



AUSTRALIA

FINANCIAL SECTOR ASSESSMENT PROGRAM

TECHNICAL NOTE—SUPERVISION, OVERSIGHT, AND RESOLUTION PLANNING OF FINANCIAL MARKET INFRASTRUCTURES

February 2019

This Technical Note on Supervision, Oversight, and Resolution Planning of Financial Market Infrastructures for Australia was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on September 14, 2018.

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Price: \$18.00 per printed copy

International Monetary Fund
Washington, D.C.



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January 22, 2019

TECHNICAL NOTE

SUPERVISION, OVERSIGHT, AND RESOLUTION PLANNING OF FINANCIAL MARKET INFRASTRUCTURES

Prepared By
**Monetary and Capital Markets
Department**

This Technical Note was prepared by IMF staff in the context of the Financial Sector Assessment Program in Australia. It contains technical analysis and detailed information underpinning the FSAP's findings and recommendations. Further information on the FSAP can be found at <http://www.imf.org/external/np/fsap/fssa.aspx>

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Glossary

ACCC	Australian Competition and Consumer Commission
AFMA	Australian Financial Markets Association
APRA	Australian Prudential Regulation Authority
ASX	ASX Limited
ASIC	Australian Securities and Investments Commission
AUD	Australian Dollar
CCP	Central Counterparty
CFR	Council of Financial Regulators
CFR FMI CMWG	CFR FMI Crisis Management Working Group
CHESS	Clearing House Electronic Sub-register System
Chi-X	Chi-X Australia Pty Ltd
CLS	CLS Bank
CME	Chicago Mercantile Exchange
CMG	Crisis Management Group
CPMI	Committee on Payments and Market Infrastructures
CPSS	Committee on Payment and Settlement Systems
CS facility	Clearing and Settlement facility (CCP or SSS)
CSD	Central Securities Depository
CSP	Critical Service Provider
DA	Digital Asset
DLT	Distributed Ledger Technology
D-SIB	Domestic Systemically Important Bank
ERM	Enterprise Risk Management
ESA	Exchange Settlement Account
EU	European Union
FMA	New Zealand Financial Markets Authority
FMI	Financial Market Infrastructure
FMIRC	FMI Review Committee
FRBNY	Federal Reserve Bank of New York
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
FSS	Financial Stability Standards
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
IRD	Interest Rate Derivatives
LCH Ltd	LCH Limited
MPOR	Margin Period of Risk
MOU	Memorandum of Understanding
NCWO	No Creditor Worse Off
NIST	National Institute of Standards and Technology
NPP	New Payments Platform

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NZD	New Zealand Dollar
OTA	Offsetting Transaction Arrangement
OTC	Over the Counter
PFMI	CPSS ¹ -IOSCO Principles for Financial Market Infrastructures
PSB	Payments System Board
PSNA	Payment Systems and Netting Act 1998
PSRA	Payment Systems (Regulation) Act 1998
RBA	Reserve Bank of Australia
RBNZ	Reserve Bank of New Zealand
RITS	Reserve Bank Information and Transfer System
RTGS	Real Time Gross Settlement
RTO	Recovery Time Objective
SSS	Securities Settlement System
SWIFT	Society for Worldwide Interbank Financial Telecommunications

¹ Effective September 1, 2014, the Committee on Payment and Settlement Systems (CPSS) was renamed the Committee on Payments and Market Infrastructures (CPMI). As the name change was after the publication of the PFMI the reference is to CPSS.

EXECUTIVE SUMMARY

Financial Market Infrastructures (FMIs) in Australia generally operate reliably, and the competitive landscape has seen new entrants and competitors emerge. The Reserve Bank Information and Transfer System (RITS), operated by the Reserve Bank of Australia (RBA), is the only domestic systemically important interbank payment system. In addition, the domestically incorporated ASX Limited (ASX) group operates an integrated infrastructure including trading platforms, two central counterparties (CCPs), and two securities settlement systems (SSSs). Since 2011, the ASX has faced competition from foreign infrastructures in some markets, including Chi-X Australia Pty Ltd (Chi-X) for cash equities trading and the LCH Limited (LCH Ltd) and the Chicago Mercantile Exchange (CME) for some over the counter (OTC) derivatives clearing.

Supervision and oversight of FMIs is well-established with supervisory expectations importantly strengthened over the past few years. The Australian authorities responsible for the regulation, supervision, and oversight of FMIs are the RBA and the Australian Securities and Investments Commission (ASIC). The RBA has sole responsibility for payment systems, while ASIC and the RBA have complementary regulatory responsibilities for CCPs and SSSs. The FSAP assessment is that Clearing and Settlement (CS) facility² supervision and oversight are strong and that the FMI legal and regulatory framework generally is clear and transparent. The adoption of the CPSS-IOSCO Principles for Financial Market Infrastructures (PFMI) and subsequent guidance has strengthened the authorities' approach with more comprehensive requirements and assessments, as well as increased diligence in following up on findings. Cooperation among the authorities is close, both domestically as well as with foreign authorities, although cooperation frameworks need to be further developed to manage FMI crisis events. The mission recommends the RBA consider updating its approach to payment systems oversight, in particular to increase the transparency around expectations for potential (privately operated) systemically important payment systems.

Enforcement powers for the supervision of CCPs and SSSs should, however, be strengthened in accordance with the PFMI. Currently, the RBA has no independent enforcement powers to underpin its oversight. The RBA may request that ASIC issue a direction to comply with the FSS or to reduce systemic risk; however, ASIC is not required to do so. Furthermore, the Minister may overrule ASIC's decision regarding whether to make or to revoke a direction. Although there is no evidence of such intervention by the Minister (and, in fact the Minister has delegated certain responsibilities to ASIC), the current legal basis for enforcing corrective actions should be strengthened with independent powers for the RBA. It also is recommended that legislation should grant ASIC and the ACCC the powers to promote fair and effective competition between FMIs, as such powers are lacking. Supervisory powers could be broadened, for example, by granting rule writing powers in addition to directions powers.

The Australian authorities have made some progress in formulating a special resolution regime for FMIs. In 2015, the Australian government issued a high-level consultation paper to

² CCPs and SSSs jointly are called Clearing and Settlement (CS) facilities under the Australian Corporations Act 2001.

establish a special resolution regime for CS facilities (and trade repositories) consistent with international standards. It requested feedback on the scope of the resolution authority, resolution and directions powers, safeguards and funding arrangements, and international cooperation. The CFR authorities are developing drafting instructions for legislation that would establish a resolution regime for FMIs.

The government should prioritize finalization of its special resolution regime for domestic FMIs, since it currently lacks the necessary framework and tools to resolve an FMI. The authorities will need to address issues specific to Australia's financial market structure, such as CS facilities that are part of a vertically-integrated exchange group, the dominance of a few domestic financial institutions and a few global banks in the Australian financial market, and issues regarding the diversity and capacity of private-sector liquidity providers. This specific structure will have an important bearing on the decisions that the Australian government will have to make regarding the breadth of the authorities' powers. Important considerations include the treatment of affiliated entities within groups, including the implications for the point-of-entry strategy, and the breadth of ex-ante resolvability assessments and FMI resolution plans.

New supervisory challenges, in particular related to cyber risks and new technologies, are appropriately addressed by ASIC and the RBA; nevertheless, cyber resilience of FMIs would further benefit from industry-wide cyber tests. RITS and ASX's CS facilities are subject to regular cyber resilience assessments by the authorities against CPMI-IOSCO guidance, international standards, and good practices. Authorities could supplement these with industry-wide cyber resilience tests to gain insights into the impact of a cyber incident on the industry as a whole. With regard to distributed ledger technology (DLT) and other new technologies, ASIC's and RBA's approach includes monitoring developments and specifying expectations. Supervision of the replacement of ASX's CS systems, which uses DLT technology, can be fully addressed within the existing regulatory framework. It involves a permissioned model, where only ASX, clearing members, and issuers would be authorized to participate. Private contractual information would be available only to the transaction parties, and ASX would be the only permissioned writer to the ledger.

The FSAP's assessment of elements of ASX Clear's governance and risk management framework identified several areas where further attention is warranted. ASX Ltd and the authorities are encouraged to consider the impact of the current governance structure on compliance with CS risk management requirements, including whether a simpler structure would help meet requirements related to competition issues in the equity market more easily. The planned FMI resolution regime will also have to address the integrated functions and any resulting obstacles to the FMI's resolvability. ASX Clear's recovery plan should address its reliance on parent funding and on other group services. Further improvements to its risk management systems should be considered, such as the operational capacity to implement intraday margin calls, separate house and client accounts, implementation of concentration limits on collateral, and availability of sufficient pre-funded liquid resources before applying mechanical liquidity allocation mechanisms. Operational risks need to be further addressed in line with authorities' requirements.

Table 1. Australia: Recommendations for FMI Supervision, Oversight, and Resolution

Recommendations for the Supervision and Oversight of FMIs	Timing¹	Responsibility
Increase transparency of regulatory expectations for potential (privately operated) systemically important payment systems.	ST	RBA
Strengthen legal basis of direction powers for supervision of CS facilities, with independence from the Minister and own powers for the RBA.	I	ASIC, RBA, Treasury
Broaden the suite of enforcement tools for CS facilities.	ST	ASIC, RBA, Treasury
Strengthen the legal and regulatory frameworks in the area of fair and effective competition among CS facilities.	I	ASIC, RBA, Treasury, ACCC
Complement cyber resilience assessments with industry-wide tests.	ST	CFR
Enhance the crisis communication framework for authorities for/supervisors of CS facilities.	ST	ASIC, RBA
Update MOUs with ACCC on CS facilities matters.	ST	RBA, ASIC, ACCC
Streamline cooperation agreements with New Zealand authorities for ASX Clear (Futures).	ST	RBA, ASIC, RBNZ, FMA
Recommendations for the FMI Resolution Framework		
Finalize the proposed special resolution regime for FMIs.	I	CFR
Address challenges related to current and potential FMI structure(s), and FMI-specific, FMI group, FMI linkages, and inter-dependency factors.	I	CFR
Include broad directions powers in the Australian resolution regime to conduct resolvability assessments and improve FMI resolvability ex ante. Ensure a streamlined and timely process for issuance of directions.	I	CFR
Include broad powers in the Australian resolution regime to appoint a statutory manager to resolve a distressed, failing, or failed FMI.	I	CFR
Include broad powers in the Australian resolution regime to transfer critical FMI functions to a solvent third party or bridge FMI.	I	CFR
Ensure appropriate staffing with necessary knowledge and expertise regarding resolution of systemically-important FMIs.	I	RBA, ASIC, and Treasury
Recommendations to strengthen ASX Clear's observance of the PFMI		
Clarify the point at which settlement is final in the operating rules.	I	ASX Clear and ASX Settlement
Address procyclicality through the annual validation process for margin models.	ST	ASX Clear
Consider ring-fencing CS facilities within the ASX group structure through a dedicated ERM, risk committee, staff, and risk management systems.	ST	ASX
Address group interdependencies fully in ASX Clear's recovery plan.	I	ASX Clear
Replace the aging CHES system with modern technology to increase operational reliability and support compliance with financial risk management requirements (e.g., operational capacity to conduct intraday margin calls and segregated house and client accounts).	ST-MT	ASX Clear
Increase and diversify qualifying liquid resources to move the use of OTAs to a later stage in the waterfall.	I	ASX Clear
Apply concentration limits on collateral and broaden the range of eligible collateral to include government and semi-government bonds.	I	ASX Clear

¹ I—Immediate (within 1 year); ST—Short-term (within 1 to 2 years); MT—Medium-Term (within 3 to 5 years).

