ASX Limited

Independent assessment of CHESS Roadmap Program and CHESS Roadmap Refresh

Fourth Six-Monthly Progress Report

25 June 2025

EY

Building a better working world

Table of Contents

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 2

1. Executive Summary

1.1 Introduction

ASX is completing a program of work to sustain its current Clearing House Electronic Sub-register System (CHESS) to ensure it remains operationally reliable until a new CHESS replacement solution is implemented. This Program of work is known as the CHESS Roadmap.

1.2 Our Scope

A. CHESS Roadmap - ASX engaged EY to conduct independent assessment activities over the implementation of the CHESS Roadmap Program (the Program) and produce six-monthly findings and recommendations reports. This Report is the fourth planned six-monthly report covering the period 1 November 2024 to 30 April 2025 (Cycle 4).

B. CHESS Roadmap Refresh - Our scope for this period includes an assessment of ASX's annual process for updating the CHESS Roadmap.

1.3 Our Approach

Our activities included attending workshops with key stakeholders, and reviewing supporting artefacts, documentation, and evidence to assess:

► whether initiatives and deep dives completed by ASX in the reporting period are appropriate (adequately designed), executed (implemented as designed) and sustainable (continue to operate and address the CHESS risk)

► the overall health of the Program (Program health check), including progress made and operating effectiveness of governance arrangements, and other program management practices supporting the execution of the Program

► the approach, outcomes and governance arrangements completed by ASX for its annual process for updating the CHESS Roadmap (CHESS Roadmap Refresh).

1.4 Our Findings

CHESS Roadmap

We found that ASX continues to operate appropriate governance and oversight arrangements for the CHESS Roadmap. Processes for ongoing monitoring and status reporting of Roadmap initiatives are operating effectively, including management of delivery risks

Our testing found that all initiatives tested addressed our 'Appropriate' and 'Executed' assessment criteria (1 of 1). One initiative tested addressed our 'Sustainability' criteria (1 of 4) and three partially addressed the criteria (3 of 4). We have one recommendation to address these findings.

Risk Identification and Assessment Deep Dives

Our 2023 Audit Report recommended ASX perform deep dives into security, business continuity and resilience, and third-party management to expand the depth of the risk assessments completed.

At the date of this Report, ASX has effectively completed deep dives into these risk areas and developed plans and activities at CHESS or enterprise level to assess and mitigate associated risks. While the deep dive risk identification work is complete, the development, implementation and embedding of controls to manage these risks is a work in progress. We will assess ASX's progress and outcomes in our future reports.

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 3

CHESS Roadmap Refresh

We found that ASX has maintained an appropriately designed process for the Roadmap Refresh and conducted commensurate governance arrangements to provide ASX Boards and regulators visibility of the updated CHESS Roadmap and new initiatives.

We found ASX's Roadmap Refresh was supported by an updated CHESS risk assessment and evidence of the processes performed for identification, prioritisation and planning of roadmap initiatives. ASX's Roadmap Refresh has resulted in 15 new public initiatives being added to the Roadmap this year.

Recommendations

We have one recommendation relating to the sustainability of Roadmap initiatives which, if implemented satisfactorily, should address our finding.

At the time of this report, ASX has addressed seven of 11 recommendations identified from previous cycles. We will assess completion of actions to address the four outstanding recommendations (3 from 13 December 2024, 1 from 20 June 2024) and one new recommendation from this report in future cycles.

1.5 Our Assessment Summary

The outcomes of our assessments and findings identified are summarised below.

A. Independent assessment of the implementation of the CHESS Roadmap Program

Assessment of the status and closure of CHESS Roadmap initiatives

EY Assessment Cycle	Assessed as Appropriate	Assessed as Executed	Assessed as Sustainable
Cycle 4 (current cycle)	1 of 1	1 of 1	1 of 4 3 of 4 partial
Total to date (all cycles to date)	29 of 29	28 of 29 1 of 29 partial	11 of 16 5 of 16 partial

Refer to Appendix D for a summary of our assessment status for all CHESS Roadmap initiatives to date.

Our testing found that all initiatives tested addressed our 'Appropriate' and 'Executed' assessment criteria (1 of 1). We found that one initiative (1 of 4) addressed our 'sustainable' assessment criteria, and three initiatives (3 of 4) partially addressed the criteria. We will re-assess these initiatives in future reporting periods.

We have made one recommendation which relates to the three partially addressed initiatives, as follows:

1. We recommend ASX develops standard operating procedures for implemented initiative controls designed to ensure the relevant linked controls are consistently, accurately and demonstrably performed - refer to section 3.1.1 Initiative CC#19 – CHESS VPN Upgrade and section 3.1.2 Initiatives CC#20 CHESS Access Upgrade and CC09_M31 Backend Upgrades to latest version, for detailed recommendations.

Assessment of BCM deep dive

Our 2023 Audit Report recommended ASX perform deep dives into security, business continuity and resilience, and third-party management to expand the depth of the risk assessments completed.

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 4

At the date of this Report, ASX has effectively completed deep dives into these risk areas and developed plans and activities at CHESS or enterprise level to assess and mitigate associated risks.

Security - ASX completed a deep dive into CHESS cyber security risks in August 2024. Our December 2024 report found no material exceptions in the appropriateness of the design of the CHESS security deep-dive.

Resilience - ASX initiated a deep dive into resilience in November 2024. We performed an assessment of the scope and provided management with comments. In December 2024, CHESS was impacted by a Batch Settlement incident. ASX published an Incident Review report in January 2025 with ten actions in response to the incident.

These additional events superseded the deep dive and effectively provided the same outcome to identity and assess CHESS resilience risk and develop roadmap initiatives to mitigate them. We will assess selected initiatives as part of our Roadmap assurance in the next cycles.

Third parties - ASX has an enterprise-wide project to uplift its third-party risk management arrangements. The new enterprise framework and enabling tools were rolled out in February 2025 and are being operationalised by 30 June 2025. In cycle 5 we expect ASX to apply this uplifted enterprise approach to current CHESS and we will assess the outcomes of this.

While the deep dive risk identification work is complete, the development, implementation and embedding of controls to manage these risks is a work in progress. We will assess ASX's progress and outcomes in our future reports.

Assessment of the overall health of the Program (Program health-check)

The following table summarises our Program health-check assessment results for this reporting period, across each of the assessed dimensions.

	Program Dimension	Cycle 3 (previous cycle) Assessment Rating	Cycle 4 (current cycle) Assessment Rating	Recommendation
1	Program Governance	🟢	🟢	-
2	Planning Management	🟢	🟢	-
3	Scope Management including Change Control	🟢	🟢	-
4	Risk Management	🟢	🟢	-
5	Supplier / Third Party Management	N/A	N/A	-
6	Quality Management	🟡	🟢	-
7	EY Recommendations from previous cycles	N/A	🟢	-
8	Confidence in Upcoming Initiatives	🟢	🟢	-

Our assessment found that ASX has continued to operate appropriate oversight and governance arrangements for the CHESS Roadmap Program. The Program produces appropriate status and progress reporting for key stakeholders and actively monitors identified delivery and delivered risks.

EY Recommendations from Previous Cycles

We made a total of 11 recommendations in our three previous six-monthly reports. As at time of writing four remain open.

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 5

We will assess the completion of actions to address our recommendations in the next cycle. See Appendix A for status of previous EY recommendations. A summary table is shown below:

Cycle / Report Period	Total Number of EY Recommendations	Number of Addressed EY Recommendations	Number of Open EY Recommendations
Cycle 1 (December 2023)	3	3	0
Cycle 2 (June 2024)	4	3	1
Cycle 3 (December 2024)	4	1	3
Total	11	7	4

B. Assessment of ASX's annual process for updating the CHESS Roadmap (CHESS Roadmap Refresh)

The following table provides a summary of our Roadmap Refresh assessment results against our assessment criteria.

Assessment Criteria	EY Assessment Rating
ASX's CHESS Roadmap Refresh and Roadmap Update Report has addressed relevant matters in relation to the support and maintenance of CHESS	✔
The work undertaken by ASX supports the outcomes documented in the report	✔
ASX has conducted sufficient governance arrangements for the production of the CHESS Roadmap Refresh and Roadmap Update Report	✔

We found that ASX has maintained an appropriately designed process and governance arrangements for the Annual CHESS Roadmap Refresh.

We did not identify any material exceptions in the execution of the governance arrangements over the production of the Roadmap Refresh Report.

