendations at 30 June 2024**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
2024-6	<p><b>Operational risk: Implement PPPM recommendations.</b> By 30 June 2026, ASX should complete and sustainably implement the recommendations from the PPPM Reports. ASX should prioritise those regarding:</p> <ul style="list-style-type: none"> <li>the useability of the PPPM framework documents</li> <li>project resource forecasting, forecasting capacity/demand planning and portfolio management functions</li> <li>clarifying roles and decision-making responsibilities</li> <li>stage-gate reviews.</li> </ul>	CCP 16 SSF 14	All	New recommendation.	30 June 2026
2024-7	<p><b>Operational risk: Simplify vendor management risk policies.</b> By 28 February 2025, ASX should simplify and streamline its frameworks and policies relating to the management of vendor risks. The frameworks and policies should ensure that requirements and responsibilities are clear, unambiguous and consistent.</p>	CCP 16 SSF 14	All	New recommendation.	28 February 2025
2024-8	<p><b>Operational risk: Mandating vendor management practices.</b> By 28 February 2025, the following should be made clearly mandatory for all key vendors supporting the CS facilities:</p> <ul style="list-style-type: none"> <li>vendor risk assessments</li> <li>implementation of consistent enterprise processes for monitoring vendor performance</li> <li>contingency plans for when a vendor ceases to provide services.</li> </ul>	CCP 16 SSF 14	All	New recommendation.	28 February 2025
2024-9	<p><b>Operational risk: Uplift vendor management capabilities.</b> By 30 June 2025, ASX should improve its organisation-wide capabilities for vendor management. ASX should identify the skills and training required for staff with vendor management responsibilities and develop a plan for putting these skills and training in place.</p>	CCP 16 SSF 14	All	New recommendation.	30 June 2025
2024-10	<p><b>Operational risk: Fourth party vendor management risks.</b> By 31 December 2026, ASX should have developed and implemented formal frameworks to monitor and manage fourth-party and concentration risks for vendors servicing the CS facilities. This should include identification of fourth-party single points of failure.</p>	CCP 16 SSF 14	All	New recommendation.	31 December 2026

**Table 3: Summary of All Open Recommendations at 30 June 2024**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
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 ClearStar program, which has extended the timeline for completion.	Expected completion by June 2029
2023-17	<b>Operational risk: CHES – Independent review recommendations.</b> 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.	CCP 16 SSF14	ASX Clear ASX Settlement	Timeframe updated. ASX has completed and closed 89 of the 93 actions planned to address the Accenture recommendations. External reviews have been undertaken to verify the sustainable implementation of the actions. Two of the remaining actions are expected to be completed as part of the CHES Replacement project. The other two remaining actions require further evidence of implementation before they can be closed.	31 December 2029
2023-21	<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.	CCP 16 SSF 14	ASX Clear ASX Settlement	Timeframe updated. ASX has progressed items on the current CHES Roadmap and planned further upgrades as part of the updated Roadmap. This work will be ongoing until the current CHES is replaced.	31 December 2029
2023-24	<b>Operational risk: CHES – Backup plan.</b> ASX should clearly communicate to regulators what their backup 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 backup 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 backup plan should be at the same time as communication on the solution selection decision. ASX should also clearly communicate to stakeholders what their backup 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 backup plan in a safe manner.	CCP 16 SSF 14	ASX Clear ASX Settlement	Timeframe updated. ASX presented the regulators their backup plan in the event that CHES Replacement does not occur before the supportability of CHES is severely compromised. ASX plans to review the backup plan as part of a refreshed CHES business case in November. At this time, the RBA expects the plan to include more detail on how the risks of enacting the backup option will be managed appropriately.	30 November 2024

**Table 3: Summary of All Open Recommendations at 30 June 2024**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
2023-26	<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.	CCP 16 SSF 14	ASX Clear ASX Settlement	Timeframe updated.  ASX published indicative go-live dates in November 2023, noting these would be subject to stakeholder consultation and more detailed planning.  In June 2024, ASX completed industry consultation on the first release of CHES Replacement and published a project and implementation timeline with key milestones for this release. The expected go-live date for the first release is the first half of 2026.  The second release of CHES Replacement is estimated to go live in 2029. Stakeholder consultation on this release commenced in August. The implementation dates and milestones will be confirmed by November 2024.	30 November 2024
2020-5	<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 CHES. In the short term, ASX should complete work underway to increase the joint capacity of the current CHES and CORE systems.	CCP 16 SSF 14	ASX Clear ASX Settlement	ASX announced a phased implementation of CHES Replacement. The first release (proposed for the first half of 2026) is expected to address the capacity issues in the current trade registration process in CHES.  Changes to address the dependency of current CHES on CORE were completed in July and August 2024.  ASX completed stress tests of the current CHES and implemented a fix for a breakpoint identified at a peak of 15 million trades per day. ASX is analysing and monitoring the feasibility of further options for improving CHES capacity over the next year.	
2020-6	<b>Operational risk: CHES – IBM Review.</b> ASX should ensure that the findings and lessons learned from the IBM Review of the Trade Refresh project are applied to the CHES Replacement Program.	CCP 16 SSF 14	All	Recommendation updated.  ASX has now implemented all 59 IBM Review recommendations. An independent expert (EY) has confirmed all recommendations are fully closed. EY	31 January 2026