INTRODUCTION³

1. FMI are systemically important due to the central role that they play in interbank, money, and capital markets.⁴ FMIs provide the central infrastructure to clear and settle payments, securities, and derivatives transactions and therefore lie at the core of the functioning of a sound financial system. If FMIs are not properly managed, they could be sources of financial shocks and risk transmission and potentially could have a negative impact on economic and financial stability. For example, the failure of one of the payment systems or SSSs could result not only in losses spreading through the system, but also in an ineffective implementation of monetary policy and a loss of confidence in the financial system.

2. CCPs concentrate credit risk, and potentially could exacerbate or cause systemic disruptions if they fail to absorb losses. A CCP does not eliminate counterparty credit risk but manages it on behalf of its clearing participants. The concentration of credit risks in a CCP comes with systemic externalities, in particular the possibility that a CCP could amplify adverse aggregate shocks, for example, if it fails to manage the default of one or more participants. The potentially pro-cyclical nature of a CCP's margin calls and haircutting practices during a stress event could act as macrofinancial feedback mechanisms that could increase market disruptions. The internationally accepted presumption therefore is that, in principle, CCPs are systemically important, at least in the jurisdiction where they are located, because of their critical roles in the markets they serve.⁵

3. Important tools to manage systemic risks of CCPs include oversight, supervision, and, more recently, crisis management planning, particularly resolution planning. In Australia, authorities have adopted these tools to promote the stability of the financial system. ASIC and the RBA are the authorities responsible for oversight and supervision of CCPs that provide services to the Australian market. The Council of Financial Regulators (CFR)—made up of the RBA, ASIC, the Australian Prudential Regulation Authority (APRA), and the Treasury—has started working on a resolution framework for FMIs, with a focus on CCPs. The CFR is closely engaged in the development of drafting instructions for legislation that is intended to be ready for introduction to Parliament in 2019.

4. The main objective of this note is to analyze systemic risks related to FMIs in Australia, in particular CCPs. The note contains an analysis of:

³ The Technical Note was prepared by Froukelien Wendt, Senior Financial Sector Expert from the IMF Monetary and Capital Markets Department and Heidilynne Schultheiss from the United States Federal Deposit Insurance Corporation (on detail as an IMF external expert), for the 2018 Australia FSAP. Their analysis was based on information provided by the authorities, publicly available information, including self-assessments of Australian FMIs, and discussions with the RBA, ASIC, ACCC, APRA, Treasury, ASX, banks, and other financial institutions.

⁴ See Introduction to the CPSS-IOSCO Principles for Financial Market Infrastructures, April 2012. FMIs cover payment systems, securities settlement systems (SSSs), central securities depositories (CSDs), central counterparties (CCPs), and trade repositories.

⁵ See introduction of the PFMI report paragraph 1.20.

- a. The regulation, supervision, and oversight of FMIs in Australia, with the objective of analyzing how well the supervisory and oversight structure is able to identify and manage vulnerabilities related to FMIs. The team assessed the regulatory framework, supervisory practices, available resources, transparency, adoption of international standards, and coordination and cooperation mechanisms between and among authorities, both domestically and cross-border. The analysis includes supervisory practices regarding cyber risks and DLT.
- b. Crisis management arrangements for FMIs, in particular the proposed resolution framework for FMIs.
- c. Some key elements of the governance and risk management rules, procedures, and practices of ASX Clear, the CCP for cash equities and equity derivatives.⁶

5. Recommendations in this note are based on the internationally-agreed standards for FMIs, i.e., the PFMI. The analysis of the regulation, supervision, and oversight of FMIs is based on the PFMI's five responsibilities for authorities, whereas the assessment of ASX Clear is based on the PFMI principles and related guidance. The analysis of the resolution framework for FMIs takes into account the FSB Key Attributes of Effective Resolution Regimes for Financial Institutions and related guidance on CCP resolution and resolution planning issued by the FSB.

6. The analysis builds on findings of earlier assessments. Earlier assessments are comprised of the recommendations made during the 2006 Australia FSAP (Annex I), as well as the findings of the CPMI-IOSCO implementation monitoring assessments (Annex II).

DESCRIPTION OF FINANCIAL MARKET INFRASTRUCTURES IN AUSTRALIA

A. Overview of Financial Market Infrastructures

7. The following FMIs offer payment, clearing, and settlement services in Australia (see also Figure 1):

Payment systems

- a. RITS is the principal domestic payment system in terms of the aggregate value of payments. It handles time-critical, high value payments, and is used to settle payments from other systemically important FMIs. Between April 2017 and March 2018, it settled an average of over 47,000 real-time gross settlement (RTGS) transactions each day, with an aggregate daily value of around AUD 180 billion (11 percent of annual GDP).
- b. CLS Bank (CLS) is an international payment system for settling foreign exchange trades in 18 currencies, including the Australian dollar.

⁶ The team selected some key elements related to governance and risk management of ASX Clear, but did not analyze the complete risk management framework, nor did the team assess details of the margin, collateral, stress testing, or liquidity risk policies. The analysis cannot be considered a full assessment against the PFMI.

CCPs:

- c. ASX Clear Pty Limited (ASX Clear) is the CCP for ASX-quoted cash equities, debt products and warrants traded on the ASX and Chi-X markets, equity-related derivatives traded on the ASX market and OTC, and Chi-X quoted warrants traded on Chi-X. The daily average value of cash equity trades in the first half of 2018 was approximately AUD 5 billion (see FMI statistics in Annex III).
- d. ASX Clear (Futures) Pty Limited (ASX Clear (Futures)) provides CCP services for futures and options on interest rate, equity, energy and commodity products traded on the ASX 24 market, as well as AUD- and NZD-denominated OTC interest rate derivatives (IRD).
- e. LCH Ltd's SwapClear service provides CCP services for OTC IRD.
- f. CME is licensed to provide CCP services for OTC IRD, and non-AUD IRD traded on the CME market or the Chicago Board of Trade market for which CME permits portfolio margining for OTC IRD.

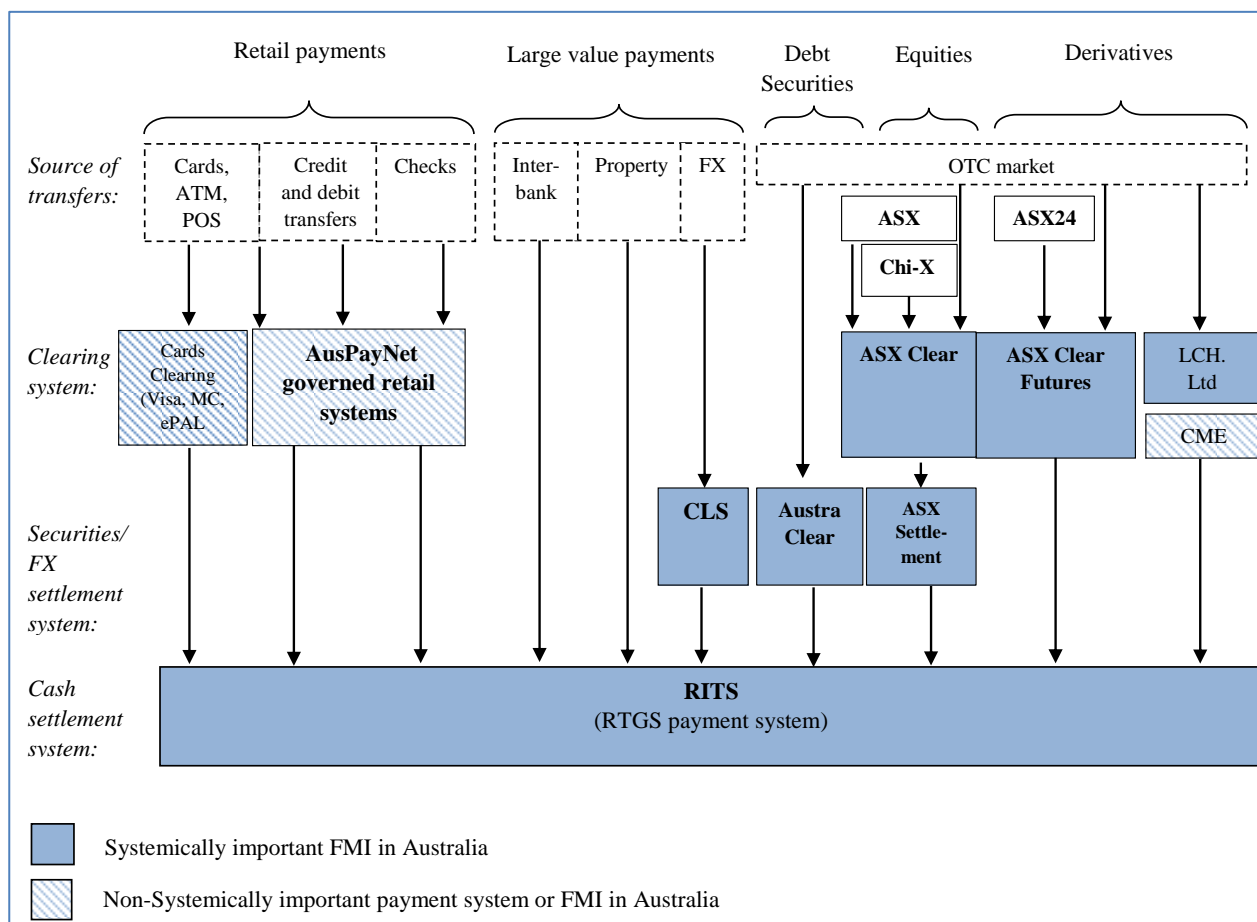
SSSs and CSDs:

- g. ASX Settlement Pty Limited (ASX Settlement) is a SSS for ASX-quoted cash equities, debt products and warrants traded on the ASX and Chi-X markets. ASX Settlement also provides SSS services for non-ASX listed securities quoted on other trading platforms in Australia.
- h. Austraclear Pty Limited (Austraclear) provides SSS services for trades in debt securities, including government bonds and repurchase agreements.
- i. IMB Limited provides SSS services for trades in its own securities.

