



RESERVE BANK
OF AUSTRALIA

Payments
System Board
Annual Report

2016



RESERVE BANK OF AUSTRALIA

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Glenn Stevens AC
GOVERNOR

16 September 2016

The Hon Scott Morrison MP
Treasurer
Parliament House
CANBERRA ACT 2600

Dear Treasurer

**RESERVE BANK OF AUSTRALIA PAYMENTS SYSTEM BOARD
ANNUAL REPORT 2016**

I am writing to seek your agreement to the tabling in the Parliament of the Payments System Board Annual Report for 2016.

In terms of the *Reserve Bank Act 1959*, the Payments System Board is required to inform the Government, from time to time, of the Reserve Bank's payments system policy. There is no statutory requirement to table an annual report, but tabling has proven a useful way of publicising the work of the Payments System Board.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Glenn Stevens'.

Payments System Board

Annual Report 2016

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Governor's Foreword

The Payments System Board has a mandate for promoting efficiency and competition and controlling risk in the Australian payments system. While the issues that the Board addresses are frequently complex, they have important implications for the functioning of the economy and the broader wellbeing of the population. This annual report serves both to meet the Board's accountability requirements under the *Reserve Bank Act 1959* and also to promote a greater understanding of the Reserve Bank's policies with respect to the payments system and its oversight of financial market infrastructures.

The Bank's work in the retail payments area is occurring in an environment that is continuing to change rapidly. The decline in the use of cheques is accelerating, posing questions for the industry about the future of the cheque system. The use of cash is also falling, though the number and value of banknotes on issue continues to rise, highlighting their continued importance as a payment mechanism and a store of value. Accordingly, the Bank is implementing the Next Generation Banknote program, starting with the issuance of the new \$5 banknote in September. The use of electronic payments continues to grow strongly, both in the debit and credit card systems and in other systems, such as the Direct Entry system and BPAY. There is also a shift under way from traditional payment cards to other devices or 'form factors', most notably mobile phones.

End users of the payments system have increasing expectations concerning the speed and availability of payments and the capacity to combine information with payments. The Bank has encouraged a major upgrade of Australia's retail payments infrastructure through its *Strategic Review of Innovation in the Payments System*. The Board welcomes the industry's continued good progress on the New Payments Platform (NPP) project, which will enable payments by households, businesses and government agencies that are real-time, available on a 24/7 basis, data-rich and easily addressed. The NPP is scheduled to go live in late 2017 and will bring Australia's retail payments functionality to the global frontier. The Bank is contributing to the process of innovation by participating in the NPP, including by developing the Fast Settlement Service (FSS), which will serve as the settlements hub for the new industry platform. Development of the FSS is well advanced, with test NPP payments already having been settled and the FSS test environment expected to be used for industry testing from October this year.

The Bank's regulatory responsibilities in the retail payments area include promoting competition and efficiency. Consistent with this, the Bank recently completed a wide-ranging review of card payments regulation, which addressed some issues raised in the recommendations of the Financial System Inquiry. The review process included publication of an Issues Paper in March 2015, a Consultation Paper with draft standards in December 2015 and a Conclusions Paper

in May 2016. The Bank consulted widely with stakeholders throughout the review process. At the conclusion of the review, the Payments System Board determined three new standards, two dealing with interchange payments in debit and credit card systems and one relating to merchant surcharging. The Bank worked closely with the Treasury and the Australian Competition and Consumer Commission to ensure that the new surcharging regime will be as clear as possible for the industry, merchants, consumers and regulators. The Bank will now begin to monitor the impact of the new standards, which will be implemented in a staged manner, starting with a new framework for surcharging by large merchants that took effect on 1 September. End users of the payments system, including leading consumer and merchant organisations, have expressed significant support for the reforms contained in the new standards.

In the area of financial market infrastructures (FMIs), the Bank has responsibilities as supervisor of Australian-licensed clearing and settlement (CS) facilities and as overseer of high-value payment systems. The staff devote significant effort to the ongoing supervision of CS facilities and to the annual assessments against the domestic regulatory standards that are prepared for the Board. The Bank published its assessments of the four ASX CS facilities in September 2015, of LCH.Clearnet Limited's SwapClear Service in December 2015 and of Chicago Mercantile Exchange Inc. in March 2016. The Board is encouraged by the strong risk management practices of these entities, which has been validated in various episodes of market turmoil in recent years, including the sharp price changes seen following the recent UK referendum on membership of the European Union. The Board also noted the smooth shift from three- to two-day settlement of domestic equity transactions in March this year.

The Bank continues to work with other domestic and foreign regulators on issues relevant to FMI regulation. An important domestic policy focus in recent years has been the development of a special resolution regime for FMIs. The government consulted on the design of such a regime in 2015, including the proposal that the Bank will be the resolution authority for central counterparties (CCPs) and securities settlement facilities. The conclusions from this consultation were published in November 2015 and indicated that stakeholders were generally supportive of the proposed regime. The Bank will continue to work with the government and other domestic financial regulators to develop legislation to underpin the proposed regime as well as operational plans to execute powers granted under the regime. Internationally, the resilience of CCPs remains a strong focus in the global standard-setting bodies given the implementation of mandatory central clearing for over-the-counter derivatives. These bodies have established a joint CCP Workplan to examine potential risks to financial stability arising from the increasingly prominent role of CCPs, and to consider the need for additional policy guidance. Bank staff have been closely engaged in this international work, given its relevance to Australia's domestic regulatory standards.

The Bank's payments policy area also acts as overseer of Australia's high-value payment system, the Reserve Bank Information and Transfer System (RITS), which is a key part of Australia's financial infrastructure. The 2015 assessment of RITS against the Principles for Financial Market Infrastructures was published in December 2015 and concluded that RITS observed all of the relevant principles. Reflecting the critical importance of RITS to the Australian financial system, the Bank invests significantly in its technical and business infrastructure and in operational resourcing to ensure that RITS

continues to operate to appropriately high standards of availability and resilience, and that it meets the changing needs of the Australian payments system. The Bank is committed to ensuring RITS is well protected from cyber attack and work is ongoing to ensure RITS's cyber resilience continues to be at a very high standard. More broadly, there has been an increasing focus on cyber security in the international regulatory and oversight groups in which the Bank participates.

Finally, the Board and Bank staff also pay close attention to new technologies, including distributed ledger technologies and other forms of 'fintech', which have the potential to significantly change the payments landscape and the operation of FMIs. The initial applications of blockchain and distributed ledgers related to private digital currencies. However, there is now increasing focus on their potential use for clearing and settlement of securities transactions, with the ASX Group giving serious consideration to replacing its CHESSE cash equities clearing and settlement system with

a permissioned distributed ledger solution. Bank staff liaise actively with the private sector to better understand trends in these areas and have participated in a range of domestic and international working groups with other regulators.

Once again the Board joins me in thanking the staff and management of the Bank for their work in helping the Board meet its mandate for efficiency, competition and controlling risk in the Australian payments system.

As my term as Governor ends shortly, I express my personal thanks to the staff and the members of the Payments System Board for their support and their outstanding contribution to the goals of payments system competition, safety and efficiency.



Glenn Stevens AC
Chair, Payments System Board
15 September 2016

Functions and Objectives of the Payments System Board

The Payments System Board has a mandate to contribute to promoting efficiency and competition in the payments system and the overall stability of the financial system. The Reserve Bank oversees the payments system as a whole and has the power to designate payments systems and set standards and access regimes for designated systems. It also sets financial stability standards for licensed clearing and settlement facilities.

The responsibilities of the Payments System Board are set out in the *Reserve Bank Act 1959*, under which it is the duty of the Payments System Board to ensure, within the limits of its powers, that:

- the Reserve Bank's payments system policy is directed to the greatest advantage of the people of Australia
- the powers of the Reserve Bank set out in the *Payment Systems (Regulation) Act 1998* and the *Payment Systems and Netting Act 1998* are exercised in a way that, in the Board's opinion, will best contribute to controlling risk in the financial system, promoting the efficiency of the payments system and promoting competition in the market for payment services, consistent with the overall stability of the financial system
- the powers of the Reserve Bank that deal with clearing and settlement facilities set out in Part 7.3 of the *Corporations Act 2001* are exercised in a way that, in the Board's opinion, will best contribute to the overall stability of the financial system.

Under the Payment Systems (Regulation) Act, the Reserve Bank has the power to designate payment systems and set standards and access regimes for designated systems. The Payment Systems and Netting Act provides the Bank with the power to give legal certainty to certain settlement arrangements so as to ensure that risks of systemic disruptions from payment systems are minimised.

Under Part 7.3 of the Corporations Act, the Reserve Bank has a formal regulatory role to ensure that the infrastructure supporting the clearing and settlement of transactions in financial markets is operated in a way that promotes financial stability. The Bank's powers under that part include the power to determine financial stability standards for licensed clearing and settlement facilities.

This Report discusses the activities of the Board during 2015/16.

Governance

The Payments System Board is responsible for the Reserve Bank's payments system policy. Members of the Board comprise representatives from the central bank, the prudential regulator and a number of other non-executive members appointed by the Treasurer.

Payments System Board

The Payments System Board has responsibility for the Bank's payments system policy. The Board comprises: the Governor, who is the Chair; one representative of the Bank appointed by the Governor, who is the Deputy Chair; one representative of the Australian Prudential Regulation Authority (APRA) appointed by APRA; and up to five other members appointed by the Treasurer for terms of up to five years. Members of the Board during 2015/16 are shown below and details of the qualifications and experience of members are provided on pages 11–15.

Meetings of the Payments System Board

The *Reserve Bank Act 1959* does not stipulate the frequency of Board meetings. Since its inception, the Board's practice has been to meet at least four times a year and more often as needed. Four meetings were held in 2015/16, all at the Bank's Head Office in Sydney. Five members form a quorum at a meeting of the Board or are required to pass a written resolution.

Table 1: Board Meetings in 2015/16
Number of meetings

	Attended	Eligible
Glenn Stevens (Governor)	4	4
Malcolm Edey (RBA)	4	4
Wayne Byres (APRA)	4	4
Gina Cass-Gottlieb	4	4
Paul Costello	4	4
Robert McLean	4	4
Catherine Walter	4	4
Brian Wilson	3	4

Conduct of Payments System Board Members

On appointment to the Payments System Board, each member is required under the Reserve Bank Act to sign a declaration to maintain confidentiality in relation to the affairs of the Board and the Bank.

Members of the Board must comply with their statutory obligations in that capacity. The main sources of those obligations are the *Public Governance, Performance and Accountability Act 2013* (PGPA Act) and the Reserve Bank Act.

Their obligations under the PGPA Act include obligations to exercise their powers and discharge their duties with care and diligence, honestly, in good faith and for a proper purpose. Members must not use their position, or any information obtained by virtue of their position, to benefit themselves or any other person, or to cause detriment to the Bank or any other person. Members must declare to the other members of the Board any material personal interest they have in a matter relating to the affairs of the Board. Members may give standing notice to other members outlining the nature and extent of a material personal interest.

Over and above these statutory requirements, members recognise their responsibility for maintaining a reputation for integrity and propriety on the part of the Board and the Bank in all respects. Members have therefore adopted a Code of Conduct that provides a number of general principles as a guide for their conduct in fulfilling their duties and responsibilities as members of the Board; a copy of the code is on the Bank's website.

Remuneration and Allowances

Remuneration and travel allowances for the non-executive members of the Payments System Board are set by the Remuneration Tribunal.

Induction of Board Members

An induction program assists newly appointed Board members in understanding their role and responsibilities, and provides them with an overview of the Bank's role in the payments system and details of relevant developments in preceding years. Separate briefing sessions are tailored to meet particular needs or interests.

Policy Risk Management Framework and Board Review

During 2015, the key risks inherent in the consideration of payments policy, for which the Payments System Board is responsible, were confirmed and a formal risk register that codified these risks was finalised late in 2015.

The Payments System Board conducted a review of its operation and processes towards the end of 2015, which concluded that these were functioning effectively.

Indemnities

During 2015/16, members of the Payments System Board continued to be indemnified against liabilities incurred by reason of their appointment to the Board or by virtue of holding and discharging such office. Indemnities given prior to 1 July 2014, the date of repeal of the *Commonwealth Authorities and Companies Act 1997* (CAC Act), were in accordance with section 27M of the CAC Act. No new members of the Board were appointed during 2015/16.

As the Bank does not take out directors' and officers' insurance in relation to its Board members or other officers, no premiums were paid for any such insurance in 2015/16.

Conflict of Interest Audit

The Bank has several distinct areas of responsibility in the Australian payments system: it owns, operates and participates in Australia's real-time gross settlement (RTGS) system, the Reserve Bank Information and Transfer System (RITS); it is a provider of transactional banking services to the Australian Government and its agencies; and it is the principal regulator of the payments system through the Board.



Annual joint meeting of the Payments System Board and Australian Payments Council, August 2016

This combination of functions is conventional internationally. The operation of the high-value payment system is a core central banking function in most major economies. In addition, central banks in the advanced economies typically have regulatory responsibilities for the payments system (though the breadth of mandates varies) and most also provide banking services to government.

While the various functions are conceptually distinct, their existence in the one institution may give rise to concerns about actual or perceived conflicts of interest. The Board and the senior management of the Bank take very seriously the possibility of any perception that the Bank's

policy and operational roles may be conflicted, especially since this could undermine public confidence in the regulatory and policy process. Accordingly, the Bank has policies in place for avoiding conflicts and dealing with them when they do occur. The Board has formally adopted a policy on the management of conflicts of interests, which is published on the Bank's website.¹ Details of the steps taken to achieve compliance with these arrangements, including the minutes of informal meetings between departments, are audited annually, with the results presented to the Board. The most recent audit was conducted in July 2016 and reviewed by the Board in August 2016.

¹ Available at <<http://www.rba.gov.au/payments-and-infrastructure/payments-system-regulation/conflict-of-interest.html>>.

Payments System Board

The Board comprises up to eight members: the Governor (Chair), Assistant Governor, Financial System (Deputy Chair), Chairman of the Australian Prudential Regulation Authority and up to five other non-executive members appointed by the Treasurer.