We found ASX's updated CHESS Roadmap was supported by evidence of the analysis performed to determine the additional 15 public initiatives added to the roadmap. We attended workshops and reviewed supporting documentation which demonstrated ASX's updated CHESS risk profile, and initiative identification, prioritisation and planning processes. We did not identify any material exceptions in the steps performed by ASX to update the CHESS Roadmap.

Next Steps

Our next Report is due in December 2025, and will include our assessment of:

► the progress and implementation of CHESS Roadmap initiatives in the associated reporting period,
► the sustainability of initiatives closed in previous reporting periods,
► the completion of any remediation actions from the assurance Program activities, including the recommendations from this Report.

We acknowledge ASX for its cooperation in undertaking our independent assessment activities to date.

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 6

2. Introduction

2.1 Background

On 28 April 2023, ASX Clear Pty Limited and ASX Settlement Pty (CS Facility Licensees) issued a special report on the support and maintenance of CHESS (Special Report).

The Special Report outlined a Program of work (the CHESS Roadmap) ASX intends to complete with the aim of ensuring CHESS remains operationally reliable until the Go-Live of the CHESS replacement system.

In October 2023, the Reserve Bank of Australia (RBA) issued its Assessment of ASX Clearing and Settlement Facilities Report. This report recommended ASX implements an annual process of updating the CHESS Roadmap. The report also recommended ASX provides ASX boards and regulators with ongoing visibility of the CHESS Roadmap, relevant risks, new initiatives, and measures to ensure continued compliance with the Financial Stability Standards (FSS), and to share the latest CHESS Roadmap with the industry on an annual basis.

2.2 Scope

EY has been engaged by ASX to conduct independent assessment activities over the CHESS Roadmap Program and produce six-monthly findings and recommendations reports. This report is the fourth planned six-monthly report (Cycle 4). The scope for this reporting period includes our independent assessment of the implementation of the CHESS Roadmap Program having consideration to:

A. Independent assessment of the implementation of the CHESS Roadmap Program:

  ▶ the status and closure of the initiatives included in the CHESS Roadmap. Specifically, our assessment of the appropriateness and execution of one CHESS Roadmap initiative completed by ASX within this reporting period (1 November 2024 to 30 April 2025), and a sustainability assessment for four initiatives.

  ▶ ASX's completion of a deep dive review on Business Continuity Management and Resilience.

  ▶ the overall health (health-check) of the CHESS Roadmap Program, including implementation progress and an assessment of the proposed scope and objectives for any new initiatives ASX has added to CHESS Roadmap.

B. Assessment of ASX's annual process for updating the CHESS Roadmap (Roadmap Refresh):

This includes an assessment of ASX's approach to preparing the CHESS Roadmap Refresh and Roadmap Update Report and whether the following relevant matters outlined in RBA's Assessment of ASX Clearing and Settlement Facilities Report (dated October 2023) have been appropriately addressed:

  ▶ ASX has implemented a robust annual process of updating the CHESS Roadmap to ensure that all planned upgrades and material changes to the current CHESS are incorporated,

  ▶ Provide ASX boards and the regulators with ongoing visibility of the CHESS Roadmap, relevant risks, new deliverables and measures to ensure continued compliance with the FSS,

  ▶ Share the latest CHESS Roadmap with the industry at least on an annual basis.

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 7

2.3 Approach

To complete our assessment, we performed the following activities:

1. Documentation review: Review and analysis of the CHESS Roadmap Program documentation. In addition, review and analysis of artefacts, inputs, deliverables, and other documentation evidencing closure of initiatives completed by ASX in the reporting period. A list of documentation reviewed can be found in Appendix C.

2. Independent Testing: Independent testing of key ASX artefacts, inputs and deliverables to determine the completeness and appropriateness of the activities performed by ASX. This includes reconciliations of ASX deliverables against EY standards and industry practices.

3. Roadmap Initiative and Program Health-check Workshops: Workshops were held with key ASX stakeholders to understand the actions taken by ASX to complete Program initiatives and manage the ongoing operation of the Program. This includes Program delivery dimensions such as planning, change management, risk management, and quality management. Refer to Appendix B for a summary of workshops held.

4. Stakeholder Interviews: Interviews with stakeholders were held to understand the inputs, basis, approach and outcomes of the CHESS Roadmap Refresh. Key stakeholders interviewed included ASX Group directors (in particular, the directors of the CS Facility Licensees and ASX Technology Board Committee), executives, program leads, and operational risk staff involved in the CHESS Roadmap Refresh. Refer to Appendix B for a list of stakeholders interviewed.

5. Observation of CHESS Roadmap Program Meetings: We attended key ASX workshops and forums, including the Current CHESS Delivery Leadership Meeting and the CHESS Roadmap Program Strategic Guidance Group (SGG), to understand the overall progress and updates to the CHESS Roadmap Program. As part of our observation of these meetings, we considered the appropriateness of stakeholder attendees, the meeting input and outputs and the level of discussions and judgement exercised within these meetings.

We applied defined assessment criteria and ratings to reach our assessment outcomes, as follows:

A. Assessment of the implementation of the CHESS Roadmap Program

Assessment criteria and ratings for CHESS Roadmap initiatives and deep dive reviews

We assessed each initiative in scope for the period of this Report against the following criteria:

Assessment Criteria	Assessment Criteria Description
Appropriate	Has the initiative (and associated actions) been designed effectively to address the identified CHESS risk?
Executed	Has the initiative (and associated actions) been implemented as designed?
Sustainable	Is the initiative (and associated actions) sustainable? As part of the completion of the initiative, has ASX designed and implemented measures (e.g. controls) to continue to address the identified CHESS risks?

An assessment rating was applied to each initiative to determine if each assessment criteria described above was addressed, partially addressed, or not appropriately addressed. Our determination of 'partially addressed' is based on professional judgement of the extent of completion of the initiative relative to the risk (e.g., subset of initiative actions not demonstrably completed, gaps or missing aspects of the initiative design and / or implementation to effectively mitigate the risk).

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 8

Refer to section 3 for details of the findings and recommendations from our assessment per defined assessment criteria and to Appendix E for further details of the definitions of the assessment criteria.

Assessment criteria and ratings for CHESS Roadmap health-check

Our health-check assessment criteria considered the operating effectiveness of the Program against relevant ASX delivery frameworks and/or policies, and industry practices.

We assessed the Program across the following Program delivery dimensions; governance, planning management, scope and change management, risk management, and quality management.

We applied the following assessment ratings to each of the Program dimensions:

Assessment Rating	Assessment Rating Description
🟢	Established in terms of design and execution of design. Minimal opportunities identified to strengthen the design and/or execution of the Program dimension.
🟡	Evolving in terms of design and/or execution of design. Moderate opportunities for consideration to strengthen the design and/or execution of Program dimension.
🔴	Requires significant enhancement. Basic and/or significant opportunities required to strengthen the design and/or execution of Program dimension.
N/A	Not assessed

Refer to section 3 for details of the findings and recommendations per defined assessment criteria.

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 9

B. Assessment of ASX's annual process for updating the CHESS Roadmap (Roadmap Refresh)

Our CHESS Roadmap Refresh assessment criteria is designed to assess whether ASX's approach for the annual CHESS Roadmap Refresh and Roadmap Update Report is appropriately designed and executed to address relevant matters outlined in the RBA's Assessment of ASX Clearing and Settlement Facilities Report.

Specifically, we assessed whether:

1) ASX's CHESS Roadmap Refresh and Roadmap Update Report has addressed the relevant matters in relation to the support and maintenance of CHESS (refer to section 2.2 for further details),

2) The work undertaken by ASX supports the outcomes documented in the report, and

3) ASX has conducted sufficient governance arrangements for the production of the CHESS Roadmap Refresh and Roadmap Update Report.

We determined whether each of the criteria was fully, partially, or not appropriately addressed.

Our determination of 'partially addressed' is based on professional judgement of the extent to which ASX demonstrably met the criteria.

2.4 Limitations

We draw attention to the limitations inherent in this report:

► Our work was not performed in accordance with generally accepted auditing, review, or other assessment standards in Australia and accordingly does not express any form of assurance.

► This report does not constitute legal opinion or advice. We have not conducted a review to detect fraud or illegal acts.

► The work undertaken is substantially less in scope than an audit conducted in accordance with Australian Auditing Standards and consequently does not express an audit opinion.

► Our work does not assume any responsibility for any third-party products, Programs or services, their performance or compliance with ASX specifications or otherwise.

► Our work did not intend to identify, address, or correct any errors or defects in ASX computer systems, other devices, or components thereof, whether or not due to imprecise or ambiguous entry, storage, interpretation, or processing or reporting of data. We are not responsible for any defect or problem arising out of or related to data processing in any systems in relation to CHESS.