8. Australian authorities consider these FMIs to be systemically important in Australia, with the exception of CME and IMB. As for payment systems, the RBA considers size, interconnectedness, and substitutability in determining which systems are systemically important. ASIC and the RBA consider domestic CS facilities (CCPs and SSSs) to be of systemic importance given the central role that they play in financial markets. An exception is IMB Limited, given the very narrow scope of its clearing and settlement activities. The systemic importance of foreign CS facilities in Australia is determined based on a set of criteria, including the CS facility's connections to the Australian financial system and the materiality of these connections. Based on these criteria, authorities do not consider CME to be systemically important for the Australian system at this juncture. Table 2 contains an overview of the size of financial resources held by the four CCPs active in Australia.

9. ASX Clear (Futures) is also systemically important for New Zealand banks. New Zealand financial institutions depend on the operations of ASX Clear (Futures) for the clearing of NZD IRD. Currently, New Zealand banks clear indirectly through direct clearing members of ASX Clear (Futures).

Figure 1. FMI Landscape in Australia



Source: IMF Mission.

Table 2. Australia: Financial Resources of CCPs, 2017 Average
(In millions of AUD)

	ASX Clear	ASX Clear (Futures)	LCH Ltd SwapClear	CME IRD Service
Initial Margin (excluding add-ons)	1,090 (cash 150; equity derivatives 940)	5,425	118,060	31,205 ¹
Default Fund	250	650	7,908	3,540
Total	1,340	6,075	125,968	34,745

¹ This includes add-ons.
Source: RBA.

10. The Direct Entry system, governed by the Australian Payments Network Limited's (AusPayNet's) rules, is the largest retail payment system. AusPayNet is a self-regulatory industry body that is responsible for rules and procedures for clearing and settling payments, including High Value Clearing Stream payments, direct entry payments, check payments and ATM transactions in Australia. Non-cash retail payments' daily aggregate value between April 2017 and March 2018 was around AUD 70 billion. Direct entry payments, comprising credit transfers and direct debits, represented almost 90 percent of this value.

11. Card payments can be cleared domestically or through the international schemes. There are three main debit cards operating in Australia: the domestic eftpos system (which is managed by ePAL) and the international card schemes Mastercard and Visa. Most debit cards in Australia are 'dual-network' meaning they have a functionality that enables a payment to be processed via either eftpos or one of the two other networks. The international card schemes also offer their respective four-party (American Express, MasterCard, and Visa) and three-party (American Express and Diners Club) credit and charge cards in Australia.

12. The New Payments Platform (NPP) is a fast payments system launched in February 2018. The NPP enables close-to-immediate funds availability to payment recipients on a 24/7 basis, even where the payer and payee use different financial institutions. In order to support this functionality, the RBA has developed a Fast Settlement Service in RITS, which enables every single payment made on the platform, regardless of its size, to be settled in real-time in central bank funds, across each financial institution's Exchange Settlement Account (ESA).

B. Overview of the Supervisory, Oversight, and Resolution Framework

13. The RBA is responsible for regulating and overseeing payment systems in Australia. The RBA's role is set out in the Reserve Bank Act, which states that the Payments System Board (PSB) is responsible for determining the RBA's payments system policy and ensuring that the RBA's powers are exercised in a way that will best contribute to: (i) controlling risk in the financial system; (ii) promoting the efficiency of the payments system; and (iii) promoting competition in the market for payment services, consistent with overall stability of the financial system. The PSB is comprised of the RBA Governor as chair, one other RBA appointee, an appointee from the APRA, and up to five other independent members. The PSB is one of the two Boards of the RBA, along with the Reserve Bank Board. Annex IV illustrates the governance arrangements for FMIs in the RBA. In 2014, the RBA also established the FMI Review Committee (FMIRC) to strengthen the governance arrangements for policy decisions and approval of FMI assessments (see Responsibility D for further information).

14. The RBA's payments system policy, functions, and powers are derived from three dedicated Acts. These Acts are (i) the Payment Systems (Regulation) Act 1998 (PSRA), which allows the RBA to gather information from participants in a payments system, designate a payment system

and set Standards and Access Regimes for designated payment systems;⁷ (ii) the Payment Systems and Netting Act 1998 (PSNA), which provides additional legal certainty regarding settlement finality in approved RTGS systems and netting arrangements;⁸ and (iii) Part 7.3 of the Corporations Act 2001, which establishes conditions for the licensing and operation of CS facilities. Annex V lists these and other relevant laws and regulations for FMIs in Australia.

15. The RBA shares responsibilities with ASIC for CS facilities. ASIC has responsibility for market integrity and consumer protection for financial products and for facilities that trade, clear or settle transactions involving financial products. Part 7.3 of the Corporations Act specifies how ASIC and the RBA have separate, but complementary, responsibilities for CS facilities. The RBA has a regulatory role in determining the Financial Stability Standards (FSS) for CS facilities. In addition, it has supervisory powers for assessing compliance of CS facilities with the FSS. ASIC is responsible for assessing compliance with the license requirements for CS facilities under the Corporations Act to ensure that services are provided in a fair and effective manner. ASIC and the RBA have executed a Memorandum of Understanding (MoU) to promote transparency, help prevent unnecessary duplication of effort, and minimize the regulatory burden on CS facilities. In 2016, to streamline the regulatory process, the Minister delegated her role in CS facility licensing and non-disallowance of operating rules to ASIC officers.

16. The Treasury is responsible for providing advice to the Australian Government on the financial sector's regulatory framework. Treasury's role is to support the drafting of legislation, for example, in the area of FMI supervision and FMI resolution.

17. APRA's role is limited to its seat on the PSB. As Australia's prudential regulator of banks, APRA has responsibility for the supervision of, among others, authorized deposit-taking institutions, which are participants in the payments system and offer payment services to users such as households and firms. APRA's seat on the PSB primarily reflects its role as supervisor of payment system participants.

18. These authorities coordinate FMI-related issues within the CFR. The CFR is a non-statutory coordinating body for Australia's main financial regulators, chaired by the RBA, and comprised of the agency heads and one other senior representative from each of the RBA, APRA, ASIC, and the Treasury. The CFR allows for sharing of information and, if needed, coordinating responses to potential threats to financial stability. Recent FMI-related activities of the CFR include developing (i) a special resolution regime for FMIs; and (ii) regulatory expectations and related legal reforms to support fair and effective competition for trade and post-trade infrastructures (with the involvement of the Australian Competition and Consumer Commission (ACCC)). These activities, coordinated by an FMI Steering Committee, are performed by dedicated CFR working groups.

⁷ To date, the RBA has designated nine payment systems, all of which are retail payment systems, although not all retail payment systems are designated.

⁸ Market netting declarations or approvals under the PSNA, which are the responsibility of Treasury or the Minister, support the enforceability of FMI rules.

19. The ACCC is involved in competition issues related to FMIs and payments systems. The ACCC is responsible for ensuring that FMI and payment system operators and participants comply with the general provisions of the Competition and Consumer Act 2010 (which govern competition law in Australia generally). One aspect of this has been that it has conducted an investigation into the regulations and procedures for the five clearing systems operated by AusPayNet in an authorization context (where the ACCC may authorize conduct that otherwise would breach competition law), as well as for the NPP. To promote a coordinated policy approach on competition and access in the payments system, the ACCC and the RBA have signed a MoU that outlines how they will work together. Under the relevant legislation the ACCC retains responsibility for competition and access in a payments system unless the RBA imposes an access regime or sets standards for that system. More recently, the ACCC has provided advice to ASIC and the RBA on competition for trade and post-trade infrastructures and also was involved in developing the CFR's policy statements related to competition in the cash equity market.

C. Recent Developments

20. Recent developments include the development of a resolution regime for CCPs and the adoption of DLT for the ASX securities clearing and settlement system:

- a. In February 2015, the Australian government issued a high-level consultation paper, "Resolution Regime for Financial Market Infrastructures," that sought stakeholder views on legislative proposals to establish a special resolution regime for domestic CS facilities and systemically-important trade repositories, consistent with international standards. The paper solicited feedback on topics including the scope of the resolution regime, the resolution authorities, resolution powers, directions powers, safeguards and funding arrangements, and international cooperation and support. In October 2015, the Government issued its response to the 2014 Financial System Inquiry, in which it agreed that regulators should be provided with clear powers in the event that a prudentially-regulated financial entity or FMI fails, in order to help ensure a smooth functioning, resilient financial system. The Government subsequently strengthened the resolution regime for prudentially-regulated entities, and now is developing a resolution regime for FMIs, building on the CFR's November 2015 paper "Resolution Regime for Financial Market Infrastructures: Response to Consultation," lessons learned in developing the banking and insurance resolution regime, and recent advances in international guidance and practice.
- b. The ASX commenced a process for evaluating replacement options for the Clearing House Electronic Sub-register System (CHES) in 2015 and announced in December 2017 its plans to replace CHES with a new system that will include a permissioned, private DLT system. The DLT part of the system consists of a shared, replicated ledger and a distributed database synchronizing mechanism, where initially only ASX and clearing and settlement members would be authorized to participate and the ASX is the only permissioned writer to the ledger. The system is expected to provide market efficiencies through the elimination of messaging and manual processes to ensure the integrity of databases and industry

standardization across databases. The ASX is working with vendor Digital Asset (DA), in which it owns a minority stake, to develop the replacement system.

ANALYSIS OF SELECTED ISSUES

A. Supervision and Oversight of FMIs

21. This section analyzes the extent to which the regulation, supervision, and oversight for FMIs are in line with the five responsibilities of the PFMI. The objective is to benchmark Australia's regulatory, supervisory, and oversight framework against international standards and analyze whether there are any gaps or issues of concern that could enable the buildup of systemic risk.