September 2016



Glenn Stevens AC

BEd (Hons) (Sydney), MA (Western)

Governor and Chair

Governor since 18 September 2006

Reappointed from 18 September 2013 until 17 September 2016

Glenn Stevens has held various senior positions at the Reserve Bank, including Head of Economic Analysis and International Departments and Assistant Governor (Economic), where he was responsible for overseeing economic and policy advice to the then Governor and Reserve Bank Board. He was Deputy Governor from 2001 to 2006. In June 2014, Mr Stevens was awarded a Doctor of Laws, honoris causa (LLD) by Western University in Ontario, Canada. In the 2016 Queen's Birthday Honours List, Mr Stevens was appointed a Companion in the Order of Australia for eminent service to the financial and central bank sectors and to the community.

Other Roles

Chair – Reserve Bank Board

Chair – Council of Financial Regulators

Chair – Financial Stability Board Standing Committee for Assessment of Vulnerabilities

Chair – Financial Markets Foundation for Children

Member – Financial Stability Board

Director – The Anika Foundation



Malcolm Edey

BEC (Sydney), PhD (London)

Assistant Governor (Financial System) and Deputy Chair

Deputy Chair since 14 April 2009

Malcolm Edey has held various senior positions at the Reserve Bank, including in the Economic and Financial Markets Groups. Prior to his current role, Dr Edey was Assistant Governor (Economic). In his current position as Assistant Governor (Financial System), he is responsible for the Bank's work on financial stability and oversight of the payments system.

Other Roles

Member – Basel Committee on Banking Supervision

Member – Council of Financial Regulators



Wayne Byres

BEC (Hons), MAppFin (Macquarie)

Ex Officio Member

Chairman, Australian Prudential Regulation Authority

Member since 9 July 2014

Present term ends 30 June 2019

Wayne Byres brings a wealth of experience and knowledge of prudential supervision and banking practices. He was appointed as a Member and Chairman of APRA from 1 July 2014 for a five-year term. His early career was at the Reserve Bank, which he joined in 1984. He transferred to APRA on its establishment in 1998 and held a number of senior executive positions in the policy and supervisory divisions. In 2004, Mr Byres was appointed Executive General Manager, Diversified Institutions Division, with responsibility for the supervision of Australia's largest and most complex financial groups. He held this role until the end of 2011, when he was appointed as Secretary General of the Basel Committee on Banking Supervision, based at the Bank for International Settlements in Basel. Mr Byres is a Senior Fellow of the Financial Services Institute of Australia.

Other Roles

Member – Basel Committee on Banking Supervision

Member – BIS Group of Governors and Heads of Supervision

Member – Council of Financial Regulators

Member – Trans-Tasman Council on Banking Supervision



Gina Cass-Gottlieb

BEC (Hons), LLB (Hons) (Sydney), LLM (Berkeley)

Non-executive Member

Member since 15 July 2013
Present term ends 14 July 2018

Gina Cass-Gottlieb has extensive expertise in all areas of competition law and economic regulatory advice and in the regulation of payments in Australia. Ms Cass-Gottlieb is a senior partner in Gilbert + Tobin's competition and regulation practice, advising and representing corporations, industry associations, government and non-government agencies. She has over 25 years' experience, including advising in relation to access arrangements in a range of sectors across the economy. Ms Cass-Gottlieb attended the University of California, Berkeley, as a Fulbright Scholar.

Directorships

Director – Sydney Children's Hospital Foundation



Paul Costello

BA (Canterbury), Dip. Bus Admin (Massey)

Non-executive Member

Member since 15 July 2013
Present term ends 14 July 2018

Paul Costello has extensive experience in investments, governance and operations and has held a number of roles in the Australasian financial services sector. Most recently he served as the inaugural general manager at the Australian Government's Future Fund and also as the chief executive of the New Zealand Government's Superannuation Fund. Prior to these roles, he spent 15 years in the Australian wealth management industry. The Australian Government has previously appointed him in advisory roles to assist with the Stronger Super regulatory reforms and the Productivity Commission review of the superannuation sector.

Directorships

Chair – Investment Committee, QIC Global Infrastructure Fund

Director – AIA Australia Limited

Director – Qantas Superannuation Limited

Advisory Board Member – Six Park Asset Management

Member – International Advisory Council of the China Investment Corporation

Member – Southern Territory Salvation Army Investment Committee



Robert McLean AM

BEC (Stats) (Hons) (UNE), MBA (Columbia)

Non-executive Member

Member since 29 November 2006

Present term ends 28 November 2016

Robert McLean has wide international business experience and a background in the financial sector, particularly in corporate strategy and organisational performance. Mr McLean is a company director and private equity investor. He had a 25-year career at McKinsey & Company, where he remains a Senior Advisor to the firm, and previously served on the boards of CSR Ltd, Pacific Dunlop Ltd and Elders Rural Services. He was Dean and Director of the Australian Graduate School of Management at the University of New South Wales from 2003 to 2006. Mr McLean attended Columbia University in New York as a Fulbright Scholar.

Directorships

Chair – Australia Program Advisory Board, The Nature Conservancy (Australia)

Council Member – Philanthropy Australia

Director – Remerga Pty Limited

Director – The Centre for Independent Studies



Catherine Walter AM

LLB (Hons), LL.M, MBA (Melbourne)

Non-executive Member

Member since 3 September 2007

Present term ends 2 September 2017

Catherine Walter brings substantial experience and expertise in investment and corporate governance across many industry sectors, including banking, insurance, funds management, health services, medical research, education, telecommunications and resources. Mrs Walter is a solicitor and company director, who practised banking and corporate law for 20 years in major city law firms, culminating in a term as Managing Partner of Clayton Utz, Melbourne. She was a Commissioner of the City of Melbourne and for more than 20 years has been a non-executive director of a range of listed companies, government entities and not-for-profit organisations. Mrs Walter is a Fellow of the Australian Institute of Company Directors.

Directorships

Deputy Chair – Victorian Funds Management Corporation

Director – Australian Foundation Investment Company

Director – VicForests

Member – Melbourne Law School Foundation

Trustee – Helen Macpherson Smith Trust



Brian Wilson

MCom (Hons) (Auckland)

Non-executive Member

Member since 15 November 2010

Present term ends 14 November 2020

Brian Wilson brings extensive financial services experience, including involvement with both the funds management and investment management sectors. He has specialised in corporate financial advice. Mr Wilson was a Managing Director of the global investment bank Lazard until 2009, after co-founding the firm in Australia in 2004, and was previously a Vice-Chairman of Citigroup Australia and its predecessor companies. Mr Wilson was a member of the Commonwealth Government Review of Australia's Superannuation System, the ATO Superannuation Reform Steering Committee and the Specialist Reference Group on the Taxation of Multinational Enterprises in Australia.

Directorships

Chairman – Foreign Investment Review Board

Chancellor – University of Technology, Sydney

Director – Bell Financial Group Ltd

Accountability and Communication

The Reserve Bank seeks to ensure a high degree of transparency and accountability around its actions through its communication program, which includes media releases, speeches, research publications, and community and industry liaison.

Relationship with Government and Reporting Obligations

As noted above, the responsibilities of the Payments System Board are set out in four acts: the *Reserve Bank Act 1959*, the *Payment Systems (Regulation) Act 1998*, the *Payment Systems and Netting Act 1998* and the *Corporations Act 2001*. The Board is afforded substantial independence from the government in the way that it determines and implements the Bank's policies. However, as discussed in this chapter, there are a range of reporting obligations and the Bank's own policies on transparency and communication that serve to ensure the accountability of the Board. Looking ahead, it is likely that the government will also set out a Statement of Expectations for the Board and that the Board will respond with a Statement of Intent regarding its policies and procedures.

The broader accountability of the Bank includes its obligations under the *Public Governance, Performance and Accountability Act 2013*. The Bank's annual report and the annual performance statement both cover aspects of the Bank's role in the payments system.²

This report represents the primary accountability vehicle with respect to the Bank's payments system responsibilities. The House of Representatives Economics Committee has, in its Standing Orders, an obligation to review the annual reports of both the Reserve Bank and the Payments System Board. The committee holds twice-yearly public hearings at which the Bank presents an opening statement on the economy, financial markets and other matters – including payments system matters – pertaining to the Bank's operations, and responds to questions from committee members. These hearings may include discussion of developments in the payments system and the Bank's payments system policy. The Bank periodically also makes submissions to parliamentary inquiries or other inquiries commissioned by the government. For example, in the past year the Bank made a submission to the Senate Economics References Committee Inquiry into Matters Relating to Credit Card Interest Rates and senior staff appeared before a hearing of that Committee.

Communication

The Bank seeks to ensure a high degree of transparency about its activities, goals and decision-making processes, both for accountability and to promote a better understanding of the

² Published as a separate chapter in the *Reserve Bank of Australia Annual Report 2016*.

Bank's policies and decisions.³ Consistent with its statutory obligations, the Bank consults widely and at length before undertaking any regulatory action; where required, the Bank also publishes a Regulation Impact Statement as part of communicating any regulatory decision made by the Payments System Board. It also remains open to discussions with any and all parties that may be affected by the Bank's regulatory actions.

Media releases around Board decisions

In the days or weeks following Board meetings, the Bank makes announcements of major decisions taken by the Board. In 2015/16 there were media releases on: the signing of the Memorandum of Understanding with the Australian Payments Council and the revocation of the Access Regime and designation of eftpos in August 2015; the designation of a number of payment card systems in October 2015; the consultation paper on changes to the Bank's standards for card payment systems in December 2015; and the conclusions of the Review of Card Payments Regulation in May 2016. In addition, starting in November 2015, immediately following Board meetings the Bank has published a media release outlining matters that were discussed by the Board and foreshadowing any forthcoming documents to be released by the Bank.

Speeches

During 2015/16, senior Bank staff gave a number of public speeches and presentations on payments system-specific topics. Speeches covered topics such as the transition to central clearing of over-the-counter (OTC) derivatives in Australia, credit card interest rates, the Bank's Cards Payments Review and the ongoing evolution of the Australian payments system.

Audio files and transcripts of these speeches are published on the Bank's website to improve accountability and communication.

Publications with other regulatory entities

During the year in review, the Bank also produced a number of publications in conjunction with other regulatory entities constituting the Council of Financial Regulators (CFR), the coordinating body for Australia's main financial regulatory agencies. These covered topics including competition in clearing Australian cash equities, the resolution regime for financial market infrastructures (FMIs), the Australian licensing regime for overseas clearing and settlement facilities, and the Australian OTC derivatives market.

Research

The Bank's quarterly *Bulletin* contains analysis of a broad range of economic and financial issues, including payments system developments from time to time, as well as aspects of the Bank's operations. During the year in review, the *Bulletin* included an article exploring developments in the ATM system since the Bank's 2009 reforms and another comparing the different risks and regulations applying to central counterparties (CCPs) and banks. The Bank also disseminates the outcome of payments system research work to the public for transparency and educational purposes. In October 2015, the Bank published a conclusions paper that evaluated the costs and benefits of the central clearing of repos in Australia following the conclusion of the stakeholder consultation process.

To supplement the Bank's research and policy work, statistics on retail payments are collected by the Bank on a monthly basis from most financial institutions (banks, building societies, credit unions, card companies) and some other payments system participants. The collected

³ For a detailed list of publications, see 'The Board's Announcements and Reserve Bank Reports' (pp 69–70).

data cover cheques and bulk electronic transfers as well as debit, credit and charge cards, and are made available on the Bank's website each month.

Online communication

The Bank publishes information in both electronic and hardcopy formats, though most access to information is online. The Bank's website contains a wide range of information relating to the Bank's payments system policy. The material on payments and financial market infrastructure attracted over 600 000 page views in 2015/16.

Liaison Activity

The Bank engages with a wide range of stakeholders in Australia and overseas. Domestically, in 2015/16 this included liaison on retail payments issues and in particular the Review of Card Payments Regulation, involvement in the New Payments Platform (NPP) and close interaction with the CFR. Internationally, the Bank was represented on a number of forums, including the Committee on Payments and Market Infrastructures (CPMI).

Liaison with industry

The Bank engaged extensively with industry in 2015/16. In August 2015, the Board had its inaugural meeting with the members of the Australian Payments Council.

On the retail payments front, Bank staff met with a wide range of stakeholders as part of the Review of Card Payments Regulation, following the receipt of submissions to its Consultation Paper in December 2015. The Bank also met with representatives of card schemes, banks and other financial institutions, payments technology companies, merchants and merchant groups, and consumer organisations and academics.

Bank staff meet regularly with senior staff of the Australian Payments Clearing Association (APCA) and have entered into an agreement on liaison arrangements for these meetings, published on the Bank's website. The staff also meet periodically with counterparts from the Australian Competition and Consumer Commission (ACCC) and the Australian Treasury. In particular, there was close coordination between Bank, ACCC and Treasury staff to ensure the effectiveness of new surcharging arrangements.

The Bank has continued to be extensively involved with the development of the NPP. The Heads of Payment Settlements and Payments Policy Departments attend the meetings of the NPP Australia Board – one as a voting member and the other as an observer. In addition, Bank staff contribute to a number of working groups and subcommittees responsible for developing and delivering the NPP.

As described in other chapters of this report, the Bank continued to work closely with other agencies of the CFRs on a number of policy issues, including the formation of a joint working group with CFR agencies and the Australian Transaction Reports and Analysis Centre (AUSTRAC) to consider the implications of distributed ledger technology. These issues also required considerable liaison with industry participants, particularly in relation to consultation processes on competition in cash equities clearing and settlement, FMI resolution, the licensing regime for overseas clearing and settlement facilities, and mandatory clearing of OTC derivatives.

Staff also attended, in some cases as speakers or panellists, various conferences and seminars on payments and market infrastructure-related issues.

International engagement

Payments Policy Department represents the Bank on the CPMI, which serves as a forum for central banks to monitor and analyse developments in payment, clearing and settlement infrastructures and set standards for their design and operation. The Bank is also a member of the CPMI-IOSCO Steering Group, which brings together members of both CPMI and the International Organization of Securities Commission (IOSCO) to advance policy work on the regulation and oversight of FMIs, as well as the Executives' Meeting of East Asia-Pacific Central Banks (EMEAP) Working Group on Payment and Settlement Systems. Payments Policy Department has also recently joined the Financial Stability Board's Financial Innovation Network, which plays a role in monitoring technology-driven financial innovation.