► Due to the inherent limitations of any internal control structure, it is possible that fraud, error or non-compliance with laws and regulations may occur and not be detected. Further, the internal control structure, within which the control procedures operate, has not been reviewed in its entirety and, therefore, no opinion or view is expressed as to the effectiveness of the greater internal control structure. Our work is not designed to detect all weaknesses in control procedures as it is not performed continuously throughout the period and the tests performed on the control procedures are on a sample basis. Any projection of the evaluation of control procedures from our sustainability assessment in this reporting period is subject to change in future reporting periods. This is because changes in conditions may impact the extent to which these control procedures operate as intended.

► The Security of Critical Infrastructure Act 2018 restricts the disclosure of information by ASX.

► EY has not completed any evaluation procedure with regards to ASX's assessment of compliance with the Security of Critical Infrastructure Act 2018.

► Full details of our assessments for ASX Roadmap initiatives relating to Security and some Operational and Continuity initiatives have not been included in this report due to commercial sensitivity.

2.5 Use and disclosure of our reports

We are providing specific advice only for this engagement and for no other purpose and we disclaim any responsibility for the use of our advice for a different purpose or in a different context. If ASX plans to use this advice on another transaction or in another context, please let us know and provide us with all material information so that we can provide advice tailored to the appropriate circumstances.

Our Reports may be relied upon by ASX and ASX's regulators ASIC and the RBA for the purpose outlined in the Statement of Work (SOW) dated 27 November 2023 and 21 March 2025.

We understand that ASIC and the RBA, and ASX may issue a media release and/or a public report referring to or publishing the content of our Reports and may make public or issue our Reports or a summary of the content of our Reports. We consent to ASIC and the RBA, and ASX publishing our Reports.

For the avoidance of doubt, no other party other than ASX, ASIC and the RBA may rely on the Reports. We disclaim all responsibility to any such other party for any loss or liability that the other party may suffer or incur arising from or relating to or in any way connected with the contents of our Reports, the provision of our Reports to the other party or the reliance upon our report by the other party.

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 10

3. CHESS Roadmap Program Findings and Recommendations

Detailed in this section are the findings and recommendations for our assessments completed during this period. This includes our assessments of:

1. The appropriateness and execution of one CHESS Roadmap initiative completed by ASX within this reporting period (1 November 2024 to 30 April 2025) and a sustainability assessment for four CHESS Roadmap initiatives,

2. Deep dive reviews on specific topics, and

3. Overall health-check of the progress of implementation of the CHESS Roadmap.

3.1 Assessment of CHESS Roadmap initiatives

Detailed below are the findings and recommendations for our assessment of the CHESS Roadmap initiatives in scope for the period of this Report. Our assessment of one CHESS Roadmap initiative relating to Operations is not detailed in this report due to commercial sensitivity.

#	Initiative ID	CHESS Roadmap Reference ID	Initiative Name	Appropriate	Executed	Sustainable
1	CC#19	O-15	CHESS VPN Upgrade	✔ (Cycle 1)	✔ (Cycle 1)	🟡
2	CC#20	O-7	CHESS Access Upgrade	✔ (Cycle 3)	✔ (Cycle 3)	🟡
3	CC09_M31	O-13	Backend Upgrades - database upgrade to the latest version	✔ (Cycle 3)	✔ (Cycle 3)	🟡
4	CC#39	O-1	Develop a new model for forecasting future trading growth	✔ (Cycle 1)	✔ (Cycle 2)	✔

Legend: Yes ✔ / No ✖ / Partially Addressed 🟡

'Sustainable' not applicable for this initiative in this reporting period as the initiative is either a one-off activity performed by ASX or is yet to meet the minimum operating time threshold for testing (i.e. 3 months). For those pending the minimum operating time threshold, the initiative may be assessed against this criterion in the next reporting period.

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 11

Findings and Recommendations

The following initiatives were assessed against our 'Appropriate' and 'Executed' assessment criteria in previous cycles. In this reporting period, we have assessed these initiatives against the 'Sustainability' assessment criteria. Refer to the summary assessment tables in section 3.1 for details of the assessment outcomes from previous cycles.

3.1.1 Initiative CC#19: CHESS VPN Upgrade (Special Report Item O-15)

Context

Remote access to CHESS is enabled through secured transport channels, including Virtual Private Network (VPN). This initiative involved the upgrade of the VPN versions used by CHESS customers to ensure ongoing software support arrangements by the vendor, Cisco. ASX has defined controls and processes to monitor the VPN versions used by CHESS customers and VPN version support arrangements from Cisco.

Procedures Performed

We inquired with ASX to understand the processes and controls in place to monitor the VPN versions used by CHESS customers and ongoing vendor support. Our inquiries with ASX extended to understanding the frequency of review, key data inputs, review outcomes and follow-up actions required. We reviewed evidence of ASX's bi-annual review of the VPN version support from Cisco, which was performed in January 2025. We also examined the control description details from ERICA to validate whether the controls had been defined, including but not limited to, the scope, frequency and description of the control. We also inspected sample documentation related to the weekly review of VPN versions for CHESS customers, which is a proactive activity to ensure currency of VPN versions.

This included VPN activity reports generated by SolarWinds, ASX's network monitoring and reporting platform, and email evidence of communications between ASX and CHESS customers in the event of a required VPN version upgrade.

Findings

Our assessment found that ASX has designed proactive measures to monitor the VPN versions of CHESS customers and has demonstrated its process for actioning VPN version upgrades. We found no material exceptions in relation to the weekly review performed by ASX.

However, we found exceptions in relation to the bi-annual review of the vendor support for the VPN version. Specifically, our assessment found that the bi-annual review control is not defined clearly in ERICA as the existing control defined in ERICA does not align to the bi-annual control described by ASX. In addition, ASX could not evidence the review performed over the VPN version end-of-life timelines and ongoing support of the vendor.

Risk

Unmonitored vendor support arrangements (including end-of-life timelines) could result in the use of outdated VPN versions by CHESS customers. This could lead to connectivity issues and potential vulnerabilities in the CHESS system if customers are unable to upgrade their VPN clients in a timely manner.

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 12

> **Recommendation 1**
>
> We recommend ASX develops standard operating procedures for implemented initiative controls designed to ensure the relevant linked controls are consistently, accurately and demonstrably performed. This should include:
> - Defining and documenting Standard Operating Procedures (SOP) with a clear linkage to the relevant key and non-key controls. This includes accurately defining control attributes, control owner, control frequency and tolerances for exceptions as well as detailing key data inputs, review steps, exception criteria and procedures in the event of an exception.
> - Requirements for retention of documentation to evidence control performance, including (but not limited to) the data inputs used, evidence of reviews performed and basis for review outcomes (e.g. review commentary) and completion of follow-up actions (including any exceptions identified)

3.1.2 Initiative CC#20: CHESS Access Uplift (Special Report Item O-7) and Initiative CC09_M31: Backend Upgrades - database upgrade to the latest version (Special Report Item O-13)

Context

Our previous assessment cycles noted initiatives CC#20 (CHESS Access uplift) and CC09_M31 (Backend Upgrades – database upgrade to latest version) were completed by ASX to address the risk of aging assets and ensure continued vendor support.

ASX has defined a control to monitor and manage CHESS-related assets, including CHESS Access (Initiative CC#20) and the CHESS database (an Oracle database) (Initiative CC09_M31). This is known as the CHESS aged assets review and is designed to identify aging assets (i.e. assets that are nearing end of life or may be nearing end of vendor support) and corresponding remediation actions (e.g. asset replacement, upgrade and/or extension of vendor support). The following documentation details our sustainability assessment for these two initiatives.

Procedures Performed

We inquired with ASX to understand how the CHESS aged assets review is conducted, including key data inputs, review outcomes and key approvals required. We reviewed the latest instance of the CHESS Aged Assets Roadmap (December 2024) and evidence of the inputs considered by ASX for both CHESS Access and the CHESS database to determine any required actions for 2025 (calendar year). We also examined the control details from ERICA to determine whether the control had been defined, including but not limited, to the purpose, scope, and description of the control.

Findings

Our assessment found that the inputs and outputs of the review could be demonstrated (e.g. vendor updates on support plans and remediation actions on the roadmap). However, ASX could not evidence the supporting review rationale and approvals over the CHESS Aged Assets Roadmap. As such, we were unable to verify the design of the control and the outcomes of ASX's review. Additionally, we found differences in the control attributes defined in ERICA and the control performed by ASX (i.e. review frequency). ASX has informed us that, since our review of the CHESS aged assets review in Cycle 2 (June 2024), ASX has undertaken action to uplift its asset management practices at the enterprise level.