Regulation, supervision and oversight of FMIs (Responsibility A)

22. The RBA's role as overseer of the RITS payment system is clearly described in the joint statement issued by ASIC and the RBA on implementing the PFMI in 2013. The statement outlines that oversight of RITS is a key element of the PSB's responsibility for the safety and stability of payment systems in Australia under the RBA Act. Furthermore, the statement contains criteria to identify payment systems that are subject to RBA supervision: the payment system (i) is the sole payment system in the country or the principal system in terms of the aggregate value of payments; (ii) mainly handles time-critical, high-value payments; and (iii) is used to effect settlement in other systemically important FMIs. The RBA plans to monitor developments in other payment systems and periodically reviews whether other systems should be subject to PFMI assessments. This approach is not yet formalized.

23. The PSRA gives the RBA a legal basis for regulating and overseeing payment systems, which in practice is applied only to certain retail payment systems. The PSRA provides the RBA with a legal basis to oversee payments systems through designation and standard setting for payment systems. The RBA may use these powers only if it considers that it would be in the public interest to do so. The PSRA additionally empowers the RBA to require a participant in a payment system (whether designated or not) to give the RBA information relating to the payment system and its participants. To date, only certain retail payment systems have been designated under the PSRA, whereas other systems, for example the NPP, have not been designated.

24. The RBA considers CLS to be systemically important for the Australian financial system and conducts oversight through the CLS oversight committee chaired by the Federal Reserve Bank of New York (FRBNY). The RBA relies on the FRBNY for the oversight of CLS and participates as a member of the CLS Oversight Committee. The joint statement and PSRA do not currently cover oversight of foreign-based payment systems.

25. It is recommended that the RBA considers reviewing its approach to payment systems oversight, in particular by providing greater clarity as regards requirements for systemically and less systemically important payment systems. In line with approaches in other countries, the

RBA could explicitly link the systemic importance of a payment system or service to (a selection of) requirements in the PFMI (as far as not done yet), review consistency of existing requirements with key concepts of the PFMI, and ensure that the oversight approach sufficiently allows addressing risks related to new developments in the payments industry.⁹ This would improve transparency, add clarity to potential (privately operated) systemically important payment system providers, and could support the RBA in conducting its oversight responsibilities effectively. More specifically the RBA could consider:

- a. Outlining the criteria for determining whether a payment system will be deemed to be systemically important and required to meet the requirements of the PFMI.
- b. Creating a category of prominent, but less systemically important, payment systems which might be expected to meet some subset of the PFMI.
- c. Developing a formal approach for conducting a 'horizon scanning process' to avoid a situation in which a payment system that meets the criteria is not overseen.

26. The Corporations Act clearly outlines the criteria for CS facilities to be subject to supervision in Australia. It defines a CS facility, requires that a CS facility can only operate under a license provided by the Minister, and permits the imposition of conditions on a license. The Minister can grant an exemption to a CS facility from the licensing requirement. In granting an exemption, the Minister takes into account factors, which are set out in ASIC's Regulatory Guide 211, and include the nature and scale of the facility's activities, the profile of its participants, and the financial products for which it provides services. The division of responsibilities between ASIC and the RBA regarding CS facilities is clearly outlined in the Corporations Act. The MOU provides for arrangements to handle overlap in responsibilities, which in practice are managed through cooperation and coordination (see Responsibility E).

27. The RBA also considers critical service providers (CSPs) in its supervisory approach. Under the FSS, CS facilities are expected to scrutinize critical service providers against the oversight expectations for CSPs (PFMI Annex F). The key CSP for RITS is the Society for Worldwide Interbank Financial Telecommunications (SWIFT), an international interbank messaging system, as the failure of SWIFT would severely impair the ability of members to effect third-party payments, as well as the management of Austraclear settlements via the RITS Automated Information Facility (that uses SWIFT messages). The RBA is represented in the SWIFT Oversight Forum, and through it receives information on the oversight activities of the National Bank of Belgium and the SWIFT Oversight Group.

⁹ For example, align an access regime imposed under the PSRA with the key considerations of principle 18 on access and participation requirements, such as the requirement that an FMI should allow for fair and open access to its services based on reasonable risk-related requirements.

Powers and resources (Responsibility B)

28. The RBA uses its internal governance structure for oversight and operations of RITS to induce change within RITS operations or enforce corrective action. Oversight activities are located in the Payments Policy Department, whereas RITS operations are conducted within the Payments Settlements Department. Both departments report to different managers within the RBA's organizational hierarchy with reporting lines converging at the level of the Deputy Governor. Assessment findings are discussed within the PSB, which is chaired by the Governor and largely comprised of independent board members. This process helps induce changes in RITS's arrangements consistent with the recommendations. The publication of assessment reports may further induce changes. The two departments have established information-sharing arrangements, which include information on material developments. The Payments Policy Department also has access to a wide range of RITS data, such as on RITS activity, liquidity usage and availability, and incidents.

29. RBA powers for other payment systems, which are designated under the PSRA, are available as specified in the PSRA. The PSRA allows the RBA to obtain information from payments system participants, to designate a payment system, and to set access regimes and standards for designated payment systems. The PSRA also specifies the fines that apply if certain rules are breached.

30. Information powers for CS facilities are clearly outlined in the Corporations Act. A licensed CS facility is obliged under section 821C of the Corporations Act to give such assistance to ASIC or the RBA as reasonably is requested in relation to the performance of the regulators' respective functions. This assistance may include access to books and records or provision of other relevant information. In addition, the ASIC Act gives ASIC inspection and investigation powers, including the power to inspect books, require the production of documents, and summon individuals to appear before ASIC and answer inquiries.

31. Enforcement powers for CS facilities rest with the Minister and ASIC. ASIC has powers to undertake an assessment of a CS facility's compliance with its obligations under the Corporations Act, whereas the RBA has the power to assess compliance with the FSS. The Minister has powers to require a special report, as well an audit report on the special report. If the Minister considers that a CS facility licensee is not complying with its obligations as a CS facility licensee, the Minister may give the licensee a written direction. ASIC also is empowered to give the licensee a direction in writing, either at its own instigation or at the request of the RBA. A direction issued by the Minister or ASIC is enforceable by court order. As a final resort, the Minister has the power to suspend or cancel a license where the CS facility licensee has breached one or more of its obligations under the Corporations Act. In 2016, the Minister delegated her role to ASIC for more timely consideration of decisions.

32. It is recommended that the legal basis for ASIC's and RBA's supervisory enforcement powers for CS facilities be strengthened and independence from the Minister be increased. Under the current provisions, RBA has no independent enforcement powers. The RBA may request

that ASIC issue a direction; however, ASIC is not required to do so. Furthermore, the Minister may overrule ASIC's decision to make or to revoke a direction and the Minister can still exercise the powers that they have delegated should they deem it necessary. Although there is no evidence of such intervention by the Minister, the power of the Minister weakens ASIC's enforcement powers and could constrain both ASIC and the RBA in carrying out their supervisory responsibilities. It is therefore recommended to strengthen the legal basis for directions powers and ensure sufficient independence from the Minister in day to day supervision. The mission recommends that RBA is granted enforcement powers independently from ASIC.

33. Furthermore, it is recommended that authorities are granted additional powers to support fair and effective competition between/among infrastructures. Competition between trading platforms, e.g., between ASX and Chi-X, necessitates a legal and regulatory framework that supports and ensures a level playing field. The CFR's regulatory expectations for ASX's conduct in providing access to its monopoly cash equity CS services require transparent and non-discriminatory treatment and terms and conditions, including pricing, that are fair and reasonable.¹⁰ Treasury, in cooperation with ASIC, the ACCC, and the RBA, is well-advanced in pursuing legislative changes to make the regulatory expectations legally enforceable. ASIC would be provided with rule-making powers, whereas the ACCC would be granted an arbitration power that would provide for binding resolution of material disputes between ASX and a user seeking access to ASX CS services (including ASX Clear and ASX Settlement). In case of potential competition between post-trade infrastructures, the RBA would be involved from a financial stability perspective.

34. ASIC has sufficient staff resources to fulfill the responsibilities under its supervision mandate. ASIC's Market Infrastructure team is responsible for supervising and assessing the operations of licensed CS facilities, financial markets, trade repositories, credit rating agencies, and benchmark administrators, as well as considering new license applications. The team sits within the broader Market Integrity Group, which also includes Market Supervision and Market Enforcement. The Market Infrastructure team currently is comprised of 32 people directly involved in markets infrastructure, of which the CS facilities team has at least five members, including a senior manager and at least one technical senior specialist with appropriate experience, skills, and knowledge.

35. The RBA also has sufficient staff to fulfill the responsibilities under its supervision and oversight mandate. A team of 21 people in the Payments Policy Department is responsible for FMI oversight and policy development, with 17 staff members involved in regulation and oversight of CS facilities. The RBA has also established arrangements to seek advice on specific issues from technical experts (e.g., legal, IT) in other areas of the RBA. The team has appropriate experience, skills, and knowledge to perform its duties. The department also has developed its own FMI training program, with sessions on a range of relevant topics.

¹⁰ Regulatory Expectations for Conduct in Operating Cash Equity Clearing and Settlement Services in Australia, CFR, updated in September 2017.

Transparency (Responsibility C)

36. The RBA is transparent regarding its oversight requirements, and publicly discloses its policies and regulations related to payment systems. RBA's high-level objectives with regard to payment systems are outlined in the RBA Act. This Act, the joint statement, the PSRA, the RBA's policies, PSB reports, assessment reports (including ratings), explanatory texts, and a range of other information are disclosed to the public through the RBA's website.

37. ASIC and the RBA are transparent in their supervisory requirements, and publicly disclose their policies and regulations regarding the CS facilities. The Corporations Act, ASIC's Regulatory Guide 211, CS facility licensees, the FSS, the joint statement on implementing the PFMI in Australia, as well as assessment reports (including ratings), media releases, explanatory texts, and a range of other information are disclosed to the public through the RBA website and the ASIC website.

Implementation of the PFMI (Responsibility D)

38. ASIC and the RBA have publicly adopted the PFMI. The joint statement outlines that ASIC and the RBA are committed to apply the PFMI in their supervision and oversight of all FMI types. Authorities also have adopted additional guidance regarding the PFMI, such as the guidance on cyber resilience for financial market infrastructures issued in June 2016, recovery of financial market infrastructures—revised report issued in July 2017, and resilience of central counterparties, issued in July 2017.