The Bank is contributing to two of the workstreams under the CCP Workplan (described in the chapter on 'Regulatory Developments in Financial Market Infrastructures'). A senior officer in Payments Policy Department is a member of CPMI-IOSCO's Policy Standing Group (PSG), which is leading the work on CCP resilience and recovery. An officer in Payments Policy Department is also contributing to the work on enhancing resolution arrangements for CCPs, which is being led by a working group under the Financial Stability Board's (FSB) Resolution Steering Group.

Senior officers in Payments Policy Department participate in a number of other workstreams governed by the CPMI and the CPMI-IOSCO Steering Group. These include:

- the CPMI-IOSCO Implementation Monitoring Standing Group (IMSG), which is monitoring the international implementation of the Principles for Financial Market Infrastructure (PFMIs) (see the chapter on 'Regulatory

Developments in Financial Market Infrastructures' for details)⁴

- the Working Group on Cyber Resilience, which recently published guidance to assist FMIs and their overseers in enhancing the cyber resilience of FMIs⁵
- the CPMI Working Group on Retail Payments, which released a report on digital currencies in November 2015, and is working on new developments in the field of retail payments, including faster payments⁶
- the CPMI Working Group on Digital Innovations, which is studying the implications of distributed ledger technology for payments, trading, clearing and settlement.

Finally, the Bank has a number of bilateral cooperative arrangements with overseas supervisory authorities for FMIs and also continues to be engaged in a number of international multilateral cooperative arrangements. These multilateral arrangements include:

- The Bank is a member of a global supervisory college arrangement for LCH.Clearnet Limited, as well as a member of the LCH.Clearnet Ltd Crisis Management Group (CMG), both chaired by the Bank of England.
- The Bank participates in an arrangement led by the Federal Reserve Bank of New York to oversee CLS Bank International, which provides a settlement service for foreign exchange transactions.

4 A senior officer in Payments Policy Department has co-chaired this group.

5 Available at <<http://www.bis.org/cpmi/publ/d146.htm>>.

6 Committee on Payments and Market Infrastructures (2015), *Digital Currencies*, Basel, November. Available at <<http://www.bis.org/cpmi/publ/d137.pdf>>.

- The Bank also participates in the SWIFT Oversight Forum, chaired by the National Bank of Belgium.

Regulator Performance Framework

In 2014, the Australian Government released its Regulator Performance Framework (the framework), as part of its commitment to reduce the cost of unnecessary or inefficient regulation imposed on individuals, business and community organisations. The framework consists of six outcomes-based key performance indicators (KPIs) to articulate the government's expectations of regulator performance.

Regulators, including the Reserve Bank, agreed metrics for measurement of their performance against the KPIs with the government in mid 2015 and will complete their first self-assessments for the 2015/16 financial year. These will be provided to the Minister and published by the end of 2016.

Self-assessments are conducted in close consultation with the regulated industry. In the Bank's case, the metrics used were determined with input from the organisations regulated by the Bank. Many of those metrics also rely on direct input from regulated entities through specially designed surveys. Finally, regulated entities will also be asked to provide feedback on draft assessments before they are finalised.

While the Bank's final, externally validated assessment will not be available until later in 2016, a summary of stakeholder input for the 2015/16 year can be provided. Given that the Bank's functions of regulation of retail payment systems and oversight of FMI are performed very differently, separate assessments will be prepared for each and stakeholder feedback is provided separately below.

Feedback from regulated entities

Regulated payment schemes saw the Bank's communication as a strength, rating highly both its consultation during the development of regulation and its responsiveness to requests from regulated entities. The adequacy of guidance material provided was also viewed positively, though schemes suggested that additional guidance would be welcome, particularly more 'plain English' material. The schemes, however, did not think the Bank's consultative processes fully translated into its understanding of the environment within which the schemes operate. Comments also suggested that the Bank could seek to streamline its regulatory processes where issues were time sensitive.

Direct compliance costs were reported as modest; on average, schemes indicated that they spent 42 person hours demonstrating compliance with Reserve Bank regulation during the year and 77 person hours supporting the Bank's monitoring activities. Data requests by the Bank were viewed as reasonable, as in most cases were other *ad hoc* requests for information, though one scheme viewed the timelines for the latter as sometimes unreasonable.

Schemes provided some useful suggestions on how the Bank could streamline consultation and compliance by greater use of standardised and electronic processes. The Bank will consider these suggestions.

Regulated CS facilities were unanimous in describing their relationship with the Bank as cooperative and collaborative. They also viewed the Bank's communication practices favourably – describing them variously as clear, concise, timely and proactive – and considered the Bank to be open and transparent in its dealings. The Bank's coordination with other domestic regulators

was rated positively, with one facility noting that this had improved in recent years. However, one facility argued that the Bank did not sufficiently coordinate with, or rely upon, relevant overseas regulators. Some responses also noted that the scale of the Bank's information requests exceeded those of other regulators or had increased over time. Staff turnover was identified as sometimes leading to inconsistencies in approach.

CS facilities offered a number of specific suggestions for improving engagement, including in relation to the structure of regular meetings, greater transparency of timelines and establishing a single point of contact for information requests. Some of these changes are already underway.

The Bank appreciates the feedback that has been provided by payment schemes and CS facilities and will consider how best to respond as it finalises its self-assessment under the Framework.

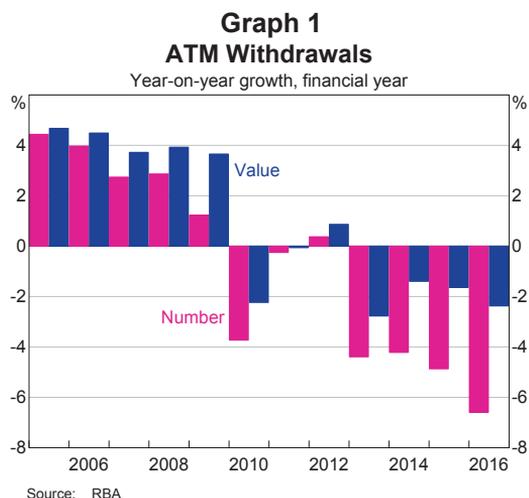
Retail Payments Trends

The Payments System Board monitors trends in retail payments. Developments in 2015/16 were consistent with the longer-term shift towards electronic non-cash payment methods; the Bank’s 2016 Consumer Use Survey will offer additional insights into these trends.

Cash Payments

The use of cash has gradually declined over a number of years, as consumers shift to electronic payment methods, including for low-value transactions. For example, the most recent Consumer Use Survey found that cash accounted for 78 per cent of payments of \$10 or less in 2013, down from 95 per cent in 2007. This decline has been reflected in reductions in the number and value of ATM cash withdrawals (the main method used to obtain cash), which fell by 6.6 per cent and 2.4 per cent, respectively, in 2015/16 (Graph 1). The continuing decline in ATM withdrawals reflects a number of factors, including the adoption of new technologies such as contactless card payments and mobile payments. Consistent with the effect of reduced cash use, eftpos cash-outs have also been declining since 2013.

While the use of cash in transactions has been declining, the demand to hold cash has continued to grow. This is the case for low-denomination as well as high-denomination banknotes. At the end of June there were 1.4 billion banknotes, worth \$70.2 billion, in circulation. The value of banknotes in circulation increased by 7 per cent in 2015/16, slightly above the long-term growth rate of 6 per cent. The



growing demand for holdings of cash suggests that it continues to have an important role as a store of value and there is some evidence – from demand for larger denomination banknotes – that this increased following the global financial crisis. So, despite the decline in use in transactions, cash is likely to remain an important part of both the payments system and the economy more broadly for the foreseeable future. In particular, significant parts of the population appear to remain more comfortable with cash than with other payment methods in terms of ease of use for transactions or transfers, as a backup when electronic payment methods

may not be available or as an aide for household budgeting.

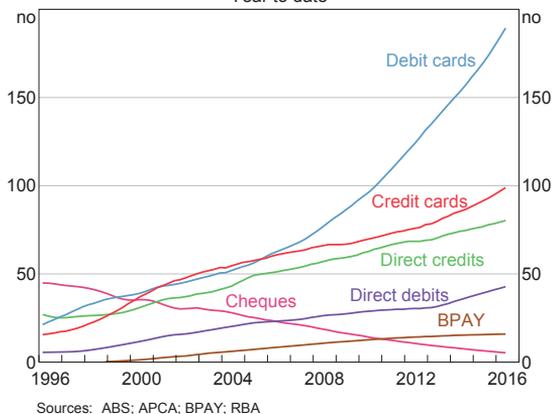
Given the important ongoing role of cash in the payments system, the Bank is currently undertaking a major project to upgrade the existing stock of notes. Counterfeiting rates of the current series of banknotes remain low by international standards but have risen over the past decade as advances in technology have made it easier and cheaper to produce and distribute counterfeit banknotes. Accordingly, the program for the next generation of banknotes includes major security upgrades that should ensure that Australia's banknotes remain some of the world's most secure. The first release of the new banknotes occurred on 1 September 2016, with the release of the new five dollar note.

The Bank's previous Consumer Use Surveys have provided valuable information on the use of cash for payments and on holdings of cash by Australian households. The upcoming 2016 Survey will provide further insights in these areas, including the extent to which mobile, contactless and other innovative technologies extend the use of electronic payments into lower-value transactions, where cash has traditionally been the dominant means of payment.

Non-cash Payments

The use of most non-cash payment methods continues to increase – with the exception of cheque payments. In particular, debit card use continues to grow rapidly (Table 2). Australians made on average 435 non-cash transactions per person in 2015/16, up from around 400 transactions per person in the previous year. Direct entry payments account for the majority of non-cash payments by value, while card payments make up around two-thirds of the number of non-cash payments; this share has increased steadily over the past five years (Graph 2; Table 2).

Graph 2
Non-cash Payments per Capita
Year to date



Debit and credit card payments

Debit and credit cards are the most frequently used non-cash payment methods. In 2015/16, Australian personal and business cardholders made around 6.9 billion card payments worth \$538 billion; an increase relative to the previous year of around 12 per cent and 7 per cent, respectively. While the number and value of card payments continues to grow, the average value of these transactions has fallen over time, reflecting the increased use of cards for low-value payments. This trend is likely to reflect the increasing convenience of making card payments, given the prevalence of contactless technology in Australia. Since 2010/11, the average value of a debit card transaction has fallen from around \$59 to \$53, while the average value of a credit card transaction has fallen from \$145 to \$126. Growth in the number and value of debit card transactions continues to outpace growth in credit card transactions (Graph 3).

Within credit and charge cards, the combined market share of American Express and Diners Club was largely unchanged in 2015/16, at around 19 per cent of the value of spending (Graph 4). The combined market share of these schemes has increased from around 15 per cent in the early 2000s, with the change largely occurring in

Table 2: Non-cash Payments

	2015/16						Average annual growth 2010/11–2015/16	
	Per cent of total		Average value	Growth, per cent		Per cent		
	Number	Value	\$	Number	Value	Number	Value	
Debit cards	43.8	1.5	53	13.4	9.8	13.4	10.6	
Credit cards	22.9	1.8	126	9.8	4.9	7.9	4.9	
Cheques	1.2	7.4	9 483	-17.1	-1.8	-14.4	-2.3	
BPAY	3.7	2.2	923	3.5	8.1	4.9	10.4	
Direct debits ^(a)	9.9	36.2	5 709	10.8	3.1	9.2	0.6	
Direct credits ^(a)	18.6	50.9	4 275	6.0	2.0	5.4	4.9	
Total	100.0	100.0	1 559	10.0	2.4	8.9	2.8	

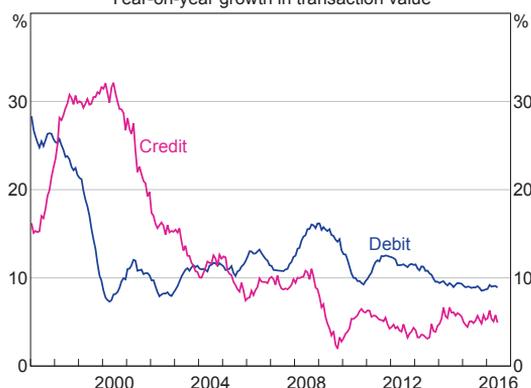
(a) In March 2014 reporting changes by two institutions resulted in series breaks for direct credit and direct debit payments; the series have been backcast to account for the break

Sources: BPAY; RBA

Graph 3

Payment Card Transactions*

Year-on-year growth in transaction value



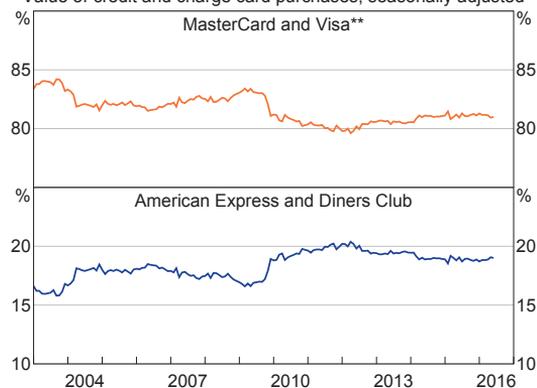
* Includes debit card cash-outs and credit card advances; RBA credit card data prior to March 2008 adjusted to remove BPAY transactions

Sources: BPAY; RBA

Graph 4

Market Shares of Card Schemes*

Value of credit and charge card purchases, seasonally adjusted



* Excludes scheme debit from March 2008; back data adjusted for break

** Includes Bankcard before 2007

Source: RBA

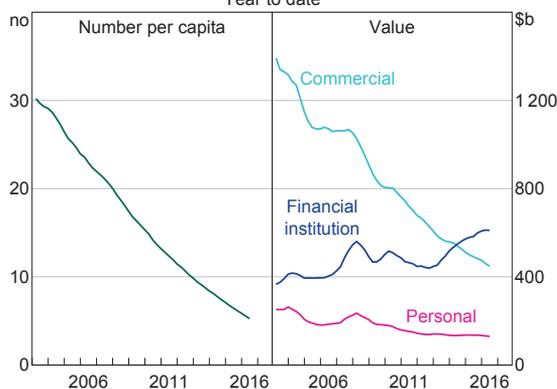
two steps that coincided with the introduction of bank-issued companion American Express cards.