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 13

In the interim, S&P Technology is also continuing to develop and enhance its aged asset management practices, which has been developed and implemented as part of the CHESS Replacement Project but also covers current CHESS aged assets.

Risks

There is a risk that aging CHESS assets remain unidentified and unaddressed, which could lead to potential vulnerabilities for CHESS and supporting assets (e.g. due to end of vendor support).

Recommendations

Refer to recommendation 1

3.1.3 Initiative CC#39: Develop a new model for forecasting future trading growth (Special Report Item O-1)

Context

The scope of this initiative resulted in the development and deployment of a model (Trade Volume Forecast Model) in October 2023 that forecasts future trading growth processed by all Australian Market Operators (AMOs) for Clearing and Settlements. In previous cycles, we assessed controls relating to the preparation, execution, ongoing maintenance and reporting of the model. Our Cycle 4 assessment pertains to the annual review of the model parameter settings and key risk indicators (KRIs) to ensure the model continues to remain fit-for-purpose. Our assessment excludes controls relating to the biennial review of the model logic and data inputs. However, we acknowledge ASX's plan to conduct the next instance of this model logic review.

Procedures Performed

We inquired with ASX to understand how the control is designed and how the model parameter and KRI review was conducted.

Our inquiries with ASX extended to understanding the scope and purpose of the review, key data inputs, outcomes, follow-up actions and required approvals of the review.

We reviewed sample evidence of the latest annual review, conducted in September 2024, which included a summary of the sensitivity analysis performed and an evaluation of the appropriateness of the KRIs of the model in the context of capacity management reporting. Additionally, we examined the outcomes of the review including evidence of completion of follow-up actions and review approval from appropriate stakeholders. We also sighted evidence that ASX has documented the annual control in ERICA.

Findings

Based on our assessment of the information provided by ASX, we found no material exceptions in the design of the sustainability measures performed by ASX. However, we noted that the process and procedures document, defined at the time of initiative completion to detail controls related to the preparation, execution, maintenance of the model, did not include the annual model parameter and KRI review. We suggest ASX either updates the process and procedures document to reflect the annual control that is performed or archives the document if no longer in use.

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 14

3.2   Deep dive reviews

Our May 2023 Audit of ASX's Special Report on the support and maintenance of CHESS found opportunities to align the CHESS control environment to better local and global market practice. We recommended ASX perform further deep dives into specific domain areas to expand the depth of the risk assessments completed. Specifically, the areas of security business continuity and resilience, and third-party management.

To date, ASX has effectively completed deep dives into these risk areas and developed plans and activities at CHESS or enterprise level to assess and mitigate these risks. While the deep dive risk identification work is complete, the development, implementation and embedding of controls to manage these risks is a work in progress. We will assess ASX's progress and outcomes in our future reports.

Security

ASX completed a deep dive into CHESS cyber security risks in August 2024. Our December 2024 report found no material exceptions in the appropriateness of the design of the CHESS security deep-dive.

Resilience

ASX initiated a deep dive into resilience in November 2024. We performed an assessment of the scope and provided management with comments.

In December 2024, CHESS was impacted by a Batch Settlement incident (CHESS incident) which meant the Batch Settlement process could not be completed within the relevant cut-off time. ASX published an Incident Review report on 23 January 2025 which identified ten actions in response to the incident.

These additional events superseded the deep dive and effectively provided the same outcome to identity and assess CHESS resilience risks and develop roadmap initiatives to mitigate them.

We will assess selected initiatives as part of our Roadmap assurance in the next cycles.

Third party

ASX has an enterprise-wide project to uplift its enterprise-wide third-party risk management arrangements. The new enterprise framework and enabling tools were rolled out in February 2025 and are being operationalised by 30 June 2025. The framework includes identification and tiering of third parties and standardised risk assessments. Future activities will require identification and assessment of fourth parties (third parties of third parties), information security, and concentration analysis.

In cycle 5 we expect ASX to apply this uplifted enterprise approach to CHESS and we will review completion of this activity. Given the significance globally of third-party risk management, and the introduction of standards such as CPS230 for APRA regulated entities, we continue see this as an area of importance for end-to-end CHESS risk management.

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 15

3.3 Health-check of the CHESS Roadmap Program

Detailed below are the findings and recommendations from our assessment of the overall health (health-check) of the CHESS Roadmap Program during this period.

Program Dimension	Assessment Commentary	Cycle 3 Assessment Rating	Cycle 4 Assessment Rating
Governance	Our assessment found that ASX has continued to operate appropriate governance arrangement to oversee and manage the CHESS Roadmap Program. We attended established Program governance forums, including the fortnightly Current CHESS Delivery Leadership meeting and the monthly Strategic Guidance Group (SGG) meeting. We reviewed the papers and reports produced for these meetings. We observed that the overall status and progress of the Program is actively tracked and discussed within the governance forums. We found attendees are provided with appropriate reporting information and that the forums are operating effectively to oversee completion of the Program; including members providing appropriate challenge and direction where required.	🟢	🟢
Planning Management	Our assessment found that ASX's S&P planning processes (S&P Quarterly Resource Planning, CHESS environments planning and S&P portfolio KANBAN) continued to operate effectively for the CHESS Roadmap Program. We attended a sample of these meetings conducted during the reporting period (between November and April 2025) and reviewed associated artefacts, including S&P's quarterly resource planning and evidence of management decisions for overallocated resources. We found the processes operated as designed to identify resourcing needs across the Program and the wider Securities and Payment (S&P) business and actively manage resource contention within the S&P team. Where the current CHESS Roadmap has demands on non-S&P resources for delivery the S&P quarterly resource planning process is not applied.	🟢	🟢

Program Dimension	Assessment Commentary	Cycle 3 Assessment Rating	Cycle 4 Assessment Rating
	In these cases, the Program engages with stakeholders from other business areas where required, to communicate resourcing needs and confirm these are accounted for. Whilst this process is not always formally documented, we have not identified any material delays to completion of initiatives which suggest an issue with this resourcing approach.		
Scope Management including Change Control	Our assessment found that ASX continues to operate effective scope and change management practices. We reviewed the scope documentation for the initiatives in-scope for our Cycle 4 'Appropriate' and 'Executed' assessment criteria (1 initiative) and determined that the Program has defined and documented the initiative scope, business drivers, objectives, deliverables, closure criteria and sustainability criteria (controls). We found that the Program continues to operate effective change management practices and aligns to ASX's enterprise-wide project delivery framework. We noted that approval for change requests follow the Program's existing governance forums. We inquired with ASX and reviewed evidence, for a sample of one initiative change request, to determine that the Program had followed the change control process. We also sampled a change request taken to the Current CHESS SGG for approval to postpone the execution of the Third Pary Risk Management deep dive. We found that the change requests were approved at appropriate governance forums per the Program change management process.	🟢	🟢
Program Risk Management (Risks, Assumptions, Issues and Dependencies)	Our assessment found that the Program continues to operate effective risk management practices to manage Program delivery and delivered risks. The Program continues to use ASX's enterprise-wide tool (JIRA) for recording RAID items and we observed (through attendance at monthly SGG and a sample of S&P Delivery RAID review meetings in November 2024 and February, March and April 2025), that the Program's RAID log is regularly reviewed, updated, and discussed.	🟢	🟢

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 17

Program Dimension	Assessment Commentary	Cycle 3 Assessment Rating	Cycle 4 Assessment Rating
	We found the Program appropriately considered the impact of Program delivery risks on its overall reported Program RAG status. Notable examples include the SGG meeting in April 2025 where the Program reported overall red for the period. The impact of risks to objectives, schedule, budget and people on the downward assessment of the Program's status were actively discussed.		
Supplier / Third Party Management	Supplier / Third Party Management was not applicable for assessment this Cycle since ASX did not engage any new critical third parties during the period.	N/A	N/A
Quality Management	Our assessment found that ASX continues to improve its quality management practices. Our Cycle 3 assessment recommended ASX to improve its processes and retention of evidence to demonstrate the effectiveness of quality controls performed. This includes, as an example, clearer alignment between quality checks performed and the defined scope, benefits, closure criteria and sustainability requirements (as documented in the 'scope and benefits' documents). We recommended that initiatives should not be closed unless the criteria has been demonstrably met and evidenced, or exceptions have been explained, acknowledged and risk accepted. We reviewed evidence that our Cycle 3 recommendation had been recorded in ERICA to track ASX's completion of remediation actions. These remediation actions included the following: ► uplift to the Program's closure criteria matrix to reflect the review and approval required by the PMO team (GM of Business Management and Planning) to demonstrate that the closure criteria has been demonstrably met and evidenced prior to initiative closure ► creation of a closure criteria deliverable template to document the PMO team's review of the initiative closure criteria evidence ► evidence of the PMO team's closure criteria evidence review for all initiatives with a planned closure date of 31/03/2025 (two initiatives)	🟡	🟢