39. The authorities apply the PFMI through detailed assessments and day-to-day supervision and oversight activities. The PFMI are reflected in the FSS, with the FSS being more specific on certain requirements, for example, on recovery and orderly wind-down, financial resources, and the requirement that CCP services should be provided by a legal entity that is separate from those providing services that could expose the CCP to unrelated risks. Authorities have conducted one full assessment against the PFMI in 2014, and plan to repeat this on a five-year basis. On an annual basis the RBA conducts an assessment against the FSS, reflecting the majority of PFMI requirements. ASIC uses the PFMI in its thematic assessments, for example, on cyber resilience of CS facilities. Furthermore, the authorities use the five responsibilities to conduct self-assessments of their regulation, supervision, and oversight of FMIs in Australia.

40. RBA's oversight of RITS has been effective in enhancing RITS's observance of the PFMI. The Payments Policy Department and the Payments Settlements Department organize monthly meetings attended by the two departments' senior management, and quarterly working-level meetings. These formal review points, combined with ad hoc engagement, provide opportunities to discuss material developments and identify oversight priorities. The mission found that the oversight activities of the Payment Policy Department are comprehensive and that the governance structure within the RBA supports independent oversight and is effective in inducing change. In case of disagreement between the two departments, the issues are escalated, in some cases to the level of the Governor. In crisis events the Assistant Governor responsible for the Payment Policy Department is part of the crisis management team.

41. Supervision of CS facilities is also effective with supervisory expectations having increased importantly in recent years. Authorities meet quarterly on a technical level, every six months at a strategic level, and every year with the ASX Board. The adoption of the PFMI and follow-up CPMI-IOSCO guidance increased the level of supervisory requirements and engagement with CS facilities. The annual FSS assessments are comprehensive with authorities following up on detailed findings. The annual deep dive themes are thorough and allow for a good understanding of the risks and gaps in compliance with the PFMI/FSS. The annual assessments started with deep dives into financial risks and more recently into operational risks, whereas for the coming year legal risks will be subject to a deep dive analysis. The mission found that, for example, ASX has strengthened its financial risk management following RBA assessments and is in the process of following up on requirements from both ASIC and the RBA regarding operational risk. Box 1 illustrates authorities' supervision and oversight on two topical issues, cyber resilience and new technologies.

42. Consistent application of the PFMI across FMIs is promoted through the FMIRC within the RBA. Following its self-assessment against the five responsibilities, the RBA created the FMIRC as a senior-level internal review committee to review day-to-day oversight activities. The FMIRC reports to both the Executive Committee and the PSB. Its main responsibilities concern review, and for CS facilities, approval of the staff's routine oversight and supervisory decisions, including the interpretation of the PFMI, review of an FMI's progress in meeting the RBA's recommendations, review of the FMI assessments, and for CS facilities, approval of the assessments. For RITS, the approval of the assessments is the responsibility of the PSB. Consistency is further supported by the publication of detailed assessment reports, including assessments of each relevant FMI's observance of the Principles.

Cooperation among authorities (Responsibility E)

43. Cooperation among domestic authorities is strong. ASIC and the RBA cooperate effectively with respect to their responsibilities under the Corporations Act based on their prescribed responsibilities, and more generally under the RBA-ASIC MOU. Although there is overlap, inconsistencies and gaps are avoided through frequent and constructive communication and coordination. The two authorities consult each other as part of their assessments, and typically organize joint meetings with CS facilities, or otherwise brief each other on the outcomes of the meetings. More broadly, the mission found that the CFR typically facilitates constructive coordination among authorities.

44. MOUs covering the relationships between the ACCC and RBA and ASIC need to be updated to better support information sharing among authorities. The RBA works with the ACCC under an MOU that sets out aspects of how the two agencies will work together in relation to payments systems. The relevant legislation sets out that the ACCC has general responsibility for competition, while the RBA has specific responsibilities in relation to payments systems, including the ability to impose an access regime or set standards for designated systems.

Box 1. Supervision and Oversight of Cyber Risks and New Technologies

Cyber resilience is a key supervisory priority for the RBA and ASIC, with important progress being made. The RBA conducted an initial assessment of RITS, and the RBA and ASIC jointly conducted an initial assessment of ASX CS facilities, based on the 2016 CPMI-IOSCO cyber resilience guidance. External reviews also were conducted against industry standards. On the two-hour recovery time objective (RTO) requirement, it was agreed that the FMIs will implement enhancements to systems that would provide a material net benefit to the FMI's capability to meet the two-hour RTO. In addition, ASIC assessed cyber resilience of other regulated entities operating in Australia's financial markets using standards-based surveillance tools and self-assessments adapted from the United States National Institute of Standards and Technology (NIST) Framework. ASIC recently commenced a second round of these assessments.

Authorities could supplement the assessments with industry-wide cyber resilience tests to gain insights into the impact of a cyber incident on the industry as a whole to support further strengthening of resilience. Industry-wide cyber resilience tests conducted in other countries involved supervisors, FMIs, banks, and other market participants with technical and high-level representatives. Scenarios reflect cyber events, and the crisis is managed through active role playing with involvement of IT and back offices, and simulated news streams.

A main supervisory challenge for the coming years will be the ASX's replacement of the CHES system. Given the early stage of this project, no regulatory approvals have been granted by ASIC or the RBA; however, authorities have engaged closely with ASX on the design and business requirements, including functional, non-functional, and technical specifications for the replacement system. Now that ASX has released the replacement system's functional scope and the implementation roadmap, the regulators plan to discuss with ASX the regulatory approvals and milestones for the system to go live. Given the scope and systemic importance of the replacement system, authorities have allocated specific staffing resources to oversee this work. Authorities are encouraged to continue their diligent approach of engaging with ASX at all levels to ensure that operational risks are identified, managed, and mitigated.

More generally with regard to DLT and other new technologies, ASIC's and RBA's approach includes monitoring developments and specifying expectations. At this stage, ASIC's and the RBA's view is that the existing regulatory framework accommodates the emerging application of DLT to FMIs. Specifically, for ASX's CHES replacement, a preliminary self-assessment of ASX against the FSS concluded that there is nothing intrinsic to the envisaged DA DLT technology that would prevent ASX Clear and ASX Settlement from complying with their regulatory obligations on an ongoing basis. More generally, ASIC developed an information sheet to help ASIC and interested parties evaluate whether the use of DLT would allow an entity to meet its regulatory obligations. All CS facilities are expected to demonstrate the appropriateness of its technology (and human resources) for the services that it offers.

45. Designation of a payment system under the PSRA by the RBA does not, by itself, remove that system from the ACCC's jurisdiction. The MOU discusses how the two agencies will share information and coordinate policy in relation to payments systems. ASIC also has an MOU with the ACCC detailing cooperation arrangements. Both MOUs should be updated to reflect more recent cooperation on competition for CS facilities (ASIC and the RBA) and trading platforms (ASIC), in particular to facilitate the sharing of information among authorities.

46. Cooperation in times of crisis needs to be enhanced through a dedicated communication framework for CS facilities that is regularly tested. ASIC has developed a market wide industry crisis communication framework. The RBA has a crisis communication

framework for payment systems. In addition, authorities need to enhance their crisis communication framework that includes communication in case of incidents that affect CS facilities. The CFR could be used to facilitate effective communication and coordination if an FMI was in financial or operational distress. The CFR could, for instance, provide a forum to discuss the implications for a distressed FMI's participants, financial markets, and the public at large. Such a framework could leverage lessons learned in developing CFR communications arrangements to manage crises in prudentially-regulated entities. The framework needs to be regularly tested to identify and solve potential barriers to communicate and coordinate effectively during a crisis.

47. International cooperation typically is facilitated by an MOU and allows for information sharing and crisis management with foreign authorities. RBA's participation in the CLS and SWIFT oversight committees provides the RBA with information about the observance of these systems with the PFMI. In addition, through these fora the RBA could identify issues that could be relevant for FX settlement involving the AUD and messaging services for RITS, CLS, other FMIs, and participants. The RBA and ASIC also cooperate with the Bank of England, the European Securities and Markets Authority, and the U.S. Commodity Futures Trading Commission in relation to the supervision of LCH Ltd, the ASX CCPs, and CME. For resolution and crisis management, Australian authorities participate in the Crisis Management Group (CMG) for LCH Ltd.

48. A cooperation arrangement with New Zealand authorities is in place for ASX Clear (Futures), which could be consolidated through a multilateral MOU that includes all relevant agencies. Cooperation arrangements exist between the RBA and Reserve Bank of New Zealand (RBNZ), and between ASIC and the New Zealand Financial Markets Authority (FMA). For clarity reasons it is recommended to consolidate the relationship agreements between the Australian and New Zealand authorities, for example, by including the FMA and ASIC in the RBNZ/RBA MOU for CCPs located in Australia. This will ensure that all authorities are able to receive the same information at the same time.

B. Resolution Planning and Central Bank Liquidity Support

49. The Australian authorities have made some progress in formulating a special resolution regime for FMIs but need to finalize it expeditiously. In terms of a resolution framework for FMIs, as noted above, authorities have issued a public consultation and currently are working to refine the design of the FMI resolution regime and prepare drafting instructions for FMI resolution legislation, with a view to having legislation ready for introduction into Parliament in 2019. Authorities are encouraged to proceed thoughtfully but with priority since Australia currently lacks the necessary framework and tools to resolve an FMI that is in distress, failing, or that has failed.

50. The authorities need to address issues specific to Australia's financial market structure, such as CS facilities that are part of a vertically-integrated exchange group, the dominance of major domestic banks and a few global banks in the Australian financial market, and issues regarding the diversity and capacity of private-sector liquidity providers. This specific structure will drive the decisions that the Australian government will have to make regarding the breadth of

authorities' powers, particularly with respect to affiliated entities within groups. The point-of-entry strategy is another important factor, where a balance will need to be struck between predictability for FMIs and clearing and market participants and flexibility for resolution authorities to manage a multitude of stress situations. Authorities are encouraged, in line with other jurisdictions, to use pre-positioning powers to enhance the timeliness and efficacy of resolution actions in times of stress. This includes the preparation of ex-ante resolvability assessments and FMI resolution plans and the imposition of requirements on FMIs to remove any barriers to implementation of resolution. Resolution plans should address the specific nature of FMIs. For example, resolution plans for CCPs should take into account issues such as risk management, margining, collateral, and investment interdependencies within the ASX group, the preservation of netting sets within and across ASX entities, ensuring that positions and collateral are kept together, and any necessary license transfers. The authorities should ensure that they currently and will have appropriate staffing with necessary knowledge and expertise regarding systemically-important FMIs to support the formulation, implementation, and operationalization phases of resolution.