**Table 3: Summary of All Open Recommendations at 30 June 2024**

Reference*	Recommendation	Standard	Facility	Update	Timeframe
				has been engaged to perform spot checks to assess the continued adherence to these recommendations, the first tranche of these spot checks was completed in March 2024.  Lessons learned from the IBM Review have been built into the CHES Replacement project with the remaining action items having defined milestones linked to the progress of the CHES Replacement. ASX's internal CHES Replacement Assurance plan will track these actions to closure.	
2022-6	<p><b>Operational risk: CHES – CHES replacement go-live.</b> ASX should prepare for cutover, migration and go-live of the CHES 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>	CCP 16 SSF 14	ASX Clear ASX Settlement	<p>CHES Replacement will be implemented in two releases. The first release (clearing) is expected to go live in the first half of 2026, and the second (settlement and sub-registry) in 2029.</p> <p>ASX has designed an assurance program to assist with risk management and decision-making at key milestones. ASX expects to develop and publish its cutover approach for the first release in the next assessment period.</p>	
2024-11	<p><b>Tiered Participation Arrangements: Tiered participation policies.</b> By 30 June 2025, ASX should develop a formal policy to identify, monitor and manage risks that arise from tiered participation arrangements for all its facilities. In developing this policy, ASX should consider whether there are additional actions that can be taken to enhance the monitoring and management of the risks that can arise from these arrangements.</p>	CCP 18 SSF 16	All	New recommendation.	30 June 2025

\* 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.

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

Reference*	Previous Recommendation	Standard	Facility	Progress and outcome
2021-1	<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 that have been adopted to safeguard system stability. CS board processes should include a system for monitoring progress against the strategy and objectives.	CCP/SSF 2	All	The 2023/24 CS strategies were updated in October 2023, and the 2024/25 strategies in June 2024. Progress against the strategies was reported to the boards periodically by the CS Lead Executives. The target outcomes in the CS strategies are incorporated into annual divisional planning and employee performance goals. ASX has also introduced guidance and training for key decision-makers (including CS board members, executives and some line-one risk groups) on key factors that can impact financial stability.
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	Outcome: Closed and combined with 2023-4. ASX has supported the functioning of the Advisory Group for strategic matters relating to cash equities clearing and settlement, which was established at the initiation of ASIC. ASX has also engaged with stakeholders on CHES Replacement through the industry Business Committee, Technical Committee and associated working groups, and consultations on the first release of CHES Replacement and transition to T+1. ASX also has a high-level plan for stakeholder engagement on ClearStar. ASX needs to continue placing a high emphasis on stakeholder management for CHES Replacement and ClearStar (see recommendation 2023-4).
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.	CCP/SSF2	All	Outcome: Closed and replaced with an 'Area of Supervisory Focus'. An external review found ASX's board oversight arrangements to be appropriate, but recommended improvements to board reporting. A new reporting template was introduced late in the assessment period. The quality of reporting to the boards will remain an area of focus during the next assessment period.