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 18

Program Dimension	Assessment Commentary	Cycle 3 Assessment Rating	Cycle 4 Assessment Rating
	We also noted ASX plans to continue the PMO closure criteria evidence review for all planned and in-flight CHESS Roadmap initiatives going forwards. Per inquiry with ASX and review of evidence, we found: ► The Program's closure criteria matrix was updated to reflect the closure criteria evidence and approval required by the PMO team (GM of Business Management and Planning) prior to initiative closure ► The Program had created a closure criteria deliverable template to document the PMO's review of closure criteria evidence ► No material exceptions in the design effectiveness of the control for the sample of initiatives subject to the PMO team's closure criteria evidence review (two samples). For each sample reviewed, ASX was able to provide evidence and rationale of how it determined the initiative closure criteria had been met against the initiative scope documentation.		
Management Actions Relating to Previous Assurance Recommendations	We assessed artefacts to understand the status of actions required to address four open recommendations from our previous assurance cycles (3 cycle 3 recommendations and 1 partially addressed cycle 2 recommendation). We found that for all four open recommendations, high level actions and due dates have been recorded in ASX's enterprise risk management system, ERICA to track completion.	N/A	🟢
Confidence in Upcoming Initiatives	There are 11 initiatives due for completion during the next six months (between May and September 2025). Through observation of ASX's Program governance forums, including the most recent SGG meeting on 12 May 2025, we note that these initiatives remain on track for completion and have not identified any contradictory information that would indicate delayed completion of these initiatives	🟢	🟢

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 19

4.   CHESS Roadmap Refresh Findings and Recommendations

Detailed below are the findings and recommendations from our assessment of ASX's CHESS Roadmap Refresh and Roadmap Update Report produced during the period.

Assessment Criteria	Assessment Commentary	Assessment Rating
ASX's CHESS Roadmap Refresh and Roadmap Update Report has addressed relevant matters in relation to the support and maintenance of CHESS	**ASX's Process for updating the CHESS Roadmap – design adequacy assessment** ASX has maintained its CHESS Roadmap Report Process document which outlines the activities required to update the CHESS Roadmap and produce the Roadmap Update report on an (at least) annual basis. We reviewed the updated (version 3) process document and found that it defines appropriate activities for completion of the Roadmap Refresh and production of the Report. These activities include performing a CHESS risk assessment, identification, prioritisation, planning, implementation, and closure of CHESS Roadmap initiatives, and accountability and governance arrangements for the refreshed Roadmap and Report. CHESS initiatives intend to address the current assessment of CHESS risks and are categorised and monitored across four themes: operations, security, continuity and governance. If implemented as designed, the process should ensure ASX addresses relevant matters in relation to the support and maintenance of CHESS as part of its annual Roadmap Refresh. **ASX's Process for updating the CHESS Roadmap – implementation assessment** We attended workshops and reviewed ASX's Roadmap Refresh Report (dated May 2025) and other artefacts evidencing the work completed by ASX for the Roadmap Refresh. We found that ASX had considered appropriate inputs to identify potential new roadmap initiatives, and undertaken additional analysis to categorise, prioritise and include these in-scope of the Roadmap where appropriate. We found the Roadmap Refresh was supported by an updated CHESS risk assessment. We did not identify any significant exceptions in the process followed to complete the CHESS Roadmap Refresh and produce the report, compared to the process design.	✅

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 20

Assessment Criteria	Assessment Commentary	Assessment Rating
The work undertaken by ASX supports the outcomes documented in the report	**ASX's CHESS Risk Profile Assessment** We conducted stakeholder interviews, attended workshops and inspected related artefacts to understand ASX's process for refreshing the CHESS risk profile. We compared ASX's current CHESS risks against EY's Process Risk and Controls (PRC) library to determine completeness of the identified CHESS risks and controls. We found that ASX's current CHESS risk profile included 16 risks covering product management, strategic prioritisation, change management, system failures, service provider management (RBA), and operational processing errors. Where the CHESS risk profile had changed from the prior year (e.g. due to updated enterprise risk descriptions), an exercise was performed to provide traceability of these changes and communicate this to executive stakeholders via a risk workshop. Our assessment of ASX's CHESS risk profile found while expected risks were appropriately included, there was limited evidence of ASX's consideration of CHESS third party risk because the uplifted enterprise-wide framework rollout was inflight. ASX considers that third parties are implicitly covered as a root-cause of issues associated with CHESS risk TOR1 System failure due to hardware or software failure - Equity Post-Trade (CHESS). ASX could not explicitly demonstrably evidence this with supporting artefacts such as identification and classification of all CHESS third parties and related periodic due diligence activities. We expect a complete assessment of CHESS's current risk posture to explicitly include third party risks and controls. **Identification, planning and scoping of new CHESS Roadmap Initiatives** We conducted stakeholder interviews, attended workshops, and inspected related artefacts to understand ASX's process for the identification, prioritisation and planning of new initiatives as part of the CHESS Roadmap Refresh. We found that ASX assessed a 'backlog' of initiatives against a set of prioritisation criteria based on 'ability to implement' and 'business value' to determine if new initiatives should be included or excluded from the Roadmap. For initiatives determined to be excluded from the Roadmap (i.e. 'out of scope' and 'stop' initiatives) or deprioritised (i.e. 'monitor' initiatives), we found that ASX documented and retained appropriate rationale to substantiate the prioritisation decision.	✔

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 21

Assessment Criteria	Assessment Commentary	Assessment Rating
	ASX identified 15 new public initiatives for inclusion on the updated Roadmap. We reviewed the completed scoping templates for these initiatives, along with a sample of 5 private initiatives, and found that the business drivers, scope, objectives, high-level timelines were adequately designed and approved. We also reviewed evidence of ASX's mapping of Roadmap initiatives to CHESS risks to support the completeness and coverage of Roadmap initiatives to mitigate CHESS risks. Where no initiatives were identified for medium and high rated risks (e.g. CHESS Risk ID 1073034 – Inadequate project management), ASX evidenced reasonable basis for this (for example, the residual risk rating was driven by other projects rather than current CHESS). ASX also demonstrated that its S&P quarterly resource planning process was followed for upcoming S&P led Roadmap initiatives.	
ASX has conducted sufficient governance arrangements for the production of the CHESS Roadmap Refresh and Roadmap Update Report	We reviewed ASX's CHESS Roadmap Report Process and found that ASX had defined commensurate governance arrangements for the CHESS Roadmap Refresh and Roadmap Update Report. We attended SGG meetings for April and May 2025 and reviewed the associated papers and meeting minutes. We observed that SGG was provided with sufficient information relating to the Roadmap Refresh process, including the outcomes of the work undertaken and updates to the CHESS Roadmap. We held interviews with a sample of executive stakeholders (i.e., Senior Management and Directors), including board members, to understand their views on CHESS risks and the completeness and reliability of the CHESS Roadmap Refresh and Roadmap Update Report. Lastly, we reviewed supporting artefacts and attestations completed by executive stakeholders in Atticus (ASX's enterprise-wide fact checking and verification software). We found that attestations were completed in line with the defined process.	✔

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 22

Appendix A   Status of EY recommendations from previous cycles

Detailed below is the status of our recommendations identified from previous cycles. The status of four recommendations relating to Security and Continuity is not detailed due to commercial sensitivity.