Within debit cards, there has been a steady decline in the market share of the domestic eftpos system, and an increase in the share of the MasterCard and Visa debit systems. Increased issuance of international scheme debit cards by banks, partly driven by interchange fee differentials, plus the online and contactless functionality of scheme cards, are likely to have contributed to the shift in market shares.

Cheque, BPAY and Direct Entry payments

The decline in cheque usage has accelerated in recent years, with the total number of cheque payments falling by 17 per cent in 2015/16 (Graph 5). The number of cheque payments in Australia has declined by over 80 per cent over the past two decades. The fall in cheque use has been most significant for commercial and personal cheques, as many lower-value payments have migrated from cheques

Graph 5
Cheque Payments
Year to date



Source: RBA

to electronic methods. Some of the major Commonwealth government departments (including the Australian Taxation Office and Department of Human Services) and some large corporates have largely moved away from the use of cheques. Cheque use in the superannuation industry has also fallen very significantly as part of the SuperStream reforms. However, the decline in cheque usage has been much slower for certain high-value transactions such as commercial payments and property settlements. The Australian Payments Council is considering options for the cheque system as part of its work on the Australian Payments Plan.

Over the year, the number and value of BPAY transactions increased by 3.5 per cent and 8.1 per cent, respectively. Consumers and businesses use BPAY to make a range of higher-value bill payments, including payments for utilities, education fees and investments. Although BPAY payments are much less common than card payments, the high value of these payments means that they account for a greater share of the value of non-cash retail payments than credit and charge cards.

Direct Entry (DE) payments account for the bulk of the value of non-cash retail payments. The high

average value of these payments reflects their use by businesses, corporations and governments for a range of bulk payments, for example, salary and welfare payments. However, there is also evidence of consumers increasingly establishing direct debit arrangements for lower-value bill payments, with the average value of direct debits falling from around \$8604 in 2010/11 to \$5709 in 2015/16.

Online payments

Online payments account for an increasing share of non-cash payments in Australia. Users' needs are serviced by a mix of well-established payment methods and some newer, more specialised providers, such as PayPal. DE payments account for the bulk of domestic online payments by number and value.

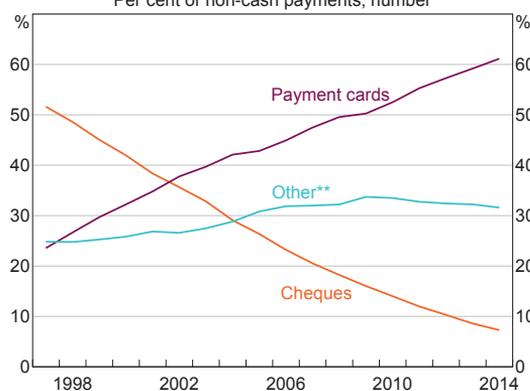
Within domestic online retail payments, credit cards remain the dominant payment method by value. However, in recent years there has been rapid growth in the use of MasterCard and Visa debit cards as well as specialised providers. As a result, the share of credit cards in the number of domestic online retail payments has declined from 62 per cent in 2010/11 to 38 per cent in 2015/16.

The 2013 Consumer Use Survey observed a notable increase in PayPal's share of consumer purchases between 2010 and 2013; the survey indicated that these payments tended to be for lower-value payments, with their use concentrated at certain types of merchants. The Bank will continue to monitor developments and trends in the use of specialised payments providers in the 2016 Survey.

International Payment Trends

The long-term trend observed in Australia – a shift away from cheque payments towards the use of cards – is also apparent in other jurisdictions (Graph 6). Cross-country data published by the CPMI show that Australians

Graph 6
Non-cash Payments – International*
Per cent of non-cash payments, number



* Selected CPMI countries; data prior to 2009 have been adjusted for changes in reporting and membership

** Includes direct credit and direct debit transactions

Sources: ABS; BIS; RBA

are among the most frequent users of payment cards (Table 3). Cheque use in other countries has fallen significantly, including in countries where cheques have traditionally been a common payment method. There are a number of continental European countries where the use of cheques is now negligible, or where the cheque system no longer exists.

Table 3: Non-cash Retail Payments in Selected CPMI Countries
Number per capita, 2014

	Cheques	Direct debits	Direct credits	Debit card	Credit card ^(a)	Total ^(b)
United States	45	45	30	187	96	403
Sweden	<1	33	99	224	46	402
Netherlands	0 ^(c)	69	121	180	8	378
Australia	7	37	75^(d)	163	89	371
Korea	6	34	73	87	174	374
United Kingdom	10	57	61	158	43	329
Canada	20	21	36	138	110	325
France	38	54	52	75	22	241
Germany	<1	105	72	31	9	217
Brazil	6	28	53	28	27	142

(a) Includes charge cards

(b) Excludes e-money

(c) Cheques have been abolished since 2001

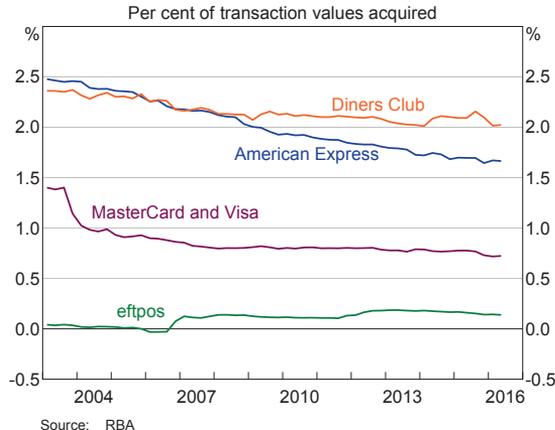
(d) Includes BPAY

Sources: ABS; BIS; RBA

Merchant Service Fees

The average fee paid by merchants to their financial institution for transactions on MasterCard and Visa credit and debit cards declined markedly over 2015/16, particularly when compared to the previous few years. These fees fell by 6 basis points to 0.72 per cent of the value of transactions at end June, after having been largely unchanged over the past five years (Graph 7). The relatively large fall in average merchant service fees coincided with the reset of interchange fees in November 2015. Fees on MasterCard and Visa credit and debit cards had previously fallen following the Bank's reforms to the payment cards system in the early 2000s. Fees for American Express and Diners Club cards have also declined since the early 2000s, with the average fee for American Express transactions falling by a further 4 basis points in 2015/16 to 1.66 per cent of the value of transactions. Since the September quarter 2003, merchant service fees for MasterCard and Visa have fallen by 68 basis points, while American Express and

Graph 7
Merchant Service Fees
Per cent of transaction values acquired



Diners Club fees have fallen by 79 basis points and 33 basis points, respectively.

The average merchant service fee for eftpos transactions declined in 2015/16 by 1 cent to be around 9 cents per transaction. This corresponds to a rate of 0.14 per cent for the average eftpos transaction, which remains well below the rate for transactions over the international schemes' networks. However, as eftpos fees are generally charged on a flat basis per transaction, for some low-value transactions these fees can be higher than the *ad valorem* rates applying to transactions over the international schemes.

Interchange Fees

Interchange fees are wholesale fees paid between a merchant's financial institution and a cardholder's financial institution when a cardholder undertakes a card payment. Under the Bank's current standards, the weighted average of multilateral interchange fees in the MasterCard and Visa credit card systems, the Visa debit card system and the eftpos debit card system must not exceed certain benchmarks on specified compliance dates – 1 November of every third year after 2006, and on any date a card scheme makes a change to its schedule of

interchange fee rates. In 2015/16, the schemes were required to ensure that the weighted-average interchange fees applying in the systems they operate were at or below the relevant benchmarks on 1 November 2015. As discussed in 'Retail Payments Policy and Research', the Bank recently completed a review of its card payments regulations, including its standards relating to interchange fees. Accordingly, the 1 November reset was the final mandatory reset under the current regime, with new interchange-setting arrangements to apply from 1 July 2017.⁷

The multilateral interchange fee benchmarks were unchanged in 2015/16, at 0.50 per cent of the value of transactions for the credit card systems and 12 cents per transaction for the debit card systems.⁸ Under the Bank's standards, the card schemes have the flexibility to set different multilateral interchange fees for different types of transactions, provided that the weighted average of these fees for each system does not exceed the relevant benchmark on the compliance dates. Table 4 shows the interchange fees applying in the credit card and debit card systems as at end June.

Both MasterCard and Visa made changes to their credit card interchange fee schedules ahead of the November compliance date to ensure they complied with the Bank's standards. MasterCard also made an additional change to its schedule in May 2016. The schemes took a similar approach to previous resets by introducing and removing certain fee categories, and lowering rates for some existing categories while increasing others. Both MasterCard and Visa lowered interchange rates across a significant number of categories. MasterCard also removed several categories

⁷ Schemes are able to make changes to their interchange schedules at any time outside of the required compliance date; when doing so, they need to ensure that they comply with the benchmarks.

⁸ All interchange fee benchmarks and rates quoted in this section are exclusive of GST.

Table 4: Interchange Fees^(a)
Excluding GST; as at 30 June 2016

	Credit card		Debit card		
	Per cent		Cents (unless otherwise specified)		
	MasterCard	Visa	MasterCard	Visa	eftpos ^(b)
Consumer electronic	–	0.25	12.7	8.0	4.5
Consumer standard	0.29	0.25	0.27%	0.42%	–
Consumer premium/platinum	0.64	0.84	0.91%	1.05%	–
Consumer super premium	1.11	1.20 or 1.25 ^(c)	–	–	–
Consumer elite/high net worth	1.82	2.00	–	–	–
Business/commercial	0.85	0.84 or 1.15 ^(d)	0.91%	1.05% ^(e)	–
Business/commercial premium	1.04 or 1.05 ^(f)	1.30	0.91%	–	–
Business elite/super premium	1.80	1.80	–	–	–
Commercial large ticket ^(g)	1.04	–	–	–	–
Strategic merchant	0.23 or 0.29	0.20 to 0.30	2.8 or 3.6	2.0 to 8.0	0.0 to 4.5
Government/utility	0.29	0.25	7.0	6.0	–
Charity	0.00	0.00	0.0	0.0	0.0
Petrol/service station	0.29	0.25	7.0	6.0	–
Education/learning	0.29	0.25	–	6.0	–
Supermarket	–	0.25	–	6.0	–
Insurance	0.29	0.25	7.0	6.0	–
Transit	–	0.25	–	6.0	–
Recurring payments	0.29	0.25	10.0	6.0	–
Micropayment ^(h)	–	–	0.4	–	0.0
Contactless and MasterPass ⁽ⁱ⁾	0.29	–	5.9	–	–
SecureCode (merchant)	0.29	–	8.0	–	–
SecureCode (full)	0.29	–	8.0	–	–
Digital secure remote payment (online)	0.29	–	8.0	–	–
MasterPass Advanced Checkout (online)	0.29	–	8.0	–	–
Digital Enablement Service	0.64	–	0.64%	–	–
Medicare Easyclaim Refund	–	–	–	–	0.0
Benchmark	0.50	0.50	12.0	12.0	12.0

(a) Fees are paid by the acquirer to the issuer, except for transactions involving a cash-out component

(b) eftpos interchange fees have not changed since October 2012

(c) 1.20% for the 'Visa Rewards' category and 1.25% for the 'Visa Signature' category

(d) Visa has three types of non-premium commercial rates: the 'Business' category attracts a fee of 0.84% while the 'Corporate' and 'Purchasing' categories attract a fee of 1.15%

(e) 1.05% for the 'Business' and 'Corporate' categories

(f) 1.04% for the 'Commercial Corporate Executive' category and 1.05% for the 'Commercial Business Executive' category

(g) Transactions equal to or above \$10 000. MasterCard increased this rate from 0.68% to 1.04% in May 2016

(h) Transactions less than \$15

(i) Contactless and MasterPass transactions equal to or less than \$60, excluding some commercial cards

Sources: ePAL website; MasterCard website; RBA; Visa website

including ‘Consumer Electronic’ and ‘Quick Payment Service’. Offsetting the reductions in some rates, MasterCard introduced some new categories including ‘Business Elite’, ‘Commercial Large Ticket’ and a fee for tokenised transactions.

In the debit card systems, MasterCard and Visa also made a number of changes to their interchange fee schedules in November 2015. The reset saw the two schemes increasing some *ad valorem* interchange fees applying to non-preferred merchants, while keeping most of their strategic merchant and preferential rates unchanged (though Visa did reduce its highest strategic merchant rate). MasterCard also introduced several new online payment categories and one for tokenised transactions. eftpos Payments Australia Ltd (ePAL) left interchange fees for eftpos transactions unchanged in 2015/16, after most recently making changes in October 2012.

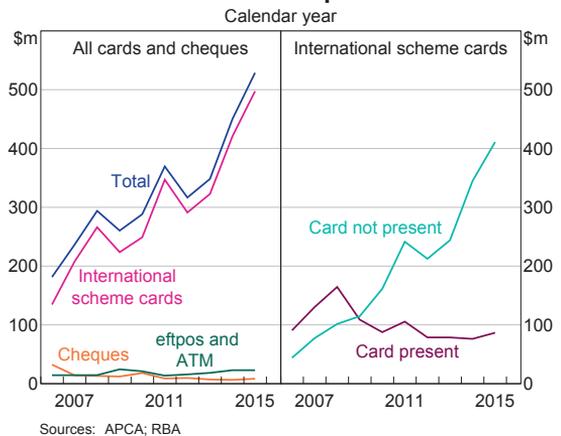
In 2015/16, interchange rates applying to prepaid card transactions were not formally regulated. However, the Board has previously noted its expectation that the prepaid card interchange fees would be set broadly in conformity with the Standard on interchange fees in the Visa Debit system. The international schemes made a small number of changes to their prepaid interchange rates at the same time as amending their debit card schedules. Visa increased its prepaid consumer standard and business rates to match its new debit card interchange fees while MasterCard did not change any prepaid card fees.

Payments Fraud

Total losses relating to fraudulent cheque and debit, credit and charge card transactions (where the card was issued and/or acquired in Australia) increased by 17 per cent to \$529 million in 2015, according to data collected by APCA. The fraud

rate (the value of fraudulent transactions as a share of overall transactions) on Australian-issued cards increased from \$0.59 per \$1 000 in 2014 to \$0.67 per \$1 000 in 2015. The increase reflected a rise of 18 per cent in fraud on debit, credit and charge cards from the international schemes to \$497 million in 2015 (Graph 8; Table 5).⁹ Losses relating to fraudulent eftpos and ATM transactions were unchanged in 2015 at \$23 million. Cheque fraud rose by \$2 million to \$8 million.