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

Reference*	Previous Recommendation	Standard	Facility	Progress and outcome
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.	CCP/SSF 2	All	Outcome: Closed.  ASX completed a self-assessment for the calendar year ending 2023, and has a process in place to complete annual self-assessments going forward
2023-3	<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: <ul style="list-style-type: none"> <li>are clear and specific, with no gaps or unintended overlaps in accountabilities</li> <li>articulate desired outcomes and hold executives to high standards.</li> </ul> ASX should complete planned testing of the accountability documents against a set of hypothetical outcome scenarios to validate their effectiveness.	CCP/SSF2	All	Outcome: Closed.  ASX updated its executive accountability statements to more clearly articulate expected actions and executives' roles in the implementation of key risk management and operating frameworks. The statements work together with a new program to ensure the appropriate maturity of key frameworks (see section 3.2.2) and remuneration arrangements, to hold executives to account for the quality of outcomes.  ASX also introduced scenario testing to identify and remediate any gaps or overlaps in accountabilities.
2023-5	<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.	CCP/SSF 2	ASX Clear ASX Settlement	Outcome: Closed.  Accountability statements were updated through the year to include accountabilities, in line with the published CHES governance statement.
2023-6	<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.	CCP/SSF 2	ASX Clear ASX Settlement	Outcome: Closed.  ASX published a statement outlining its governance arrangements for the current CHES and CHES Replacement on its website 30 October 2023. Updates to the governance arrangements were published in May 2024.
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 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	CCP/SSF 2, 3	All	Outcome: Closed.  ASX expanded and actioned a plan for responding to the findings made in the external review of its Internal Audit function. A follow-up external review in June 2024 concluded that ASX's response to all high and medium findings had been completed or satisfactorily progressed.  ASX also identified and took steps to remediate the relationship between Internal Audit and the Executive. This included increased engagement and greater transparency by Internal Audit, as well

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

Reference*	Previous Recommendation	Standard	Facility	Progress and outcome
	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.			as introducing accountabilities relating to Internal Audit in Executives' accountability statements. Internal Audit followed the Institute of Internal Auditors (IIA) Global Audit Standard to maintain independence. Audits conducted during the year have demonstrated independent challenge from Internal Audit, and constructive response to the findings by executives. The follow-up external review noted a step-change in engagement between Internal Audit and the Executive.
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	Outcome: Closed.  During the assessment period, ASX implemented its revised Model Risk Policy, outlining ASX's approach to the management of models and tools used within the ASX CCPs. The policy also outlines rules and responsibilities of the CS Board, and other relevant staff in relation to Model Risk management.
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	Outcome: Closed.  During the assessment period, ASX implemented a formal policy to govern the CCPs' risk disclosures to its stakeholders, covering all relevant aspects of CCP risk management.
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	Outcome: Closed.  All systems and processes required by the recommendation have been implemented. ASX has completed its review of the effectiveness of all systems and controls.
2023-14	<b>Operational risk: Ageing asset roadmap.</b> By 31 December 2023, ASX should develop a comprehensive roadmap for the remediation of	CCP 16 SSF 14	All	Outcome: Closed.  During the assessment period, ASX introduced the Technology Issues Remediation Roadmap. This roadmap currently tracks the remediation of High Severity Technology Issues at ASX. The roadmap

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

Reference*	Previous Recommendation	Standard	Facility	Progress and outcome
	<p>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>			will now be reported to the ASX Board on a quarterly basis. At least annually, the roadmap will be reviewed with any new issues added.
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>	CCP 16 SSF 14	All	<p>Outcome: Closed.</p> <p>ASX prepared a new policy for key vendors – the Critical Third-Party Policy – in late December 2023, which took effect on 1 January 2024. ASX also prepared an associated handbook to guide internal users on the application of the policy. The Vendor Management Framework was updated to reflect the introduction of the policy. Through the second half of the assessment period, ASX applied the new policy to relevant contracts, though work to embed the policy requirements is ongoing. Several new related recommendations have been opened as part of the special topic on Operational Risk.</p>
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>	CCP 4	Both CCPs	<p>Outcome: Closed.</p> <p>During the assessment period, ASX introduced a Historical Stress Scenario Governance Policy and implemented new processes to regularly monitor and review market moves exceeding existing stress test scenarios. ASX’s Clearing and Settlement Boards formally approved the exclusion of the March 2020 10-year bond futures intraday ‘flash crash’.</p>
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>	CCP 4, 6, 7	Both CCPs	<p>Outcome: Closed.</p> <p>ASX completed all overdue clearing risk reviews set out in the policies and standards that are rated as high and medium materiality.</p>

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

Reference*	Previous Recommendation	Standard	Facility	Progress and outcome
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 RBA by 30 September 2023.	CCP 6	Both CCPs	Outcome: Closed.  ASX completed its review of its margin methodologies and systems in October 2023. Following on from the review, ASX is currently planning to develop an enterprise-wide value-at-risk-based margin model for all products cleared by ASX.
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> <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>	CCP 16 SSF 14	ASX Clear ASX Settlement	ASX has progressed deliverables on the CHES Roadmap and provided the required visibility to the ASX boards and regulators.  ASX has established a process for updating and communicating the CHES Roadmap on an annual basis. An updated roadmap, as well as an external assurance report over the roadmap, was published in July 2024.
2023-19	<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.	CCP 16 SSF 14	ASX Clear ASX Settlement	Outcome: Closed.  ASX provided the regulators with a report on the capacity bottlenecks identified during breakpoint stress tests. The bottlenecks identified are the trade registration and end-of-day processing services. Bottlenecks were not identified in the batch settlement process.
2023-20	<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	CCP 16 SSF 14	ASX Clear ASX Settlement	Outcome: Closed.  ASX tested the effect on performance at daily peak volumes of 12.5 million and 15 million trades. The results were communicated to the ASX boards and the regulators.