#	Cycle / Report Period	Assessment Stream	Initiative ID / Program Dimension	Original Assessment Outcome	EY Recommendation	ASX Remediation Status	Updated Assessment Outcome
1	Cycle 1 (December 2023)	CHESS Roadmap Initiatives	CC#39 (O-1)	🟡 (Executed)	We recommend that ASX identifies and formally documents all relevant controls (existing and planned) relating to the governance of the model.	Addressed – EY retested in Cycle 1 (December 2023)	✅ (Executed)
2	Cycle 1 (December 2023)	Health Check	Scope Management including Change Control	🟡	We recommend that a detailed scope is documented for each initiative, considering both Special Report and Non-Special Report items.	Addressed – EY retested in Cycle 3 (December 2024)	✅
3	Cycle 1 (December 2023)	Health Check	Quality Management	🟡	1. We recommend that all initiatives (Special Report and non-Special Report items) should follow a consistent and formal approval process to ensure at a Program level that appropriate review and governance occurs by appropriate stakeholders and is evidenced. 2. We also recommend ASX to use existing governance mechanisms and risk forums to ensure a consistent approach, following ASX's risk management framework, for the treatment of findings and potential actions identified from independent third-party reviews.	Addressed – EY retested in Cycle 2 (June 2024)	✅
4	Cycle 2 (June 2024)	CHESS Roadmap Initiatives	CC#40 (O-2)	🟡 (Executed)	ASX has defined a new CHESS Roadmap initiative (CC#40b - Embedding Capacity & Availability Framework to CHESS) to complete this activity with a planned completion date by 30 July 2024. We expect this initiative will define and embed CHESS-specific availability and capacity policies and processes, aligned to the new enterprise-level availability and capacity management framework. We expect to assess this initiative in Cycle 3.	Addressed – EY retested in Cycle 3 (December 2024)	✅ (Executed)
5	Cycle 2 (June 2024)	CHESS Roadmap Initiatives	CC#13 (O-5)	🟡 (Sustainable)	We recommend ASX designs and implements controls for regularly monitoring third party performance against agreed service levels.	Addressed – EY retested in Cycle 3 (December 2024)	✅ (Sustainable)

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 23

#	Cycle / Report Period	Assessment Stream	Initiative ID / Program Dimension	Original Assessment Outcome	EY Recommendation	ASX Remediation Status	Updated Assessment Outcome
6	Cycle 2 (June 2024)	Health Check	Scope Management including Change Control	🟡	We recommend ASX adopts the scope template for in-flight initiatives, with particular focus on the business drivers, objectives, sustainability criteria (controls) and closure criteria (demonstrably delivered outcomes).	Addressed – EY retested in Cycle 3 (December 2024)	✔
7	Cycle 3 (December 2024)	Health Check	Quality Management	🟡	We recommend ASX improves its processes and evidence retained to demonstrate effectiveness of the initiative closure process quality controls.	Addressed – EY retested in Cycle 4 (June 2025)	✔

Legend: Yes ✔ / No ✖ / Partially Addressed 🟡

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 24

Appendix B   Workshops and Meetings List

Appendix B1   CHESS Roadmap Program

The table below outlines the key meetings attended and workshops conducted with ASX stakeholders related to the CHESS Roadmap Program.

Workshop/Meeting Name	Attendees		Date
Initiative Walkthrough Session (Initiative CC09_M31 & CC#20)	PMO Lead, S&P Business Planning and Management	Senior Manager, Technology CHESS	13 March 2025
Initiative Walkthrough Session (Initiative CC#19)	Head of Enterprise & Customer Networks PMO Lead, S&P Business Planning and Management	Senior Manager, Technology CHESS Senior Manager, Network Technology	13 March 2025 20 March 2025
Initiative Walkthrough Session (Initiative CC#39)	Manager, Equities Risk and Compliance Partner, S&P Business Management & Planning	Senior Manager, Technology CHESS	28 March 2025
BCM Deep Dive Scope Overview	GM, Business Management & Planning	PMO Lead, S&P Business Planning and Management	24 February 2025
CHESS Roadmap Program Workshop - S&P Delivery RAID Review	GM, Business Analysis & Delivery GM, Business Management & Planning Head of Delivery, S&P Business Development	Risk and Compliance Partner, S&P Business Management & Planning PMO Lead, S&P Business Planning and Management Senior Manager, Line 2 Project Risk Oversight	14 November 2025 10 February 2025 16 April 2025 7 May 2025
CHESS Roadmap Program Workshop - S&P Resourcing Profiling	GM, Business Analysis & Delivery GM, Business Management & Planning GM, Equities GM, Fixed Income	GM, Securities & Payments Operations GM, Securities & Payments Technology Head of Delivery, S&P Business Development Senior Manager, Technology CHESS	19 March 2025 29 March 2025 29 April 2025
CHESS Roadmap Program Workshop - S&P KANBAN	GE, Securities & Payments GM, Business Analysis & Delivery GM, Business Management & Planning	GM, Equities GM, Securities & Payments Technology Head of delivery	April 30 2025

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 25

Appendix B2　　CHESS Roadmap Refresh

The table below outlines the key interviews and workshops conducted or observed with ASX stakeholders related to the CHESS Roadmap Refresh.

Workshop Topic	Attendees		Date of Workshop
Current CHESS Roadmap Refresh Leadership Team Workshop 1	GE, Securities & Payments GM, Business Management & Planning GM, Business Analysis & Delivery GM, Equities GM, Securities & Payments Operations	GM, Securities & Payments Technology Head of Delivery, S&P Head of Issuer Services PMO Lead, S&P Business Planning and Management Senior Project Manager, S&P Business Development	16 January 2025
Current CHESS Roadmap Refresh Leadership Team Workshop 2	GE, Securities & Payments GM, Business Management & Planning GM, Business Analysis & Delivery GM, Equities GM, Securities & Payments Operations	GM, Securities & Payments Technology Head of Delivery, S&P Head of Issuer Services PMO Lead, S&P Business Planning and Management Senior Project Manager, S&P Business Development	27 February 2025
Current CHESS Risk Workshop - CHESS Risk Assessment	GM, Business Management & Planning GM, Equities GM, Securities & Payments Operations GM, Securities & Payments Technology	Head of Delivery, S&P Business Development PMO Lead, S&P Business Planning and Management Project Officer, S&P Business Management & Planning Risk and Compliance Partner, S&P Business Management & Planning	6 March 2025
Current CHESS Roadmap Refresh Leadership Team Workshop 3	GE, Securities & Payments GM, Business Analysis & Delivery GM, Business Management & Planning GM, Equities GM, Securities & Payments Operations GM, Securities & Payments Technology Head of Delivery, S&P Business Development Head of Issuer Services	PMO Lead, S&P Business Planning and Management Project Officer, S&P Business Management & Planning Risk and Compliance Partner, S&P Business Management & Planning Senior Manager, Equities Senior Manager, Issuer Services Senior Manager, Fixed Income & Equity Operations Senior Policy Advisor and Regulatory Engagement Lead Senior Project Manager, S&P Business Development	27 March 2025
Planning Workshop - S&P Resourcing Planning Review	GM, Business Analysis & Delivery GM, Business Management & Planning GM, Equities GM, Fixed Income GM, Securities & Payments Operations GM, Securities & Payments Technology	Head of Delivery, S&P Business Development Head of Issuer Services PMO Lead, S&P Business Planning and Management Senior Manager, Technology CHESS	29 April 2025

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 26

Interviews with ASX Management			Interviews with ASX Executives			Interviews with ASX Directors	
Attendees	Date		Attendees	Date		Attendees	Date
GM, Business Analysis & Delivery	6 May 2025		Chief Information Security Officer	12 May 2025		Director, Chair of Technology Committee	27 May 2025
GM, Business Management & Planning	8 May 2025		Chief Information Officer	23 May 2025		Non-Executive Director and Chair	3 June 2025
GM, Securities & Payments Technology	13 May 2025		Group Executive, Securities & Payments	27 May 2025		Director of ASX Clear Pty Limited, Director of ASX Settlement Pty Limited and Technology Committee member Director of ASX Clearing and Settlement Boards, Chair of ASX Clear Pty Limited and Chair of ASX Settlement Pty Limited	20 June 2025
			Chief Risk Officer	30 May 2025			
GM, Equities	13 May 2025		Managing Director & CEO	4 June 2025			

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 27

Appendix C Key Documents Reviewed

Appendix C1 CHESS Roadmap Program

Documents Reviewed			
Initiative ID	Key Document Names	Initiative ID	Key Document Names
CC#39	Responses and evidence attached per Confluence Page - CC39_A2: Assurance Cycle #4	CC#20 & CC09_M31	Responses and evidence attached per Confluence Page - CC20_A3 Assurance Cycle #4
	Equities Trade Forecasting Capacity Management Compendium Final 30092024		Aged Assets Control Overview from ERICA - Control 1008177
	CHESS Trade Forecasting _ Capacity management Business Review September 2024		CHESS Aged Asset Roadmap October 2024 v1.9
	RE Meeting minutes- Tech KRI for measuring capacity for CHESS		Oracle RDB Licensing and Vendor Management Roadmap
	Evidence of completed actions from review (including FSS Guidance KRI screenshot 30_09_2024, FSS Guidance KRI excerpt from the November 2024 S&P RWG, KRI Reporting ERICA excerpt, Equity Post Trade CHESS Prod – IT Service Management Report – November 2024, RE Meeting minutes extract – Tech KRI for CHESS capacity)		Q3 ASX Quarterly Planning - Presentation Pack
CC#19	Responses and evidence attached per Confluence Page - CC_19_A2 Assurance Cycle #4	Health Check	S&P Resourcing Process Flow v2
	Sample of bi-weekly review - 140125 Cisco ASA - AnyConnect clients and 180225 Cisco ASA - AnyConnect clients		Sample of S&P resourcing review and meeting minutes (FY25 Q3) (SP Resourcing Q3 FY25 v3.xlsx and Confluence Page - FY25 Q3 S&P Resourcing)
	Re ASX iVPN - Cisco AnyConnect client version requirement		Sample of RAID reporting per S&P Delivery RAID review meetings (CC RAID Session – 14 November 2025, CC RAID Session – 10 February 2025, CC RAID Session - 14 March 2025, CC RAID Session – 16 April 2025)
	CCH-CC#19-NetworkMonitoringConnectivityReportCCH		Confluence Page - Current CHESS Change Control Framework
	Sample of bi-annual review - MPLS Cisco Hardware & Software EOL Milestone		Sample of JIRA risk records for CHESS risks (CCH_719, CCH_720, CCH820, CCH_917)