Graph 8
Fraud on Card and Cheque Transactions



The increase in losses continues to be driven by fraudulent use of scheme cards in the card-not-present (CNP) environment (i.e. online, via telephone or mail), which increased by 19 per cent in 2015 to \$411 million. CNP fraud perpetrated overseas on cards issued in Australia accounted for 45 per cent of all fraud on scheme cards, increasing by 13 per cent to \$226 million. The fraud rate across all CNP transactions is estimated to be around ten times the rate for card-present transactions. Following an industry initiative to reduce card-present fraud, the

⁹ Fraud statistics for ‘scheme’ debit, credit and charge cards include transactions through the international card schemes – MasterCard, Visa, American Express and Diners Club.

Table 5: Fraud Losses by Transaction Type
\$ million

	2014	2015
All instruments	450	529
Cheques	6	8
All cards	444	520
eftpos and ATM transactions	23	23
Scheme debit, credit and charge cards	421	497
<i>Australian cards used in Australia</i>	133	169
Card present	33	32
Card not present	99	137
<i>Australian cards used overseas</i>	231	269
Card present	30	43
Card not present	201	226
<i>Foreign cards used in Australia</i>	57	60
Card present	13	12
Card not present	45	48

Sources: APCA, RBA

industry has been actively considering ways to address the rapid growth of CNP fraud.

Card-present fraud losses for transactions acquired in Australia declined by around 5 per cent in 2015, in part likely reflecting the industry's 2014 initiative that phased out signature authorisation for most types of card-present

transactions. By contrast, losses on domestic cards acquired overseas increased by 42 per cent to \$43 million, reflecting an increase in counterfeit Australian cards being used in jurisdictions where there has been less progress in upgrading terminals to chip technology.

Retail Payments Policy and Developments

The Reserve Bank implements retail payments policy and undertakes research under its remit to maintain a safe, competitive and efficient payments system. Recent policy work has included the completion of a major review of the regulatory framework for card payments.

Review of Card Payments Regulation

Over the past year and a half, the Board oversaw the Bank's conduct of the Review of Card Payments Regulation (the review), which culminated in the release of a conclusions paper and a set of revised standards in May 2016. The review was a comprehensive examination of the regulatory framework, guided by the Board's mandate to promote competition and efficiency in the payments system.

Background to the review

In the early 2000s, the Board implemented a series of reforms to card systems aimed at improving competition and efficiency in the payments system. The reforms included measures that changed the relative prices cardholders faced when using debit and credit cards, reducing the incentives to use higher-cost payment methods. The reforms also required changes to certain restrictive rules in card systems. This included allowing merchants to apply surcharges on card transactions so that cardholders were more likely to face prices that reflected the cost of the card they were using. The Board also took steps that reduced the

barriers to entry for entities wishing to issue cards or provide card payment services to merchants.

In 2007–08, the Board conducted its first review of its reforms. The review concluded that the reforms had improved access, increased transparency and had led to more appropriate price signals to consumers. The review also explored a number of options for possible changes to the regulatory framework, including stepping back from formal regulation and relying on industry undertakings. However, the industry was unable to arrive at suitable undertakings, so, in August 2009, the Board decided against stepping back from interchange regulation but noted that the regulatory framework would remain under review.

The recent review was the first comprehensive examination of card payments regulation since 2007–08. Since then, the retail payments market has evolved considerably: card payments have continued to grow in importance; new products and channels have been developed; and current and would-be participants have continued to innovate. Part of this evolution has reflected the actions of payment systems, participants and end users in response to the regulatory framework. Accordingly, the review

set out to ensure that reforms that were intended to promote competition and efficiency in the payments system, by improving price signals and encouraging efficient payment choices, continue to do so.

The review was also informed by the Murray Financial System Inquiry (FSI), which endorsed the Board's approach to card regulation and which made a number of recommendations and suggestions, including in relation to interchange fees and surcharging. The review incorporated the FSI recommendations amongst the various regulatory options that were consulted on.

The review process

The review commenced in March 2015 with the publication of an Issues Paper that sought the views of stakeholders and interested parties on the regulatory framework, including on issues that the Bank had raised in its March 2014 submission to the FSI and on issues that the FSI had identified in its Interim and Final Reports. The Bank received over 40 written submissions in response to the Issues Paper and also considered submissions on card payments regulation to the FSI. In addition to consulting with stakeholders individually, the Bank held an industry roundtable in June 2015. Thirty-three organisations were represented at the roundtable, including card schemes, consumer representatives, merchants, financial institutions, and government and regulatory agencies.

In November 2015, the Board approved the release of a Consultation Paper, the second key document in the review. The Consultation Paper presented the Board's preliminary conclusions on the future of card payments regulation and included draft standards for consultation. Over 40 organisations and individuals made substantive submissions and the Bank conducted around 50 consultation meetings with interested parties, including with a number of stakeholders that had not provided formal written submissions.

The release of the draft standards in December 2015 coincided with the government introducing legislation to ban excessive surcharges on card payments, which was subsequently passed by parliament on 22 February. Under the new law, the ACCC will have powers to take action in relation to excessive surcharging and will, in the case of payments in designated card systems, rely on the Board's surcharging standard to determine the level of surcharge that is permitted. The Bank worked closely with Treasury and the ACCC to ensure that the surcharging regime would be as clear as possible for the industry, merchants, consumers and regulators.

Designation of card schemes

In August 2015, prior to the Bank's consultation on draft standards, the Board asked Bank staff to liaise with industry participants on the possible designation of the bank-issued American Express companion card system, the Debit MasterCard system and the eftpos, MasterCard and Visa prepaid card systems. The Bank determined that it would be in the public interest to designate these systems and, following a resolution of the Board, did so in October. The Bank considered that there was potential for regulation of prepaid card systems to remove some of the ambiguity that had developed in the treatment of prepaid cards since 2006, when the Board had expressed its expectation that interchange rates in prepaid card systems should be set broadly in compliance with the relevant debit card standard. Similarly, the regulation of the Debit MasterCard system had the potential to provide consistent treatment of debit card systems in Australia, including ensuring that obligations applied in a standard in a debit card system would also apply to participants of the system. The designation of the American Express companion card system reflected the Board's conclusion that the issuer fees and other

incentive payments that are made in companion card arrangements are, in most respects, equivalent to interchange and other incentive payments in traditional four-party schemes, and therefore consultation on equivalent regulation was warranted.

Conclusions of the review

The key issues for the review fell into three broad, but interrelated, categories. The first were efficiency issues related to interchange fees and the transparency of card payments. In particular, the review considered: whether interchange fee caps were inefficiently high; the implications of the widening of the range of interchange fees for the transparency of payment costs to merchants; whether the coverage of the interchange benchmarks was appropriate; and whether compliance with the current benchmarks could be made more effective. Overall, the Board reaffirmed its long-held view that there is little justification for significant interchange fees in mature card systems. It concluded that there is an ongoing role for regulation in the cards market, in part because of the perverse way in which competition between card schemes can drive up costs in the payments system.

The key decisions taken by the Board in May regarding regulation of interchange fees were:

- The weighted-average interchange fee benchmark for debit cards will be reduced to 8 cents per transaction, and will apply jointly to debit and prepaid cards in each scheme.
- The weighted-average benchmark of 0.50 per cent for credit cards will be maintained.
- The weighted-average benchmarks will be supplemented by ceilings on individual interchange rates: 0.80 per cent for credit; and 15 cents, or 0.20 per cent if the interchange fee is specified in percentage terms, for debit and prepaid.
- To prevent interchange fees drifting upwards in the manner that they have previously, compliance with the benchmark will be observed quarterly, based on transactions in the preceding four quarters, rather than every three years.
- Commercial cards will continue to be included in the benchmark and will be subject to the same ceilings as other credit and debit cards.
- Transactions on foreign-issued cards acquired in Australia will for the present remain outside the benchmark, in light of commitments from schemes to ensure that the Bank's standards are not circumvented. The Board will take careful note of developments in this area.
- The new interchange benchmarks will take effect from 1 July 2017.

The second set of issues related to the application of regulation to some payment systems but not to others with similar characteristics. This had given rise to concerns that the regulatory framework was not fully competitively neutral and might be influencing market developments. A particular focus was on the American Express companion card system; issuance of companion cards had been growing faster than that of four-party schemes' cards and of traditional three-party cards over the preceding decade. The review considered whether interchange-like payments from the scheme to issuers under companion card arrangements should be regulated in the same way as interchange fees in standard four-party business models. The Board decided that they should. To prevent possible circumvention of the debit and credit card interchange standards the Board also introduced limits on any scheme payments to issuers that are not captured within the interchange benchmarks; these limits will apply to all designated card schemes.

The third set of issues related to surcharging. The Board reaffirmed its view that the right of merchants to surcharge for expensive payment methods is important for payments system efficiency and helps to hold down the cost of goods and services to consumers generally. However, the Board acknowledged that practices had emerged in some industries where surcharge levels on some transactions appeared to be well in excess of merchants' likely acceptance costs; the use of fixed-dollar surcharging in the airline industry was of particular concern. The Board also recognised that enforcement of the existing framework, which enabled schemes to limit surcharges to the reasonable cost of acceptance, had not been effective.

As noted, the government legislated to ban excessive surcharges on card payments in February, with the new law relying on the Board's surcharging standard to determine the level of a merchant's permitted surcharge. An important element of the improved enforceability of the new surcharging standard will be the new role for the ACCC in enforcing the ban on excessive surcharging.

The Board's key decisions regarding surcharging were:

- The Bank's standard now defines the 'permitted surcharge' on a card transaction in terms of the merchant's average cost of acceptance for each scheme.
- The breadth of costs included in the permitted surcharge is somewhat narrower than under the Bank's current guidance note.
- The average cost of acceptance is defined in percentage terms, implying that merchants will not be able to levy high fixed-amount surcharges on low-value transactions.
- Acquirers and payment facilitators will be required to provide merchants with easy-to-understand information on the

cost of acceptance for each scheme from 1 June 2017.

- The new framework for surcharging will take effect for large merchants on 1 September 2016 and on 1 September 2017 for other merchants.

Overall, the Board considers that its changes to the regulatory framework will improve competition and efficiency in the card payments market and in the broader payments system. The interchange reforms will reduce the dispersion in interchange fees across products, and are expected to benefit small merchants that do not qualify for strategic interchange rates. The quarterly requirement to observe the interchange benchmarks will ensure that average interchange fees do not drift well above benchmark levels over time. The regulation of fees paid by three-party schemes to issuers of companion cards is expected to improve competitive neutrality of interchange regulation. Instances of excessive surcharging are likely to be reduced by a stricter definition of payment costs and stronger enforcement by the ACCC.

Technology

The Bank monitors developments in technology relevant to the payments system. Staff periodically brief the Board on these developments and on implications for the safety and efficiency of the payments system and potential competition issues.

Digital currencies and distributed ledger technology

A notable development in recent years has been the emergence of digital currencies and distributed ledger technology more broadly.¹⁰

¹⁰ Distributed ledger technology and its potential application in the Australian market is also discussed in 'Supervision of Clearing and Settlement Facilities' and 'Regulatory Developments in Financial Market Infrastructures'.

The emergence of Bitcoin and its 'blockchain' as a means of maintaining a distributed database of ownership of a digital asset has generated considerable interest and investment in the technology, particularly in payments and other parts of the financial services industry. More recent focus in this area has been in relation to 'permissioned' blockchain implementations rather than the 'open-to-all' model of Bitcoin.

Essentially, a distributed ledger is a database that is not administered or controlled by a central party; instead, the ledger is replicated in real-time across many different nodes in a network. Cryptography is typically used to enable the participants in the network to agree on a single version of the ledger. A blockchain – an implementation of a distributed ledger – is made of blocks of information linked together in chronological order (a 'chain'). Each 'block' is the information set at a particular period of time. Changes to the information set are processed and verified through a peer-to-peer network that links each user with all other users. After being verified, a new block is added to the end of the chain, with cryptography used to ensure the integrity of the ledger. Among the potential benefits cited are the scope for the technology to lower transactions costs, the ability to shorten settlement times, the capacity to more efficiently and reliably manage digital identity, and the potential for automation of certain types of transactions (including via so-called 'smart contracts').

The Bank has liaised with a wide range of participants in the 'fintech' sector over the course of the year. These include companies focusing on Bitcoin and other alternative digital assets, as well as financial institutions that have been experimenting with the technology, and representatives of the various fintech hubs that provide facilities for small start-up companies.

The Bank has also engaged with other regulators interested in the technology, both informally and also through formal channels. Domestically, in December 2015, the CFR established a working group (with participants from all CFR agencies plus AUSTRAC) to consider the implications of distributed ledger technology for the financial system and regulation. Bank staff participated in the working group, which reported to the Council in June. The Bank is also an observer on the Australian Securities and Investments Commission's (ASIC) Digital Finance Advisory Committee (DFAC), which has members drawn from fintech firms, academia and consumer backgrounds. The DFAC aims to provide ASIC with feedback on its engagement with the fintech sector. As discussed in the chapter on 'Accountability and Communication', Bank staff also participate in international work on the topic, including the CPMI's Working Group on Digital Innovations and the FSB's Financial Innovation Network.

The final report of the FSI suggested that regulatory frameworks for the Bank and ASIC be clarified to ensure that they can accommodate new mediums of exchange, including digital currencies. The government's response undertook to ensure that ASIC and the Bank 'have the power to regulate new payment systems in a graduated way'. The Bank will work with ASIC and the Treasury to assess any changes that may be needed in this area.

In March 2016, the government announced its intention to introduce legislation to address the 'double taxation' of digital currency transactions in Australia. Currently, digital currency transactions are charged GST when the digital currency is purchased domestically, and again when it is used to purchase taxable goods and services. In early May 2016, Treasury released a discussion paper with options to address this.

The paper explores the implications of treating digital currencies as money for GST purposes, or, alternatively, as input taxed (as in the United Kingdom (UK) and European Union (EU)), and in line with the treatment of financial instruments such as securities and derivatives). Treasury considers that, in the majority of cases, the two options would deliver similar outcomes.