51. The authorities should review, and could benefit from, the experiences of and lessons learned in the formulation and codification of Australia's bank and insurer resolution regime.

The legal framework for bank resolution was strengthened by the Crisis Resolution Powers Bill passed in February 2018. Experiences regarding recovery planning, directions powers, stay arrangements, and safeguards are well developed for banks and could provide lessons and guidance for FMI resolution planning. Other aspects that are less developed, such as no creditor worse off (NCWO) principles, and resolution planning are addressed in parallel FSAP recommendations for bank resolution, and also should be considered in designing the FMI resolution regime.¹¹ The interactions between the bank resolution regime and FMI resolution regime also are relevant since banks are FMI participants. Bank resolution plans should be used to help better understand banks' exposures to FMIs, and more broadly, the interconnections between FMIs and banks that are their participants, liquidity providers, investment counterparties, custodians, investment managers, and settlement mechanisms.

52. The authorities need to address some potentially controversial issues that are common across CS structures and jurisdictions, such as the time limitations on stays, payment moratoria, suspension of shareholder rights and writing down of equity, application of the NCWO principle and its counterfactual, payment of claims, temporary last-resort public funding, and allocation of and recoupment of any losses, each of which potentially could present obstacles. Authorities could benefit from the experiences of and lessons learned by other jurisdictions through their regular and more specialized coordination and communication efforts with other supervisors and resolution authorities.

53. CCPs that are licensed in Australia have access to ESAs and liquidity facilities of the RBA. CCPs that are systemically important in Australia are required to settle their AUD obligations using an ESA in their name or a related body that is acceptable to the RBA. Currently, CCPs can hold funds as overnight deposits at the RBA, but large daily variations in balances without notice to the

¹¹ See FSAP 2018 Technical Note 'Bank Resolution and Crisis Management.'

RBA are discouraged as they could complicate the implementation of monetary policy. Access to the overnight deposit facility reduces the CCPs' exposures to the risk that one (or more) of their commercial counterparties failed overnight. CCPs can also obtain central bank liquidity support against eligible collateral.

C. Selected Issues on ASX Clear

54. This section analyzes some key elements of the governance and risk management framework of ASX Clear that are relevant from a financial stability perspective. ASX Clear's rules, procedures and practices are benchmarked against the PFMI and international practices. The team did not analyze the complete risk management framework, nor did the team assess details of the margin, collateral, stress testing, or liquidity risk policies.

Systemic risk

55. ASX Clear's systemic risk related to its central role in the equity market is generally well managed through governance and risk management frameworks, but improvements on certain aspects are warranted. As sole CCP for equity markets in Australia, ASX Clear is critical for the functioning of domestic equity markets. Although credit exposures are short term (settlement is on T+2) compared to derivatives clearing, its interconnectedness with the broader financial system (35 participants, including the 4 domestic systemically important banks (D-SIBs), large foreign banks, 2 trading platforms, 1 SSS) and its efficiencies through multilateral netting, would create liquidity and credit stresses among its participants in case of its failure. It is therefore of systemic importance that ASX Clear manages its credit, liquidity, operational, and other risks in a prudent manner. The mission found that ASX Clear operations generally are reliable, however, additional steps are warranted to increase compliance with the PFMI. This is discussed in the remainder of this section.

56. The potential procyclicality of ASX Clear's margins and collateral haircuts is limited through conservative haircut setting. In setting haircuts, ASX Clear uses a 20-year historic period, which included the high volatility observed during the 2008 global financial crisis, and a 99.9 percent confidence level. The calibration of haircuts is intended to ensure that they remain relatively stable during stress circumstances, and as such prevent the exacerbation of volatility, liquidity strains, and general financial distress. Procyclicality could be addressed more comprehensively through the annual validation process for margin models.

Legal risk (Principles 1, 8)

57. ASX Clear has a sound legal basis for its clearing activities. The Corporations Act, PSNA, and the ASX Clear rules govern novation, netting, and collateral arrangements, as well as default procedures, and the enforceability of related rights and obligations. ASX Clear currently has no overseas clearing members and does not accept non-domestic collateral. If ASX Clear allows access to non-local clearing members or accepts non-domestic collateral it should identify and mitigate potential conflicts of law through legal opinions, in line with good international practices.

58. Although the PSNA provides a firm statutory foundation for finality of settlement, the rules of ASX Settlement should more clearly define the point at which settlement is final. The operating rules of ASX Settlement are the relevant rules for settlement of transactions cleared by ASX Clear. The rules currently describe the payment and security delivery rights and obligations of participants at the time of settlement in CHESS at T+2 (i.e., 11.30 a.m.), as well as the last opportunity for settlement participants to revoke a transaction. The rules do not, however, explicitly describe the point at which settlement is final. Including the exact point that settlement is final is required by the PFMI to quickly ascertain positions of the clearing participants in a resolution scenario.

Governance and overall risk management approach (Principles 2, 3)

59. ASX is implementing and fine-tuning its group-wide enterprise risk management (ERM) model but should consider addressing CCP-specific risks more directly. The ERM is implemented at the group level, and although counterparty credit risks are included as a risk type reviewed by the ASX Board, along with, for example, strategic risk, CCP-specific risks could be marginalized in the overall scheme. Although the two ASX CCPs have individual boards that review risk information and external Risk Consultative Committees, the CCPs do not have CCP-specific internal risk committees. Rather, risks are discussed in the Audit and Risk Committee at the ASX Ltd Board level. Also, as a result of the group-wide risk management approach and the sharing of services and staff provided by ASX Operations Pty Limited to the CCPs, each CCP does not have its own dedicated staffing, including risk management staffing. ASX should consider establishing CCP-specific internal risk committees, dedicated CCP-specific risk management and staffing, risk management systems, and resolution-friendly shared services agreements that account for intra-group inter-dependencies. An option could include a separate risk committee for each of the CCPs with a dedicated ERM for each of the CCPs, and inclusion of critical staff and systems within each of the CCP legal entities. Such a separation would also make it simpler when considering safe and effective competition issues in the equity market.

60. ASX Clear's recovery plan should more comprehensively address intragroup interdependencies. The recovery plan currently identifies a few interdependencies with other subsidiaries of ASX Ltd. This should be extended to a more comprehensive analysis of dependencies within the group, such as dependencies on parent funding. The recovery plan could define scenarios where all subsidiaries are simultaneously impacted by the same event, or where participants default against multiple subsidiaries, particularly where participants provide additional services to ASX (e.g., liquidity, investment).

Credit and Liquidity Risk (Principles 4, 5, 6, 7 and 16)

61. The credit risk management of ASX Clear has recently been strengthened and is generally in line with the PFMI. As a first layer of the risk waterfall, ASX Clear collects initial margin and additional margins for clearing participants' equities and equity derivatives positions. Potential additional losses in case of a participant's default are covered by default fund assets. Margin period of risk (MPOR) assumptions have been evaluated and more conservative assumptions have been

included. The credit stress testing methodology takes into account the CPMI-IOSCO 2017 guidance on CCP resilience, including appropriate historical, forward looking and other scenarios. ASX conducts daily stress tests, as well as back testing and sensitivity analysis. Robust independent validation ensures that ASX's models accurately identify and mitigate credit risks.

62. Operational capacity to make intraday margin calls, however, needs to be strengthened to prevent uncollateralized exposure from accumulating. While ASX Clear can call intraday margin for equity options five times per day, the current CHES system does not support intraday netting during the day, which impedes monitoring of real time intraday exposures and calls for intraday margin for cash equities. ASX Clear nevertheless is able to estimate the netted exposures for cash equities three times per day and, subject to an AUD 100 thousand minimum threshold, can call for additional initial margin based on intraday stress test exposures. More frequent and accurate intraday margin calls for cash equities should be introduced once the CHES replacement system has been implemented.

63. House and client cash equity positions need to be segregated at the clearing level. The current CHES system does not support segregation of house and client cash equity positions. Although legal provisions are in place to prevent the use of clients' assets for house purposes, operationally segregated accounts at ASX Clear will facilitate compliance with these requirements in normal circumstances, as well as the porting of client positions during stress events.

64. Improvements to ASX's collateral policy would further benefit the stability of the risk framework. ASX Clear eligible collateral is comprised of cash (AUD) and domestic equities. ASX Clear accepts only stocks in the S&P/ASX200 index, consisting of the 200 largest companies listed on the ASX, as well as exchange-traded funds that meet certain minimum liquidity criteria. Cash is mostly used to cover cash equity exposures, whereas equities are mostly used to cover equity derivatives exposures. Conservative haircuts are applied to non-cash collateral. The absence of concentration limits on equity collateral, could, however, impair ASX's ability to liquidate such assets quickly without significant adverse price effects. Although this collateral can be easily liquidated in normal times, liquidation could be challenging or even impossible in stressed circumstances. Enforcing conservative concentration limits could reduce these liquidation risks. An additional difficulty with this equity collateral is that these securities are not collateral eligible for posting at the RBA's liquidity facilities. Therefore, it is recommended that ASX consider extending eligible collateral to government and semi-government bonds.

65. ASX Clear should increase and diversify its qualifying liquid resources to move the use of Offsetting Transaction Arrangements (OTAs) to a later stage in the waterfall. The liquidity stress test cover 2 exposure calculation (the liquidity needs following the default of the two ASX Clear clearing participants and their affiliates that generate the largest aggregate payment obligation to the CCP) is performed daily to estimate ASX Clear's liquidity shortfall in extreme but plausible circumstances. A shortfall would be covered by the prefunded default fund assets (A\$250 million) and a committed liquidity facility from ASX Ltd (A\$150 million) of which A\$100 million is backed by a committed liquidity facility from a commercial bank. To the extent that prefunded resources are invested in assets other than cash, these are only counted as AUD

qualifying liquid resources if they are invested in securities that are collateral eligible for posting at the RBA. Remaining liquidity needs would be covered by OTAs, which would allow ASX Clear, through a predefined allocation mechanism, to repo securities due to a defaulting participant back to the participant delivering the securities until a later point in time (involuntary repo). The mission recommends reconsidering this approach and considering including other types of liquidity resources, such as commercial credit lines in addition to the prefunded resources/parent funding and OTAs. One of the benefits of commercial credit lines is that they provide more transparency upfront to liquidity providers and participants regarding the size of contingent liabilities relative to OTAs. Although OTAs have the advantage of being a reliable source of liquidity for ASX Clear, one challenge would be the mechanical allocation of liquidity shortfalls among members, which could create additional liquidity pressure in stress events, and they therefore should be used judiciously. Given constraints in Australia's financial system, such credit lines could be sourced from a syndicate of banks or from nonbank financial institutions. OTAs could be used later in the liquidity resource sequence. Finally, the committed bank credit line that parent ASX Ltd has could be further diversified to mitigate its liquidity risk as well.