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 28

Documents Reviewed			
Initiative ID	Key Document Names	Initiative ID	Key Document Names
Health Check	Evidence of ASX's actions to address EY recommendations from previous cycles (quality management) - Closure Criteria Matrix - V.02, CC100_D6 Closure Criteria Deliverable, CC100_D0 Scope & Benefits, CC100_DS_1 Program Approval for Closure of CC#100, CC18b_D0 Scope & BenefitsCC18b_D7 Closure Criteria Deliverable, CC18b_DS_1 Program Approval for Closure of CC#18b	Health Check	Sample of initiative change request - CC100_CR1 Change in Timeline, CC100_CR1 Approval Page, 2025-01-30 Delivery Leadership Meeting and Current CHESS Program 12Feb2025 SGG
	Evidence of ASX's actions to address EY recommendations from previous cycles (including Confluence Page, CCH-3.7. EY Program Assurance, and ERICA Actions)		Sample of SGG pack and meeting minutes (Current CHESS Program 12Feb2025 SGG and Current CHESS 12-Feb-25 Minutes & Actions)

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 29

Appendix C2 CHESS Roadmap Refresh

Documents List					
#	Document Name	#	Document Name	#	Document Name
1	19.1.1 Scope Templates Tracker.pdf	9	Current CHESS Roadmap Finalisation Workshop V1.0.pptx	17	S&P Resourcing Q3 FY25 v3.xlsx
2	2025 CHESS Risk Workshop - Risk Analysis.xlsx	10	Control Testing Framework.pdf	18	S&P Risk Register Report.xlsx
3	ASX CHESS Roadmap Update Report of ASX Clear Pty Limited and ASX Settlement Pty Limited	11	ERICA extracts of residual risk ratings for CHESS risks (1004030, 1004210 and 1072972)	19	S&P Technology Risk Register Report
4	CHESS Risks and Ratings Rationale.xslx	12	ERM Framework.pdf	20	Sample of April and May 2025 SGG pack and meeting minutes (Current CHESS Program 09Apr2025 SGG, Current CHESS 09-Apr-25 Minutes & Actions, Current CHESS Program 12May2025 SGG and Current CHESS 12-May-25 Minutes & Actions)
5	CHESS Roadmap Annual Review Process v3.0.pdf	13	Evidence of Atticus attestations (including Atticus verification report)	21	Technology Infrastructure Risks.xlsx
6	CHESS Roadmap Risk Mapping.docx	14	RE_ Current CHESS Risk Workshop.msg	22	Workshop packs and meeting minutes for Current CHESS Roadmap Refresh 2025 (16 January 2025, 27 February 2025 and 27 March 2025)
7	Confluence Page – 19. CC Roadmap Update CY25.pdf	15	Responses and evidence attached per Confluence Page - 19.1.3 Roadmap Refresh Evidence Tracker		
8	Current CHESS Program 12 May 25 SGG.pdf	16	Roadmap Refresh 2025 Work_Item_List.xlsx		

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 30

Appendix D CHESS Roadmap Assessment Status

Detailed below is the status of our assessment of CHESS Roadmap Special Report Initiatives as of 25 June 2025. The status of our assessment of ten CHESS Roadmap initiatives relating to Security, Operations and Continuity are not detailed due to commercial sensitivity.

#	Source Reference	Initiative ID	Pillar	CHESS Roadmap Reference ID	Initiative Name	Appropriate	Executed	Sustainable
1	CHESS Special Report (May 2023)	CC#64	Continuity	C-1	Review CHESS resilience scenario testing	✔	✔	N/A*
2	CHESS Special Report (May 2023)	CC#58	Continuity	C-2	CORE (signal feeds) assessment of online backups to indelible and immutable	✔	✔	N/A*
3	CHESS Special Report (May 2023)	CC#57	Continuity	C-3	CHESS assessment of online backups to indelible and immutable	✔	✔	N/A*
4	CHESS Special Report (May 2023)	CC#55	Continuity	C-4	CHESS- Review backup and restore processes	✔	✔	✔
5	CHESS Special Report (May 2023)	CC#56	Continuity	C-5	CORE - Review the backup and restore processes	✔	✔	N/A*
6	CHESS Special Report (May 2023)	CC#39	Operations	O-1	Develop a new model for forecasting future trading growth	✔	✔	✔
7	CHESS Special Report (May 2023)	CC#40	Operations	O-2	Establish Enterprise 'Availability and Capacity Management Framework'	✔	✔	N/A*
8	CHESS Special Report (May 2023)	CC#11a	Operations	O-3	CHESS – capacity & performance improvements (test only)	✔	✔	✔
9	CHESS Special Report (May 2023)	CC#11b	Operations	O-4	WP1-Capacity & Performance Improvements	✔	✔	N/A*
10	CHESS Special Report (May 2023)	CC#13	Operations	O-5	New SCI MSA for VMS, HW, RDB Contract Agreement	✔	✔	✔
11	CHESS Special Report (May 2023)	CC09_M10	Operations	O-6	Front End Server Go Live (1st business day after implementation)	✔	✔	✔
12	CHESS Special Report (May 2023)	CC#20	Operations	O-7	CHESS Access Uplift	✔	✔	🟠
13	CHESS Special Report (May 2023)	CC#25	Operations	O-9	Address CORE dependencies: Reference Data (Batch)	✔	✔	N/A*
14	CHESS Special Report (May 2023)	CC#26	Operations	O-10	Address CORE dependencies: Reference Data (Real time)	✔	✔	N/A*
15	CHESS Special Report (May 2023)	CC09_M18	Operations	O-11	Monitoring application - System Watchdog (application upgrades)	✔	✔	✔

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 31

#	Source Reference	Initiative ID	Pillar	CHESS Roadmap Reference ID	Initiative Name	Appropriate	Executed	Sustainable
16	CHESS Special Report (May 2023)	CC09_M31	Operations	O-13	Backend Upgrades - database upgrade to the latest version	✔	✔	🟡
17	CHESS Special Report (May 2023)	CC#44	Operations	O-14	Assess alternative hardware architecture for backend servers to support CHESS	✔	✔	N/A*
18	CHESS Special Report (May 2023)	CC#19	Operations	O-15	CHESS VPN Upgrade	✔	✔	🟡
19	CHESS Special Report (May 2023)	CC09_M17	Operations	O-16	HSM Go Live	✔	✔	✔
20	CHESS Roadmap Refresh (May 2024)	CC#85	Continuity	C-6	CHESS Infrastructure - Enterprise Backup OS and Hardware	✔	✔	N/A*
21	CHESS Roadmap Refresh (May 2024)	CC#84	Continuity	C-7	CHESS Infrastructure - SAN Switch	✔	✔	N/A*

Sustainability not applicable for this initiative in this reporting period as the initiative is either a one-off activity performed by ASX or is yet to meet the minimum operating time threshold for testing (i.e. 3 months). For those pending the minimum operating time threshold, the initiative may be assessed on the sustainability criteria in the next reporting period.