Tokenisation and mobile wallet developments

Tokenisation is the process of anonymising data; replacing sensitive information with a substitute value containing randomly generated elements – a ‘token’. In the payments context, tokenisation primarily refers to replacing a cardholder’s primary account number (or PAN) where details are held either ‘on file’ by a merchant or on a device, such as a mobile phone. When tokenisation is used, fewer parties in the payment process have access to the cardholder’s details. If, for example, cardholders’ details are not available in merchants’ systems, the data held by merchants are rendered unusable by fraudsters and the potential financial impact of a data breach or unintended disclosure is reduced.

Tokenisation is used to facilitate payment options in the mobile payments space. Mobile payment applications such as Apple Pay, Samsung Pay and Android Pay have all recently been launched in the Australian market. All of these applications rely on tokenisation and any scheme that wishes to be a payment option on a mobile payment application must have an accessible tokenisation solution – from a Token Service Provider (TSP) – in place. The international card schemes have established or are establishing their own TSPs, and ePAL announced in July 2016 that it had established a domestic TSP.

Over 2015/16 there were a number of announcements regarding mobile wallets. Initially launched in the United States (US) in

October 2014 and subsequently released in other markets, including the UK, Canada, China, and Singapore, Apple Pay was launched in Australia in November 2015 for proprietary American Express cards and in April 2016 for ANZ-issued American Express companion cards and Visa cards. In June 2016, Samsung Pay launched its mobile wallet application in Australia, in partnership with American Express and Citibank. Android Pay announced early in December that it had partnered with a range of financial institutions to launch in Australia in 2016, and in July launched with ANZ, American Express, Macquarie and a wide range of credit unions and mutual banks using service provider Cuscal.

The Board notes that innovation in mobile wallets can provide benefits in terms of consumer choice and convenience, with cardholders potentially able to consolidate a range of payment cards into a single ‘app’ on their mobile device. It is also cognisant of the potential for competition issues to arise as new and existing players seek a competitive advantage in new methods for customers to access their accounts. Accordingly, the Board will continue to monitor developments in this area.

Operational Incidents in Retail Payment Systems

In November 2012, the Bank published a report setting out the Board’s conclusions from an informal consultation on operational incidents in retail payment systems. The report concluded that, at least for the time being, the Bank’s role should be limited to monitoring retail operational incidents and collecting related data. In support of this role, the Bank collects information from Exchange Settlement Account (ESA) holders on significant operational retail payment systems incidents as well as other incidents resulting in less severe disruptions to participants’ retail payment systems.

Over 2015/16, the Board was kept informed of trends in the occurrence of retail payments incidents along with any significant incidents, both within and between institutions. There was an increase in the number of significant incidents in 2015/16 compared with 2014/15, though the total duration of incidents fell in the year. A large proportion of significant incidents over the past year were caused by software/application failures. Changes and upgrades to existing systems also caused a number of significant incidents. As was the case in previous years, online banking and card services were the channels most affected by such incidents. In recent quarters, disruptions have been increasingly reported to mobile banking and other new payment channels, such as mobile payments, tablet banking and cardless ATM withdrawal services.

Since reporting began, the Bank has provided aggregate statistics to APCA for review by the APCA Board. The Bank and APCA have continued to be in discussion about how aggregate information could be made available to industry participants for the purpose of benchmarking.

International Developments

Over the past 12 months, a number of jurisdictions adopted and applied regulations focused on improving the efficiency, competitiveness and security of payments systems. The trend towards faster payments systems continued to gain momentum, while central banks and regulators showed an increasing interest in digital currencies and the technology that underpins them.

Card interchange fees

The EU's Interchange Fee Regulation (IFR) came into force this year, with interchange fee caps and some business rules coming into effect in December. Generally, a 0.3 per cent cap applies

to domestic and intra-European credit card transactions, and a 0.2 per cent cap applies to debit card transactions. However, member states may set lower per-transaction caps for domestic credit and debit card transactions, and may choose to apply a fixed per-transaction cap, or a weighted average cap, to domestic debit card transactions. In addition, member states may exempt three-party schemes with licensing or co-branding arrangements from fee caps, subject to a market share condition. For instance, the UK Government has provided schemes with the option to apply a weighted average fee of 0.2 per cent to domestic debit card transactions, and has chosen to exercise the temporary exemption for three-party schemes with licensing or co-branding arrangements; the only scheme that was eligible for this exemption did not satisfy the market share condition. In June, the remaining IFR provisions came into force; these include regulations relating to card identification at the point of sale, co-branded cards, the 'honour all cards' rule and the separation of card schemes and processing entities.

The setting of interchange fees in many jurisdictions remains subject to legal actions by merchants or competition authorities. In June, a federal appeals court in the US rejected the 2013 settlement between MasterCard, Visa and a number of card-issuing banks, and US merchants. The lawsuit concerns alleged collusion in the setting of interchange fees by the card schemes and issuing banks. The court noted a conflict between the two classes of merchants defined in the settlement terms; some merchants wanted to maximise their payout, while others wished to place restraints on network rules. The case will now return to a lower court. The European Commission has actions outstanding against MasterCard and Visa in relation to their setting of interchange fees on inter-regional transactions (i.e. transactions involving a European bank and

a bank outside the EU). In the UK, a number of retailers have outstanding claims against MasterCard and Visa for anti-competitive practices and setting excessive interchange fees, with a July decision by the Competition Appeal Tribunal finding in favour of Sainsbury's and ordering MasterCard to pay £69 million in damages, plus interest.

Other regulatory developments

The EU's revised Directive on Payment Services (PSD2) came into effect in January. Member states have two years to transpose the directive's provisions into national law. The original directive sought to harmonise payment services regulations across member states, and to enhance competition by opening the EU payments market to non-banks. PSD2 extends the scope of the original directive to encompass third-party providers, such as 'payment initiation services' that facilitate payments between consumer and merchant accounts. Under PSD2, member states must ensure that third-party providers are given access to information from a customer's bank account, such as the availability of funds, if the customer provides consent. More broadly, these providers now fall under the same regulatory framework as other payment institutions, and are subject to authorisation and regulation by competent authorities in member states. The revised directive also extends information and transparency obligations under the original directive to payments that are made between member states and countries outside the EU, introduces new security requirements to protect consumers against fraud and bans card surcharging on transactions where IFR interchange fee caps apply.

In the UK, the Payment Systems Regulator (PSR) published a report on the competitiveness of the country's payments system infrastructure. The report noted that the same group of banks

owned both the UK's major interbank payments systems, and the infrastructure provider that services these systems. The PSR found that these ownership arrangements limited innovation and competition, and proposed that the banks sell their stake in the infrastructure provider. The PSR also published a report that identified a number of concerns around indirect access arrangements. Subsequently, the Bank of England announced that it intended to provide non-bank payment service providers with direct access to its RTGS system.

Payments innovation

Progress continues to be made towards real-time payments in a number of jurisdictions. In the US, the Federal Reserve approved changes to its automated clearing house service, which will allow it to facilitate same-day payments. In addition, several payments industry participants announced that they had submitted real-time payments proposals to the Federal Reserve-sponsored Faster Payments Taskforce. In Europe, the European Payments Council launched a consultation on the technical and business rules for the Single Euro Payments Area (SEPA) Instant Credit Transfer scheme. In its current form, the scheme will facilitate instant transfers between SEPA countries of up to €15 000; it is set to launch in late 2017.

India's national mobile payments platform, the Unified Payments Interface, was formally launched in April. The platform is designed to leverage the high rate of mobile phone adoption in India; it facilitates 'push' and 'pull' transactions using a phone number, national identification number or virtual payment address.

Digital currencies

A number of central banks indicated that they were examining the conceptual benefits of digital currencies. The Bank of England and Bank

of Canada have included central bank-issued digital currencies on their research agendas, while staff from De Nederlandsche Bank have developed and undertaken internal tests on a prototype digital currency.

Governments and regulators continue to monitor digital currencies and the distributed ledger technology that underpins them. In the US, the Commodity Futures Trading Commission (CFTC) defined Bitcoin and other virtual currencies as commodities. As a result, businesses that offer derivatives linked to the underlying Bitcoin price are required to comply with commodity exchange regulations enforced by the CFTC. In Japan, the parliament approved a law that will require digital currency exchanges to register

with the country's financial regulator; the law is intended to address money laundering concerns, while also improving user protections.

Similarly, as part of a package of amendments to the Anti-Money Laundering Directive (AML), the European Commission announced measures intended to reduce the anonymity associated with digital currency transactions. The proposed amendments would extend the provisions of the AML to include digital currency exchanges, bringing them under the supervision of national anti-money laundering and counter-terrorist financing legislation. The European Commission will also consider whether digital currency exchanges should be subject to licensing and supervision rules.

Outcomes from the Strategic Review of Innovation

The Payments System Board continues to take an active interest in innovation in the payments system and industry governance. The past year has seen considerable progress towards the scheduled 2017 launch of the New Payments Platform, the infrastructure to support fast payments in Australia, as well as the release of the Australian Payments Plan by the Australian Payments Council.

New Payments Platform

In 2012 the Board released the conclusions from its Strategic Review of Innovation in the Payments System, including an initial set of strategic objectives for the payments industry. The objectives included the ability to: make and receive real-time retail payments; make and receive payments outside normal banking hours; send more explanatory information with a payment; and send payments without having to use full Bank State Branch (BSB) and account number details. Responding to the Board's objectives, an industry-coordinated committee proposed a purpose-built payments infrastructure, the NPP.

Development of the NPP is progressing well and the Board of NPP Australia Limited (NPPA) remains committed to launching the NPP in late 2017. Work is underway to establish a corporate structure for NPPA and a CEO has recently been appointed. In May 2016 a new participant joined the project, bringing the number of financial institutions committed to funding the building and operation of the NPP to thirteen.

The platform over which NPP payments will be sent, the Basic Infrastructure (BI), is being designed and built by SWIFT. Over the past year the project

has progressed from the design phase to the 'build and internal test' phase. BPAY was appointed to develop the first overlay service to use the NPP. This service will enable participants to offer their customers person-to-person mobile payments with funds available almost immediately to the recipient even if the two parties are not customers of the same institution. Over time, other overlay services will be developed to facilitate a variety of payment types. To facilitate the settlement of NPP payments individually in real time, the NPP will connect to a Fast Settlement Service (FSS). The FSS is being built by the Bank and is also progressing to timetable. A significant milestone was recently achieved with the implementation of SWIFT infrastructure at participants' sites and the first basic test payments being made, including through the FSS.

The Board welcomes the significant progress to date and recognises the commitment of participants to allocate resources to the program. Industry's continued collaboration and commitment will be vital if it is to deliver this new payments infrastructure on time.

Australian Payments Council

In line with another recommendation of the Strategic Review, the Australian Payments Council

was established in 2014 to enhance industry coordination in dealing with the cooperative issues that arise in the payments system and to represent the industry directly in discussions with the Payments System Board. The council draws members from a broad community of payments organisations including financial institutions, card schemes, retail acquirers and other payment service providers, as well as APCA and the Reserve Bank (in its role as provider of banking services to the government).

In conjunction with the establishment of the council, a Payments Community was established to ensure the free flow of information between the council and the broader industry. Membership of the Payments Community is open to any organisation with a significant interest in the Australian payments system; at the end of June, 37 organisations had joined the Payments Community.¹¹

The council met with the Board for the first in time in August 2015. At that meeting, a Memorandum of Understanding (MoU) was signed, setting out a framework for engagement between the two bodies with the aim of promoting an efficient, stable and competitive payments system in Australia that is responsive to changing community needs.¹² The Board looks forward to a productive relationship with the council in the years to come.

The first major piece of work undertaken by the council was the release of the Australian Payments Plan in December 2015.¹³ The plan seeks to provide strategic direction on the desirable characteristics, trends and systemic challenges for the Australian payments system over the long term. The plan notes that the Australian payments industry is well positioned

to embrace a rapidly changing payments environment, including the shift from paper payments to electronic payments, the adoption of new technologies, such as contactless cards, and the growth in online payments. However, three areas were identified as warranting further industry initiatives or collaboration: digital identity management and cyber security; managing Australia's payments mix as digital payments become more prevalent; and enabling the next wave of technology innovation. The plan identifies a number of high-level initiatives to address these areas that will inform the council's work agenda over the coming years.

The Payments Council has undertaken to publish an annual report that details the status of the plan and progress made towards the established initiatives. Additionally, the council will undertake a triennial review of the plan to ensure it remains fit for purpose.

Payments Consultation Group

The Bank established the Payments Consultation Group in December 2014, with the aim of providing a more structured mechanism for users of the payments system (consumers, merchants, businesses and government agencies) to express their views on payments system issues as an input to the payments policy formulation process. The Payments Consultation Group helps to ensure that the Board is well informed of end user needs and views in its interactions with the council and in its other policy work.

The group met once in 2015/16. In addition, group members provided substantial input to work undertaken by the Bank to better understand trends and patterns of cheque usage by end users of the payments system.¹⁴ The Board appreciates the willingness of participants to engage in this process.

¹¹ Membership of the Payments Community is available at <<http://australianpaymentscouncil.com.au/payments-community/>>.

¹² The MoU is available at <<http://www.rba.gov.au/payments-and-infrastructure/payments-system-regulation/pdf/memorandum-2015-08-21.pdf>>.

¹³ Available at <<http://australianpaymentscouncil.com.au/wp-content/uploads/2015/12/Australian-Payments-Plan-December-2015.pdf>>.

¹⁴ Refer to Richards T (2016), 'The Ongoing Evolution of the Australian Payments System', Speech at the Payments Innovation 2016 Conference, Sydney, 23 February.

Oversight of High-value Payment Systems

The Payments System Board oversees Australia's systemically important payment systems, notably Australia's real-time gross settlement system, the Reserve Bank Information and Transfer System.

An important part of the Board's responsibility for the safety and stability of payment systems in Australia is the oversight of systemically important payment systems.

To date, two payment systems have been identified by the Bank as systemically important: the Reserve Bank Information and Transfer System (RITS) and CLS Bank International (CLS). Together, these systems account for the majority of payments settled by value (Table 6).

The Bank has also identified SWIFT as a provider of critical services to both RITS and CLS, since both systems depend on SWIFT's communications platform and other services to process payments and exchange information with their participants. SWIFT also provides critical services to other FMIs and many other entities in the financial system.