66. Liquidity risks of the investment portfolio are appropriately limited through investments in only liquid government bonds and unsecured cash is subject to counterparty limits. ASX's unsecured exposure to any single counterparty is limited to its capital to cover investment risks, which is ring-fenced from ASX's other capital.

Operational risk (Principle 17)

67. ASX has significantly increased its IT resources to manage both the upgrades to its current IT governance and risk management framework and the CHES replacement project; it is recommended to further strengthen operational resilience in line with authorities' requirements. Following recent incidents across the group, ASX has, at the instigation of ASIC and the RBA, commissioned an independent external review of ASX's technology, governance, and operational risk and control framework. The review recommended a range of changes to ASX's technology governance and operational risk management practices. ASX is responding to these recommendations under the oversight of ASIC and the RBA. For example, ASX hired additional resources and ring-fenced the teams responsible for this and the CHES replacement project to ensure that neither project would be under-resourced due to resources allocated to the other projects.

68. The reliability of the CHES system is high (99.9 percent availability), but the system should be modernized. The CHES system has been a well-functioning and stable system since 1994, but the technology is old and needs to be replaced. As an input into its decision to replace CHES with a system that uses DLT, the ASX Board considered the results of two external security assessments of the prototype platform that DA had developed. Although the assessments were limited by the current state of the platform, neither assessment found significant deficiencies with respect to the claims that DA has made regarding the security of the platform. ASX intends to commission further security reviews of the DA platform prior to implementation.

Annex I. FSAP 2006 Recommendations and Follow-Up

Reference Principle	Recommended Action	Current Status
Legal foundation (CPI)	Require entities, located outside the Australian jurisdiction, that apply for participation in RITS either as a branch or on a remote basis to provide a legal opinion that analyzes possible conflict of laws and potential legal risk for RITS and its participants.	Implemented. Since 2011 the RBA has a requirement that all overseas-domiciled RITS members provide an independent legal opinion that the RITS Membership Agreement is enforceable in their home jurisdiction. Following the signing of new RITS Membership Agreements in 2017, the RBA has been working with foreign members on the provision of legal opinions that meet the RBA's requirements. The RBA is currently reviewing legal opinions that it has received from foreign members.
Security and operational reliability, and contingency arrangements (CPVII)	Require security enhancement of the proprietary communication network to meet international standards with regards confidentiality, integrity and authenticity of the transmitted information and data.	Implemented. At the time of the FSAP, implementation of a new, more secure, RITS user interface was well advanced. The member functionality aspect of this project was implemented in December 2006, bringing RITS security into line with international standards with respect to confidentiality, integrity, and authenticity in the transmission of information and data.
	Consider an external review of the RBA's business continuity plan that would include the assessment of the hardware, software, and internal procedures.	Implemented. At the time of the FSAP, the RBA was in the process of building a new geographically remote backup site. Previously, the RBA's backup arrangements were split over two sites: a business recovery site, which provided an alternative workspace for critical staff located outside the CBD, and a geographically remote corporate recovery site, providing synchronous backup of IT operations. These functions were combined in mid-2007 at a new business recovery site.
Efficiency and practicality of the system (CPVIII)	Consider following up its studies of RITS costs and pricing structure by consulting RITS users. The RBA should consider a review of the pricing structure to ensure that it promotes efficient functioning of the system.	Implemented. In July 2012, the RBA implemented a revised pricing structure for RITS services. The revised structure represented the first substantial change to RITS fees since the commencement of RTGS in 1998 and was designed to provide a more representative distribution of costs among RITS participants. The fee structure is reviewed annually, although not every review results in changes to the fees.

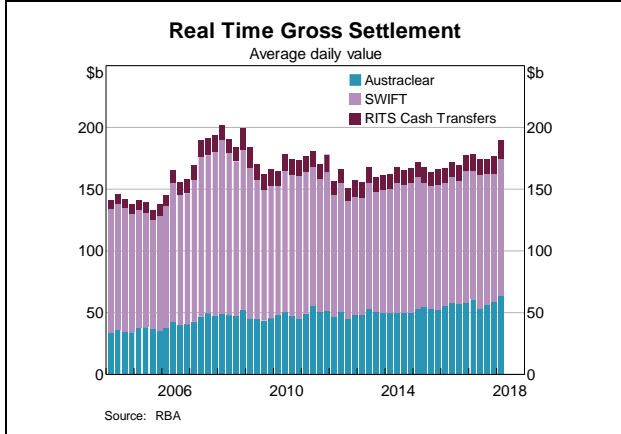
Reference Principle	Recommended Action	Current Status
Governance of the payment system (CPX)	Consider establishing a consultative framework with the users in order to ensure RITS continues to meet users' needs in terms of efficiency, practicality and service level. The RBA could re-establish its advisory user groups, representing different categories of RITS participants to discuss issues related to technical and business features of RITS.	Implemented. In response to the IMF recommendation that the RBA establish a consultative framework with users, the RBA now holds RITS User Group forums in Sydney every six months (with dial-in facilities available). These forums provide an opportunity both for members to suggest improvements and for the RBA to consult on planned upgrades. The RBA also liaises closely with the industry through the AusPaynet and the Australian Financial Markets Association (AFMA), and directly with RITS members on proposed changes to RITS. Communication with users has also been enhanced with the launch of the RITS Information Facility, through which all relevant RITS documents are available online.
Central Bank Responsibilities in Applying the CPSIPS	Consider whether current arrangements avoid potential conflicts of interest between the policy and oversight functions (that fall under the jurisdiction of the PSB) and the Bank's role as an operator of the RITS system. Strengthen the implementation of the PSB's oversight responsibility by developing formal methods and procedures.	Partially implemented. As the IMF noted in the 2006 FSAP, Australia has been a pioneer in establishing a separate board responsible for payments system policy and oversight. This separation is enforced up to and including the level of Assistant Governor, with Payments Policy Department responsible for payments system policy and oversight, while Payments Settlements Department is responsible for operating RITS. The RBA has decided not to implement separation at the senior executive level, as internal discussion at the RBA's Executive Committee offers considerable benefits, and other procedures are in place to identify and address any conflicts of interest that might arise. The spirit of the IMF's recommendation has, however, been reflected in formalization of oversight methods and procedures, including regular monitoring and reporting. The details of this are set out in the Self-Assessment against the Responsibilities for SIPS.

Annex II. CPMI-IOSCO Implementation Monitoring Assessment Results for Australia

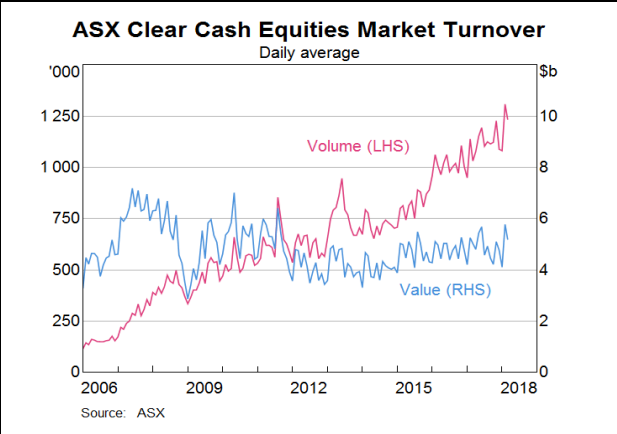
CPMI-IOSCO Implementation Monitoring Level	Assessment results for Australia	Publication
Level 1: Assess whether a jurisdiction has completed the process of adopting the legislation and other policies that will enable it to implement the principles and responsibilities.	Australia has the highest ratings in all categories, meaning that final implementation measures are in force for all types of FMIs, both for the Principles as well as the Responsibilities.	CPMI-IOSCO 'Implementation monitoring of PFMI: Fourth update to Level 1 assessment report,' July 2017.
Level 2: Assess whether the content of new legislation and policies is complete and consistent with the principles and responsibilities.	<p>Payment Systems: The PFMI have been implemented in a complete and consistent manner.</p> <p>CCPs: Implementation measures are consistent or broadly consistent with the PFMI. Identified gaps relate to the implementation of Principles 15 (general business risk), 21 (efficiency and effectiveness) and 22 (communication procedures and standards).</p> <p>CSDs / securities settlement systems: the regulations are consistent or broadly consistent with the PFMI. Identified gaps relate to the implementation of Principles 15 (general business risk), 21 (efficiency and effectiveness), and 22 (communication procedures and standards).</p>	CPMI-IOSCO – 'Implementation monitoring of PFMI: Level 2 assessment report,' December 2015.
Level 2/3: Assess whether the content of new legislation and policies are complete and consistent with the responsibilities and implemented by the authorities.	Australia is found to observe all responsibilities.	CPMI-IOSCO 'Assessment and review of application of Responsibilities for authorities,' November 2015.

Annex III. FMI Statistics

RITS is the backbone of the economy with an aggregate daily value of around AUD 179 billion.



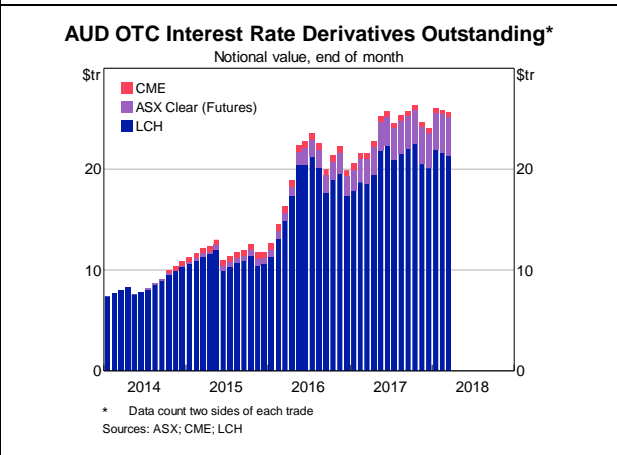
Cash equity clearing amounts to approximately AUD 5 billion on average per day.