Legend: Yes ✔ / No ✖ / Partially Addressed 🟡

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 32

Appendix E   Glossary of Terms and Acronyms

Glossary of Terms and Acronyms		
Acronym / Term	Definition	Explanation
Appropriate	The criterion by which the CHESS Roadmap initiatives are assessed	This criterion evaluates the design of the initiative and whether the initiative (and associated actions) has been designed to mitigate the identified risk
APRA	The Australian Prudential Regulatory Authority	Australia's independent statutory authority that is responsible for promoting financial stability, competition, and efficiencies
ASIC	The Australian Securities and Investments Commission	Australia's financial markets conduct regulator that is responsible for promoting fair and efficient financial systems
ASX	ASX Limited	ASX Limited is an Approved Market Operator
Audit of ASX's Special Report	EY's Audit report of ASX Special Report	ASIC's notice dated 14 December 2022 required ASX CS Facility Licensees to provide a Special Report into specified matters pursuant to section 823B of the Corporations Act 2001 and required EY to undertake an audit of the Special Report (Audit Report). In this context 'audit' means EY's audit of the special report specified by ASIC in the notice. EY's 'audit' involved a review of the CS Facility Licensees' basis and approach to preparing its Special Report (dated 28 April 2023) and our assessment of whether the Specified Matters required by ASIC had been appropriately addressed. Our work was not performed in accordance with generally accepted auditing, review, or other assurance standards in Australia and accordingly did not express any form of assurance. The work undertaken was substantially less in scope than an audit conducted in accordance with Australian Auditing Standards and consequently did not express an audit opinion.
CC ID	Current CHESS ID	The unique identifier of each CHESS Roadmap initiative
CHESS	Clearing House Electronic Subregister System	The core system used by ASX to fulfil its CS obligations
CPS 230	Prudential Standard CPS 230	APRA Prudential Standard CPS 230 - Operational Risk Management
EO	Executive Owner	The individual responsible for the end-to-end delivery of the CHESS Roadmap initiative. This includes direct involvement in the definition of scope, progress oversight, quality management oversight and review and approval of deliverables.

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 33

Glossary of Terms and Acronyms		
Acronym / Term	Definition	Explanation
ERICA	ASX's enterprise risk management system	
Executed	The criterion by which the CHESS Roadmap initiatives are assessed	This criterion evaluates the implementation of the initiative and whether the initiative (and associated actions) has been implemented as per the design
FSS	Financial Stability Standards	Standards developed by the RBA to ensure that licensed Clearing and Settlement (CS) facilities conduct operations in a way that is consistent with financial system stability
GM	General Manager	A General Manager (GM) is a senior executive responsible for overseeing the daily operations of a business or organization, ensuring that it runs efficiently and effectively.
JIRA	ASX's project management system	JIRA is a project management and issue tracking tool developed by Atlassian, widely used for agile software development and project management. It allows teams to plan, track, and manage projects by providing features such as customizable workflows, task assignment, progress tracking, and reporting, making it an essential tool for collaboration and productivity in various industries, including ASX (Australian Securities Exchange) projects.
KANBAN	Visual workflow management system	Kanban is a visual work management system that provides a clear representation of work progression within a process.
MSA	Master Service Agreement	A Master Service Agreement (MSA) is a contract between parties that outlines the terms and conditions governing their future transactions and services.
OpenVMS	Open Virtual Memory System	The server operating system of CHESS, it is a multiprocessing and virtual memory-based operating system
Participant	Participant	A participant represents an organisation or organisational unit that has a need to interact or participate in the marketplace
PMO	Project Management Office	
PRC	Process Risk and Controls	Process Risk and Controls (PRC) refers to the systematic approach of identifying, assessing, and managing risks associated with business processes, while implementing controls to mitigate those risks.
RAID	Risk Assessment, Identification, and Decision	RAID (Risk Assessment, Identification, and Decision) is a project management tool used to identify, assess, and manage risks throughout the project lifecycle. It involves systematically evaluating potential risks, documenting them, and making informed

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 34

Glossary of Terms and Acronyms		
Acronym / Term	Definition	Explanation
		decisions on how to address or mitigate those risks, ensuring that project objectives are met while minimizing negative impacts.
RBA	Reserve Bank of Australia	The Reserve Bank of Australia (RBA) is Australia's central bank and the main regulatory authority for the country's monetary policy
SAN	Storage Area Network	A Storage Area Network (SAN) is a dedicated high-speed network that provides access to consolidated block-level storage, allowing multiple servers to connect to shared storage devices.
SCI	Software Concepts International	Software Concepts International (SCI) is an external third-party supplier that provides monitoring and maintenance services for the CHESS database and operating system.
S&P	Securities and Payments	In the context of securities and payments, S&P refers to the processes and systems involved in the trading, clearing, and settlement of financial securities, as well as the associated payment transactions.
SGG	Strategic Guidance Group	Committee responsible for the oversight of the of CHESS Roadmap Program in terms of risks, outcomes, and alignment of Program to ASX's strategy
Sustainable	The criterion by which the CHESS Roadmap initiatives are assessed	This criterion evaluates the operation of the initiative and the ability of the initiative (and associated actions) to continue to operate in a consistent manner

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 35

Appendix F   Release Notice

Ernst & Young ("EY") was engaged on the instructions of ASX Limited ("ASX", "Client" or "you") to conduct an assessment of the CS Facility Licensees' basis and approach to preparing the Special Report in accordance with the written notices pursuant to s823B(2) of the Corporations Act 2001 ("Project"), in accordance with the engagement agreements dated 27 November 2023 and 21 March 2025 including the General Terms and Conditions ("the Engagement Agreement").

The results of EY's work, including the assumptions and qualifications made in preparing the report, are set out in EY's report dated 25 June 2025 ("Report"). ASX and ASX's regulators ASIC and the RBA, should read the Report in its entirety including any disclaimers and attachments. A reference to the Report includes any part of the Report. No further work has been undertaken by EY since the date of the Report to update it.

Unless otherwise agreed in writing with EY, access to the Report is made only on the following basis and in either accessing the Report or obtaining a copy of the Report the recipient agrees to the following terms.

1. Subject to the provisions of this notice, the Report has been prepared for ASX and ASX's regulators ASIC and the RBA and may not be disclosed to any other party or used by any other party or relied upon by any other party without the prior written consent of EY.

2. EY disclaims all liability in relation to any other party who seeks to rely upon the Report or any of its contents.

3. EY has acted in accordance with the instructions of ASX, in conducting its work and preparing the Report, and, in doing so, has prepared the Report for the benefit of the ASX and ASX's regulators ASIC and the RBA, and has considered only the interests of ASX and

ASX's regulators ASIC and the RBA. EY has not been engaged to act, and has not acted, as advisor to any other party. Accordingly, EY makes no representations as to the appropriateness, accuracy or completeness of the Report for any other party's purposes.

4. No reliance may be placed upon the Report or any of its contents by any party other than ASX and ASX's regulators ASIC and the RBA. Any party receiving a copy of the Report must make and rely on their own enquiries in relation to the issues to which the Report relates, the contents of the Report and all matters arising from or relating to or in any way connected with the Report or its contents.

5. Subject to clause 6 below, the Report is confidential and must be maintained in the strictest confidence and must not be disclosed to any party for any purpose without the prior written consent of EY.

6. No duty of care is owed by EY to any recipient of the Report in respect of any use that the recipient may make of the Report.

7. EY disclaims all liability, and takes no responsibility, for any document issued by any other party in connection with the Project.

8. A recipient must not name EY in any report or document which will be publicly available or lodged or filed with any regulator without EY's prior written consent, which may be granted at EY's absolute discretion.

9. A recipient of the Report:
   (a) may not make any claim or demand or bring any action or proceedings against EY or any of its partners, principals, directors, officers or employees or any other Ernst & Young firm which is a member of the global network of Ernst Young firms or any of their partners, principals, directors, officers or

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 36

employees ("EY Parties") arising from or connected with the contents of the Report or the provision of the Report to the recipient; and

(b) must release and forever discharge the EY Parties from any such claim, demand, action or proceedings.

10. In the event that a recipient discloses the Report to a third party in breach of this notice, it will be liable for all claims, demands, actions, proceedings, costs, expenses, loss, damage and liability made or brought against or incurred by the EY Parties, arising from or connected with such disclosure.

11. In the event that a recipient wishes to rely upon the Report that party must inform EY and, if EY agrees, sign and return to EY a standard form of EY's reliance letter. A copy of the reliance letter can be obtained from EY. The recipient's reliance upon the Report will be governed by the terms of that reliance letter.

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 37

EY | Building a better working world

EY exists to build a better working world, helping to create long-term value for clients, people and society and build trust in the capital markets.

Enabled by data and technology, diverse EY teams in over 150 countries provide trust through assurance and help clients grow, transform and operate.

Working across assurance, consulting, law, strategy, tax and transactions, EY teams ask better questions to find new answers for the complex issues facing our world today.

ey.com

ASX Limited | Independent Assessment of CHESS Roadmap Program and CHESS Roadmap Refresh
Fourth Six-Monthly Progress Report – June 2025

EY | 38