Table 6: Australian Dollar Payments
Gross daily averages, \$ billion^(a)

	2012/13	2013/14	2014/15	2015/16
Domestic				
RITS	157.8	162.7	167.8	167.2
<i>SWIFT payments (HVCS)</i>	<i>97.1</i>	<i>100.5</i>	<i>103.8</i>	<i>100.7</i>
<i>Debt settlements (Austraclear)^(b)</i>	<i>48.5</i>	<i>50.3</i>	<i>52.0</i>	<i>54.8</i>
<i>RITS cash transfers</i>	<i>12.3</i>	<i>11.9</i>	<i>12.0</i>	<i>11.7</i>
Retail payment systems ^(c)	59.7	61.8	62.3	63.8
Equity settlements ^(d)	4.2	4.0	4.4	4.6
Property settlements (PEXA) ^(e)			0.03	0.12
International				
CLS	251.7	246.2	260.6	257.2

(a) Business days; includes payments between customers of the same financial institution

(b) Excludes intraday and open RBA repurchase agreements, and multilaterally netted interbank settlements arising from the retail payment systems and the equity market

(c) Data may be subject to revisions

(d) Gross value of equity trades

(e) Net double-sided value; 2014/15 value includes data from November 2014 to June 2015

Sources: ASX; CLS; RBA

Reserve Bank Information and Transfer System

RITS is primarily an RTGS system, which settles transactions on an individual basis in real time across ESAs held at the Bank.¹⁵ RITS is owned and operated by the Bank.

Day-to-day operations, liaison with participants, and the ongoing development of RITS are the responsibility of the Bank's Payments Settlements Department. Oversight of RITS is the responsibility of the Bank's Payments Policy Department, within the policy framework for which the Payments System Board has responsibility.

Assessment against international standards

A key part of the Board's oversight of RITS is the annual assessment of RITS against international standards. The relevant standards are the PFMLs, developed by CPMI and the International Organization of Securities Commissions (IOSCO).

The Bank's 2015 assessment of RITS was endorsed by the Board and published in November 2015. The Bank concluded that RITS had fully observed all of the relevant principles.¹⁶ The assessment noted a number of developments that had occurred since the previous assessment published in December 2014. These included:

- the continued development of a revised version of the RITS Regulations (the rules that govern RITS members' participation in RITS) with a view to improving their clarity
- the initiation of two projects to assess RITS's operational resilience, with respect

to the adequacy of mechanisms for the prevention of a cyber-related incident and its plans to detect and recover from a wide range of operational incidents (including a cyber attack)

- the collection of more detailed information on asset-backed securities to enhance the Bank's risk management when providing cash under repurchase agreements (repos) against those assets.

Consistent with the Bank's ongoing effort to ensure that the operation of RITS will continue to meet international best practice in the future, the 2015 assessment made recommendations in the areas of legal basis and operational risk. In particular, the recommendations reiterated that the Bank should continue to work towards implementation of new RITS Regulations and encouraged the Bank to complete its ongoing projects to assess RITS's operational resilience. The Bank was further encouraged to review its cyber risk management arrangements for RITS in light of forthcoming CPMI-IOSCO guidance in cyber resilience for FIMs, which was published in June 2016.

Fast Settlement Service

The FSS is being developed by the Bank to facilitate the final and irrevocable settlement of each individual payment arising in the NPP, 24 hours a day, seven days a week.

The FSS will be a RITS service, owned and operated by the Bank. Accordingly, direct users of the FSS will be RITS participants bound by the RITS Regulations. Although the FSS will rely on part of the existing RITS infrastructure, the systems are expected to operate on separate technological platforms. This will allow the RITS core settlement service and the FSS to process and settle payments independently of one another.

¹⁵ The Board has responsibility for the Bank's policy on access to ESAs. This policy is available at <http://www.rba.gov.au/payments-and-infrastructure/esa/>.

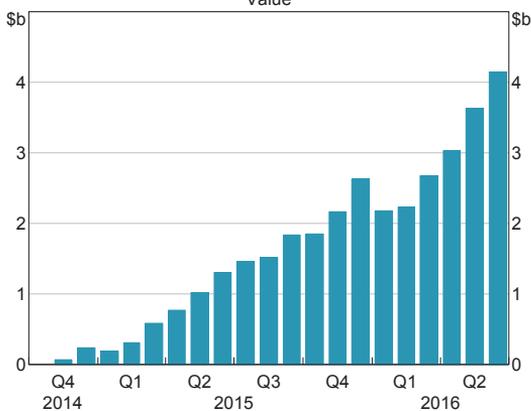
¹⁶ The 2015 Assessment of the Reserve Bank Information and Transfer System is available at <http://www.rba.gov.au/payments-and-infrastructure/rits/self-assessments/>.

The FSS is expected to be completed in 2017. Once the FSS is launched it is the Bank’s intention that, to the extent that the FSS provides critical services, it would be assessed against the PFMI as part of the annual assessment of RITS.

Property settlements

Property settlement functionality was introduced in RITS in November 2014 to support PEXA’s national electronic conveyancing system. Using this functionality, PEXA can submit linked property transactions for settlement as individual multilateral net batches. The settlement of each batch is independent of other property settlement batches. Where there is interdependence between batches (e.g. if there is a chain of property settlements), PEXA manages the order and timing of these property settlements accordingly. The volume and value of property batches settling in RITS has grown quickly since its introduction (Graph 9), though they remain a very small proportion of overall activity in RITS.

Graph 9
PEXA Property Settlement*
Value



* Net double-sided value
Source: RBA

CLS Bank International

CLS is an international payment system that links the settlement of the two legs of a foreign exchange transaction. By operating such a payment-versus-payment settlement mechanism, CLS allows participants to mitigate foreign exchange settlement risk – the risk that one counterparty to a transaction settles its obligation in one currency, but the other counterparty does not settle its obligation in the other currency. CLS currently settles 18 currencies.

CLS is regulated, supervised and overseen by the US Federal Reserve, in cooperation with an Oversight Committee that includes the Reserve Bank and the other central banks that issue CLS-settled currencies. Through this forum, the Bank contributes to the assessment of the ongoing adequacy and robustness of CLS’s risk controls. The Bank also uses this forum to oversee how well CLS meets relevant international standards. The Board is updated periodically on material developments.

The Oversight Committee has monitored closely a number of developments in the design, operation and activities of CLS during 2015/16. CLS has continued to make progress in expanding its service offerings. In particular, CLS successfully added the Hungarian forint to its list of settled currencies and launched its cross-currency swaps service in November 2015. In partnership with TriOptima, CLS launched a compression service for foreign exchange (FX) forward transactions and completed the first compression run in October 2015. CLS has also been developing a CCP settlement service and is seeking to introduce additional membership models to grow participation in CLS and further mitigate settlement risk in the FX market.

SWIFT

While SWIFT is not a payment system, it provides critical communications services to both RITS and CLS, as well as other FMs and market participants in Australia and overseas. Consequently, the Bank participates in international cooperative arrangements that facilitate oversight of SWIFT.

SWIFT is primarily overseen by the SWIFT Oversight Group (OG), of which the G10 central banks are members. Since SWIFT is incorporated in Belgium, the OG is chaired by the National Bank of Belgium (NBB). The Reserve Bank is a member of the SWIFT Oversight Forum, a separate group established to support information sharing and dialogue on oversight matters among a broader set of central banks. The SWIFT Oversight Forum gives these central banks an opportunity to input into the OG's oversight priorities. Oversight of SWIFT is supported by a set of standards – the High-level Expectations – which are consistent with standards for critical service providers in the PFMs.

During 2015/16, cyber resilience has remained an important focus of SWIFT and its overseers. During the first half of 2016, there were a number of reports of cyber attacks targeting participants

of SWIFT's financial messaging network. The most prominent of these was the attack against Bangladesh Bank, which resulted in the theft of more than US\$80 million. SWIFT confirmed that these attacks did not compromise SWIFT's network, software or core messaging services, but rather targeted vulnerabilities in users' local environments. In its communications to users, SWIFT noted the sophistication of the reported attacks and identified some shared features. For instance, in each case, the attackers have hidden traces of their actions, delaying detection of the fraud. In response to these events, SWIFT is taking action to enhance the resilience of its wider ecosystem. In particular, SWIFT has launched a customer security program. This program aims, among other things, to improve information sharing on threats and emerging best security practices, as well as to enhance security guidelines and provide audit frameworks for users of the SWIFT network.

SWIFT has also continued progress on its global payments innovation initiative, which establishes new protocols for cross-border payments in correspondent banking. SWIFT is targeting go-live in the first quarter of 2017 for all participating banks, including two Australian banks.

Supervision of Clearing and Settlement Facilities

The Reserve Bank holds powers related to the supervision and oversight of clearing and settlement facilities and sets regulatory priorities for each facility. Currently, four domestic clearing and settlement facility licensees and two offshore licensees are required to meet Financial Stability Standards set by the Bank.

Overview

The Corporations Act assigns to the Bank a number of powers and functions related to the supervision and oversight of CS facilities. Under the Reserve Bank Act, the Payments System Board is responsible for ensuring that these powers and functions are exercised in a way that will best contribute to the overall stability of the financial system.

Under the Corporations Act, CS facility licensees that operate in Australia are required to comply with the Financial Stability Standards (the Standards) set by the Bank and to do all other things necessary to reduce systemic risk.

Four domestic CS facility licensees, all part of ASX Group, and two offshore licensees are currently required to meet the Standards:¹⁷

- ASX Clear Pty Limited (ASX Clear) provides CCP services for ASX-quoted cash equities, debt products and warrants traded on the Australian Securities Exchange (ASX) and Chi-X Australia (Chi-X) markets, equity-related

derivatives traded on the ASX market and Chi-X-quoted warrants traded on Chi-X.

- ASX Clear (Futures) Pty Limited (ASX Clear (Futures)) provides CCP services for futures and options on interest rate, equity, energy and commodity products, as well as Australian dollar (AUD) denominated OTC interest rate derivatives (IRD).
- ASX Settlement Pty Limited (ASX Settlement) provides securities settlement facility (SSF) services for ASX-quoted cash equities, debt products and warrants traded on the ASX and Chi-X markets; ASX Settlement also provides SSF services for non-ASX listed securities quoted on the National Stock Exchange of Australia, SIM Venture Securities Exchange Limited and the Sydney Stock Exchange Limited.
- Austraclear Limited (Austraclear) provides SSF services for trades in debt securities, including government bonds and repurchase agreements.
- LCH.Clearnet Limited (LCH.C Ltd) provides CCP services for OTC IRD and is licensed to clear trades executed on the Financial and Energy Exchange derivatives market when this becomes operational.

¹⁷ In addition, IMB Limited, a building society, operates a market for trading in its own shares by its member, and an associated securities settlement facility (SSF) to settle these trades. IMB Limited's SSF is currently exempt from the Financial Stability Standards owing to its small size.

- Chicago Mercantile Exchange Inc. (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 with OTC IRD.

While supervision and oversight is ongoing throughout the year, the Bank also carries out and publishes formal assessments of CS facility licensees' compliance with the Standards. Under the Bank's policy on the *Frequency and Scope of Regulatory Assessments of Licensed Clearing and Settlement Facilities*, the frequency and scope of assessments is determined with reference to the systemic importance of a CS facility to the Australian financial system and the strength of a CS facility's domestic connection. In accordance with this policy, the Bank has committed to conducting detailed annual assessments of the ASX CS facilities and LCH.C Ltd's SwapClear service; based on its current activity, assessments of CME will focus only on progress against the Bank's regulatory priorities. The Bank's assessments establish recommendations and regulatory priorities for each CS facility. During the year, Bank staff have monitored each CS facility's progress towards meeting these priorities, reporting quarterly to the Bank's FMI Oversight Committee and, as appropriate, the Board.

This chapter summarises the Bank's 2015/16 regulatory priorities for each facility. The chapter also summarises activity since mid 2015 for all six CS facilities, as well as other material developments, including each facility's progress towards meeting the stated regulatory priorities.¹⁸

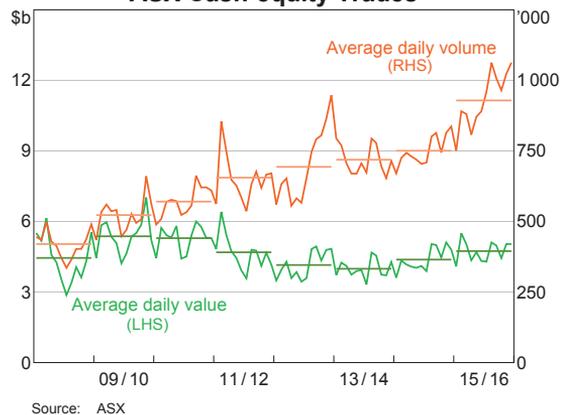
¹⁸ Further detail can be found in the Bank's published assessments of the ASX facilities, the LCH.C Ltd SwapClear facility and CME, available at <<http://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/assessments.html>>.

Domestic Clearing and Settlement Facilities

Activity in the domestic CS facilities

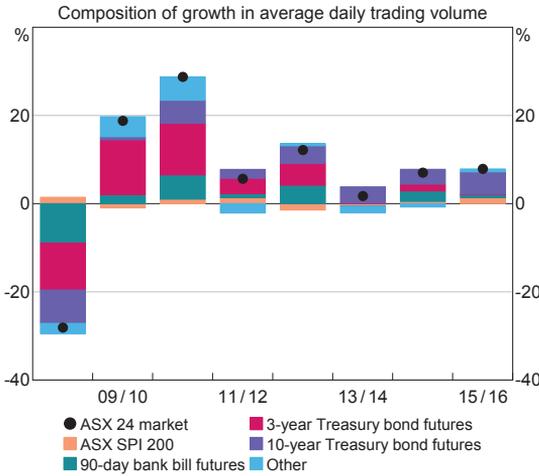
Activity in the ASX CS facilities increased for the most part. The average daily volume of cash equity trades increased by 24 per cent in 2015/16; average daily value also increased by 8 per cent (Graph 10). By contrast, the average daily number of equity options contracts traded on the ASX market declined significantly in 2015/16, falling by 16 per cent. Average daily trading volume on the ASX 24 market increased by 8 per cent in 2015/16, to around 530 000 trades per day (Graph 11). This was driven by strong growth in the average turnover of 10-year Treasury bond futures, which increased by 22 per cent. Increases in the average turnover of SPI 200 equity index futures and 90-day bank bill futures of 17 per cent and 3 per cent, respectively, also contributed to overall growth. The notional value outstanding of OTC IRD positions increased significantly, to \$1 600 billion at the end of June 2016, from \$441 billion at the end of the previous period.