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

Reference*	Previous Recommendation	Standard	Facility	Progress and outcome
	communicate those to the ASX boards and the regulators.			
2023-22	<b>Operational risk: CHES – Audit of the special report.</b> By 31 December 2023, ASX should provide the RBA and ASIC with details of its progress on meeting the recommendations in the Audit Report.	CCP 16 SSF 14	ASX Clear ASX Settlement	Outcome: Closed. ASX has provided progress updates through regular reporting on the current CHES.
2023-23	<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.	CCP 16 SSF 14	ASX Clear ASX Settlement	Outcome: Closed. ASX analysed the risks associated with three transition options for CHES replacement and selected what it assessed to be the lowest risk option. The option selected was a phased implementation approach. The first phase will replace clearing functionality and the second, settlement and sub-registry functionality. ASX considered the approach would increase trade registration capacity at the earliest possible point without the requirement for modifications to current CHES. It was also assessed by ASX to have the least industry impact.
2023-25	<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.	CCP 16 SSF 14	ASX Clear ASX Settlement	Outcome: Closed. Contractual arrangements with the CHES replacement vendors include provisions that provide the regulators with rights of access to the vendors. This includes the ability to interview vendor staff, inspect premises and inspect records.
2023-27	<b>Regulatory reporting.</b> ASX should complete its FMI Data Reporting project by 31 December 2023.	CCP 21 SSF 19	All	Outcome: Closed. ASX completed the final stages of its FMI Data Reporting project.

\* 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 2023 Areas of Supervisory Focus**

Development	Standard	Facility	Actions
<b>Areas of supervisory focus</b>			
<b>Risk culture.</b> The RBA, along with ASIC, will monitor the operational effectiveness of uplifts made to risk culture and the first two lines of accountability.	CCP/SSF 3	All	ASX completed the rollout of controls testing. ASX engaged an external consultant to review its action plan for uplifting risk culture.
<p><b>Cyber resilience.</b> The RBA, 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>	CCP 16, SSF 14	All	<p>During the assessment period, ASX verified the maturity of its cyber security arrangements and their alignment with two industry recognised cyber security standards through independent audits.</p> <p>Based on the results of its cyber assurance and testing activities, as well as the developments in the threat landscape, ASX boards approved an updated cyber security strategy. The updated strategy is aligned with an internationally accepted cyber security framework. ASX has also engaged with the government on industry-wide initiatives, analysing the potential impact of cyber threats and vulnerabilities on ASX’s environment and any implications for its security posture, response and recovery capabilities.</p>
<b>Special topics</b>			
The RBA will carry out a detailed review of the ASX CS facilities management of:	CCP 13	Both CCPs	These assessments were completed. See Chapters 3, 4 and 5.
<ul style="list-style-type: none"> <li>Segregation and Portability</li> </ul>	CCP 16, SSF 14	All	
<ul style="list-style-type: none"> <li>Operational Risk (including ageing assets, vendor management, resource sufficiency and the ASX Group Support Agreement).</li> </ul>	CCP 18, SSF 16	All	
The RBA will also conduct a review of Tiered Participation Arrangements.			
<b>Other ongoing reviews progressing during 2024</b>			
<b>Legal certainty of intragroup agreements.</b>	CCP 1, 14 SSF 12	All	ASX has taken steps to assure itself of the legal enforceability of intragroup agreements for ASX to provide operational services to the CS facilities and replenish ASX contributions to the CCPs’ default funds.
<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 (covered as part of the special topic on Operational Risk).</li> </ul>			
<b>Margin.</b> The RBA 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 backup procedures in the event of an outage affecting the systems it uses to calculate and collect margin.	CCP 6	Both CCPs	ASX has taken steps to strengthen margin operations resilience, including changes to timing of intra-day margin calls; increased use of overnight margin buffers; and commencing a review of the controls currently in place. ASX plans to continue this work throughout the next assessment period.