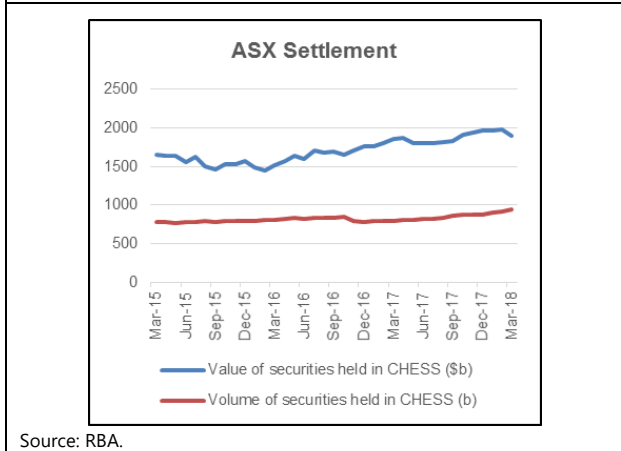
The most actively traded derivatives at ASX Clear (Futures) are Treasury bond futures.



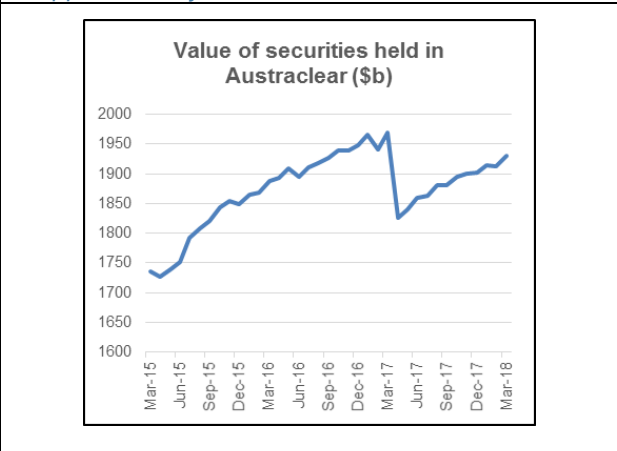
LCH.Ltd dominates in central clearing of AUD OTC IRD.



CHESS holds a value of approximately AUD 2 trillion in securities.



The value of government bonds held in Austraclear is approximately AUD 1.9 trillion.



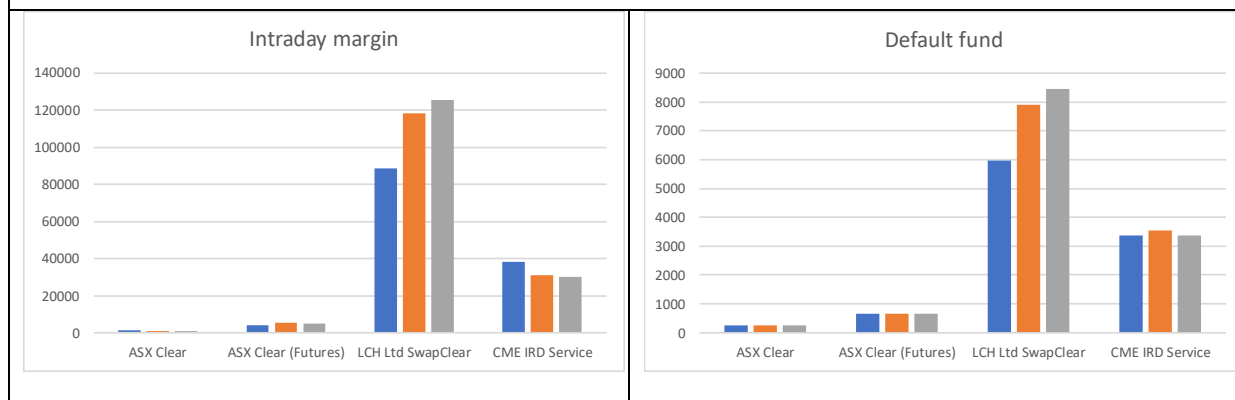
Annex III Table 1. Number of Participants as of March 31, 2018

FMI	Number of Participants	
RITS	98	Of which 40 are indirect participants
ASX Clear	35	
ASX Clear (Futures)	20	
LCH Ltd SwapClear	5 direct Australian participants (110 in total)	A further 23 Australian entities are clients
Austraclear	882	Of which 179 are full participants, 194 are associate participants, 212 are special purpose participants, and 297 are public trusts
ASX Settlement	90	Of which 33 are ASX Clear participants, 27 are general settlement participants, 17 are account-only settlement participants, 12 are product issuer settlement participants, and 1 is a suspended participant

Source: RBA.

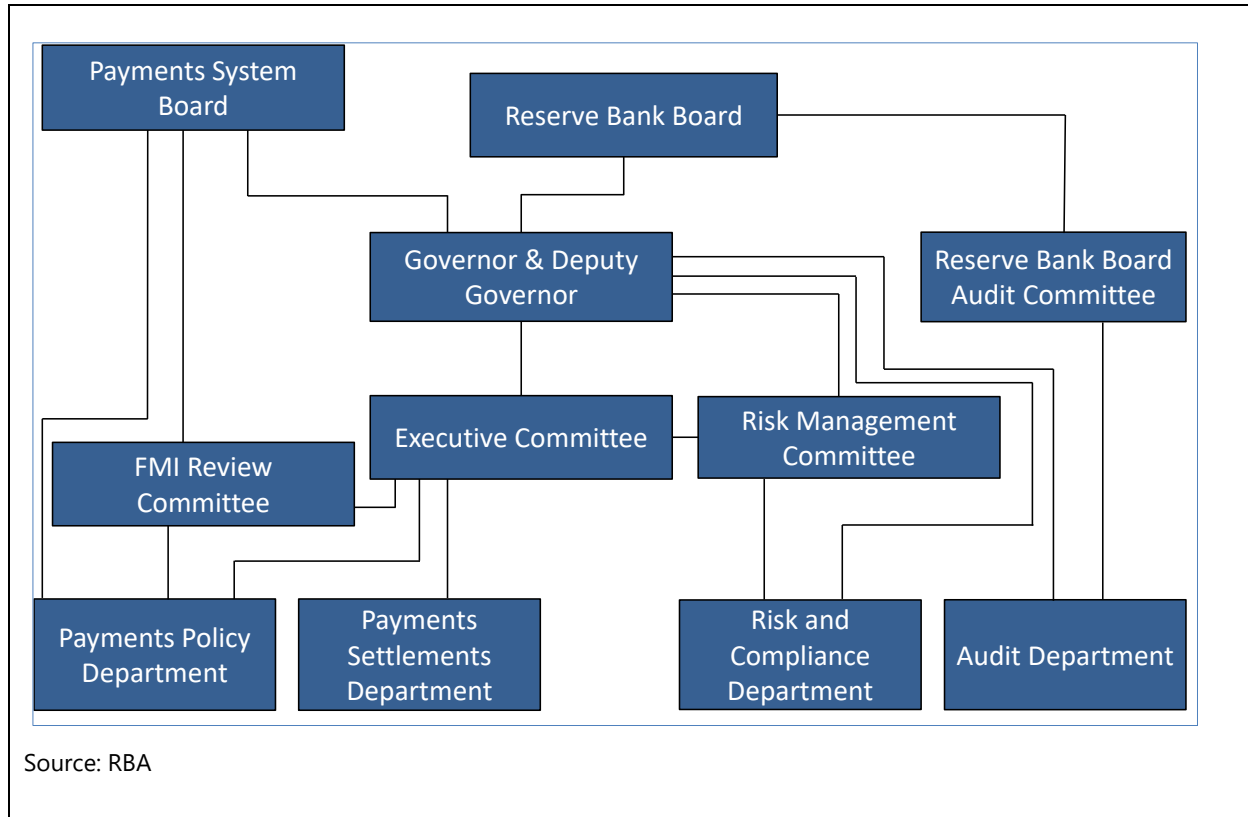
Annex III Figure 1. Initial margin and default fund* 2016–2018, annual averages

(In millions AUD)



Default fund balances are AUD spot balances as at 31 March 2018, 31 December 2017 and 31 December 2016. * Source: RBA.

Annex IV. Governance of FMI within the RBA



Annex V. Main Acts and Regulations for FMIs in Australia

Law and Regulations	Application	FMI	Authority
Corporations Act, Part 7.3	Licensing regime for CS facilities	CCPs, SSS, and CSDs (ASX Clear, ASX Clear Futures, ASX Settlement, Austraclear LCH. Ltd, and CME)	The Minister: Issues CS facility licenses ASIC: issues TR licenses, administers licenses, and oversees compliance with license obligations. RBA: sets standards and oversees compliance with standards
ASIC Act	ASIC mandate and general enforcement powers	CCPs, SSS, and CSDs, and TRs	ASIC
RG 211	Elaborates on expected outcomes of the Corporations Act, Part 7.3, i.e., CS facility stability, clearing and settlement process, supervision of CS facility and participants and risk management.	CCPs, SSS, and CSDs	ASIC
RG 249	Elaborates on expected outcomes of the Corporations Act, Part 7.5A, i.e., TR licensing and supervision.	TRs	ASIC
FSS	Implements risk management expectations of CS facilities (based on Corporations Act 827D)	CCPs, SSS, and CSDs	RBA
Payment Systems and Netting Act	Protections against zero-hour rule, generally unwinding risk for RTGS system and multilateral netting arrangements and supports the enforceability of FMI rules.	RITS, CHESS, and Austraclear (all as RTGS system); ASX Settlement for cash equities (as netting arrangement), ASX Clear, ASX Clear (Futures), LCH Ltd, and CME and CLS (as netting markets).	RBA: 'approves' RTGS or netting arrangements Treasury/Minister: An FMI can be declared through regulation to be a netting market or the Minister can approve a CS facility as a netting market.
RBA Act	PSB responsibilities to ensure risk management, efficiency, and competition. Also, stipulates PSB's role under Corporations Act	Payment systems, CCPs, SSS, and CSDs	RBA
Payment Systems (Regulation) Act	Designation of payment systems, access regime, standards, and information powers.	Payment systems (currently only used for retail payment systems)	RBA
Cheques Act	Turn-back of checks for which failed drawee has not settled.	Payment systems	RBA

Sources: RBA and ASIC.