Graph 10
ASX Cash-equity Trades



Volatility in markets cleared by the ASX CCPs was mixed over 2015/16. Average volatility in equity prices, as measured by the average of absolute daily percentage changes in the S&P ASX All

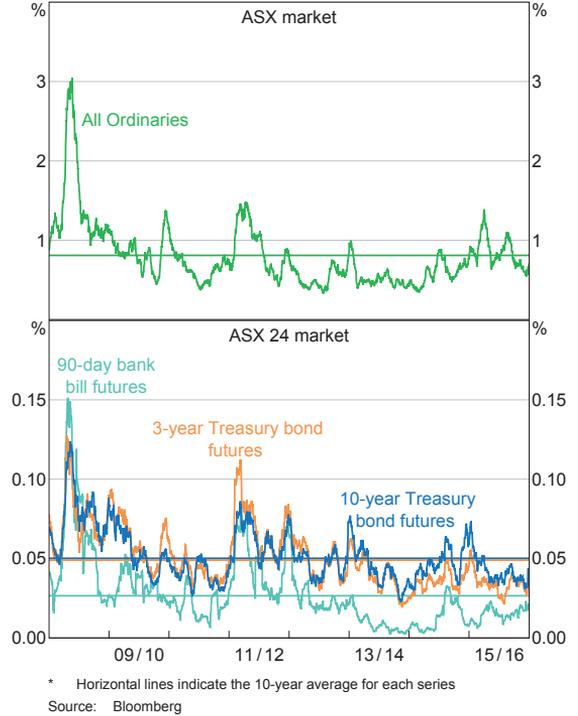
Graph 11
ASX 24 Derivatives Trades



Ordinaries Index, increased by 0.3 percentage points to be above the 10-year average of 0.8 per cent (Graph 12, top panel). This primarily reflected three periods of heightened volatility: in August and September 2015; January and February 2016; and late June 2016. Higher volatility in the first two periods was mainly due to a combination of falling commodity prices and concerns about China’s economy, while volatility in the more recent period was driven by the UK referendum on EU membership. By contrast, average volatility in the prices of IRD contracts edged down in 2015/16 compared with the period before (Graph 12, bottom panel). Volatility remained around or below the 10-year average for most of the period, except for spikes in early July 2015, which were associated with the developments in Greece and the Chinese equity market.

Reflecting the higher average volatility, margin rates in the cash equities market and equity-related derivatives (including the SPI 200 equity index futures contract) were generally higher during the assessment period. Despite lower volatility in the interest rate futures market, average margin rates in these contracts were

Graph 12
Volatility in Markets Cleared by ASX CCPs
30-day moving average of absolute per cent change*

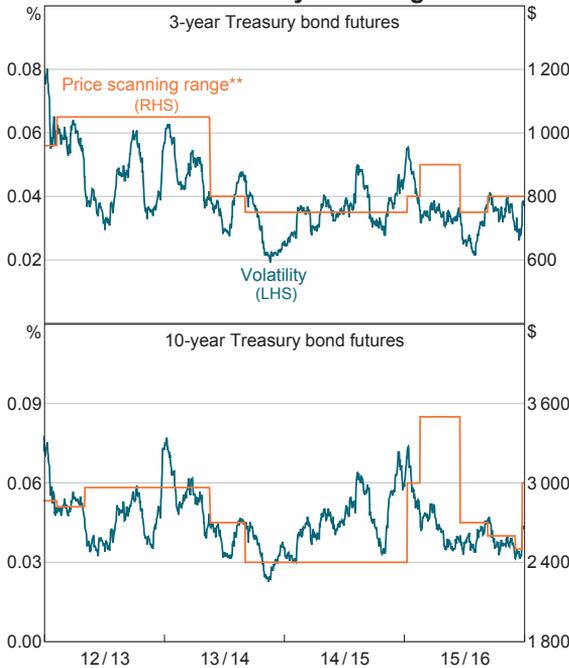


slightly higher during 2015/16; having risen in mid 2015, margin rates remained elevated during the second half of 2015, even as volatility declined (Graph 13). With volatility remaining low and relatively stable for much of the period, margin rates were lowered gradually. Only at the end of June, as uncertainty rose following the UK referendum on EU membership, did ASX increase margin rates once more.

Margin held by the CCPs against their financial exposures generally rose over 2015/16. Average daily margin held by ASX Clear against equity derivatives was 11 per cent higher in 2015/16. This increase was due to higher margin rates, but was partly offset by lower open interest. By contrast, average daily initial margin held by ASX Clear against unsettled cash equity transactions in 2015/16 was little changed from the previous year despite the increase in trading activity and

Graph 13

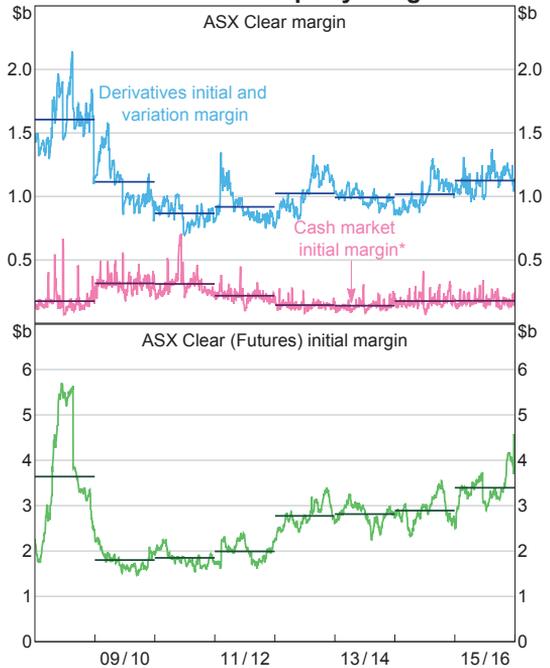
Futures Price Volatility and Margin Rates*



* Volatility measured as 30-day moving average of absolute per cent change
 ** Price scanning range is a key input parameter for margin rates
 Sources: ASX; Bloomberg

Graph 14

Central Counterparty Margin



* Notional amount until 7 June 2013; Real Risk methodology used until 18 July 2012, Cash Market Margining used thereafter
 Source: ASX

higher volatility (Graph 14, top panel). This is partly explained by the transition to a shorter settlement cycle in March 2016; the average daily initial margin held after the transition was 4 per cent lower than in 2014/15. Average daily initial margin held by ASX Clear (Futures) rose by 17 per cent in 2015/16 (Graph 14, bottom panel). This reflected increases in average margin rates across three of the four major futures contracts, as well as an increase in participants' open positions in the same contracts.

The daily average value of cash equity settlements in ASX Settlement increased by 6 per cent in 2015/16 to \$9 billion.¹⁹ The average daily value of debt securities settled in Austraclear

increased by 7 per cent, to \$43 billion. This includes the value of securities under repurchase agreements (other than intraday repurchase agreements with the Bank).

2014/15 Assessment of ASX CS Facilities

In August 2015, the Board approved the publication of the Bank's 2014/15 assessment of the four licensed ASX CS facilities.²⁰ This assessment, published in September 2015, concluded that all four ASX facilities either observed or broadly observed the relevant standards in the assessment period. The assessment identified a number of recommended actions and noted other matters that the Bank would follow up with ASX.

19 This increase was consistent with the increase in trading activity, although trends in net settlement values can deviate from trends in gross trading values, since the latter do not include non-market transactions and netting efficiency can change over time.

20 The Bank's 2014/15 Assessment of the ASX CS Facilities is available at <<http://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/assessments/2014-2015/index.html>>.

Together, these formed the Bank's regulatory priorities for the 2015/16 assessment period. The key priorities and steps taken by ASX to address these are set out below, together with other material developments discussed in the Bank's 2015/16 assessment of the ASX CS facilities, which was approved by the Board in August and published in September 2016.²¹

Recovery and replenishment

The Bank's 2014/15 assessment recommended that ASX carry out further work to enhance arrangements for the replenishment of the CCPs' financial resources in the event that these were drawn down following a participant default. Following market consultation, ASX implemented enhancements to these arrangements in June 2016. The enhancements aim to provide for the CCPs to promptly return to full financial cover following a participant default while also mitigating the potential for procyclicality. The Bank has also considered the reliability of ASX's arrangements to fund its replenishment obligations in stressed circumstances.

The 2014/15 assessment also recommended that ASX update the documentation of its recovery plan. This update was completed in August and reflects the expanded set of recovery tools introduced in October 2015, as well as the new replenishment arrangements and recapitalisation plans. As part of this update, ASX has developed some information management tools to support decision-making in a recovery scenario. ASX has also integrated the testing and review of the recovery plan into its broader framework for testing and review of risk and default management policies and processes. The first test of ASX's enhanced recovery arrangements

took place in June 2016, in the context of ASX's default management fire drill for exchange-traded products.

The recovery plan identifies scenarios that could threaten the ASX CS facilities' ongoing provision of critical clearing services, describes events that would trigger the activation of the recovery plan, and sets out how ASX would respond to such scenarios. It also describes the suite of tools available to the CS facilities in recovery and covers the governance arrangements both for the use of these tools and for review of the recovery planning framework.

Follow-up actions from BBY Limited default

A key area of focus in the 2014/15 assessment was the default of BBY Limited (BBY) – an ASX Clear, ASX Settlement and Austraclear participant – with a particular emphasis on the default management actions taken by ASX Clear. In line with the Bank's 2014/15 recommendations, ASX has set out a plan for implementing a number of enhancements to its risk and default management arrangements. This plan includes:

- changes to ASX Clear participants' core capital and liquidity risk management requirements
- a review of how the CCPs' margin and stress test models could better take into account liquidity, spread and concentration risks
- changes to improve portability arrangements and the close-out process
- education and communication initiatives, including updates to participant disclosures on ASX's default management arrangements.

ASX intends to implement the elements of the plan during 2016/17.

²¹ The Bank's 2015/16 Assessment of the ASX Clearing and Settlement Facilities is available at <<http://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/assessments/2015-2016/>>.

Default management

Prompted, in part, by the default of BBY, the Bank conducted a detailed assessment of the ASX CS facilities' default management arrangements against the relevant requirements in the Financial Stability Standards. Overall, the Bank assessed that all the CS facilities observed the standard on default management rules and procedures, and that ASX has a well-established framework for managing the default of a participant. The Bank has nevertheless made a number of recommendations outlining some additional steps the ASX CS facilities should take to fully meet expectations, particularly in relation to documentation and disclosure, as well as recommendations to enhance their approaches in the spirit of continuous improvement. Many of these recommendations are consistent with ASX's own plans to implement further enhancements to its default management framework.²²

Stress testing

Based on a 'deep dive' review of ASX's credit stress test framework, the 2014/15 assessment made several detailed recommendations in this area. Consistent with these recommendations, several enhancements have been made, including the addition of several 'for-information' scenarios that extend beyond ASX's interpretation of 'extreme but plausible'. These scenarios are used by ASX management alongside the results of reverse stress test analysis to challenge the sizing of the CCPs' financial resources. ASX has also modified the CCPs' stress test framework to incorporate peak intraday price changes, and has carried out additional sensitivity analysis on the assumed

shape of the yield curve in its stress test scenarios for ASX Clear (Futures). A few elements of the Bank's 2014/15 recommendations nevertheless remain outstanding. These are expected to be implemented in conjunction with enhancements to ASX's risk management system. In the meantime, ASX has put in place interim arrangements to partly address the outstanding recommendations.

Treasury investment policy

The Bank has engaged extensively with ASX in recent years to address the concern that the ASX CCPs' Treasury investment policy allowed relatively large and concentrated unsecured exposures to a small number of domestic banks. The 2014/15 assessment clarified the Bank's expectations for the credit and liquidity risk profile of ASX's Treasury investments, with an implementation date of end June 2017. In May 2016, ASX endorsed further changes to its Treasury investment policy for the 2016/17 financial year to meet the Bank's expectations. These changes build on changes to the policy over the past few years to decrease the concentration of its unsecured exposure to domestic banks.

Once the changes are implemented, individual unsecured exposures to non-government-related issuers or counterparties will be limited to the level of business risk capital held across the two CCPs (currently \$75 million). In the highly unlikely event that investment losses were incurred that exceeded this amount, ASX's enhanced recovery arrangements provide for the allocation of these losses to participants. In April 2016, ASX published guidance for participants on how to calculate their contingent exposure to the allocation of investment losses in excess of the CCPs' business risk capital.

²² The Bank's assessment and full set of recommendations is set out in Chapter 4 of the 2015/16 Assessment of ASX CS Facilities. Available at <<http://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/assessments/2015-2016/>>.

Cyber resilience

In light of the growing threat of cyber attacks, the Bank has made cyber resilience a key priority in its supervision of ASX's CS facilities, as well as other FMIs. Consistent with recommendations in its 2014/15 assessment, the Bank has continued a dialogue with ASX on cyber resilience matters during the assessment period, in collaboration with ASIC.

Separately, CPMI and IOSCO published guidance on cyber resilience for FMIs in late June (see 'Accountability and Communication'). While most aspects of the guidance apply with immediate effect, the guidance recognises that it may take time for FMIs to meet the expectation that they be able to recover critical operations within two hours following an extreme cyber attack. This guidance will form the basis for the Bank's future regulatory engagement with ASX in the area of cyber resilience.

Other material developments

In addition to matters arising from recommendations and priorities arising in the Bank's 2014/15 assessment, there were a number of additional material developments during the period.

Change in ASX CEO

On 21 March ASX announced that its managing director and chief executive officer (CEO), Elmer Funke Kupper, had resigned. ASX announced in August that a new managing director and CEO, Dominic Stevens, had been appointed. During the interim period, the ASX Chairman, Rick Holliday-Smith, provided oversight and board-level input to the Deputy CEO and Group General Counsel, who together had assumed the day-to-day running of the company. Under these interim arrangements, the Chairman did not have day-to-day responsibilities within ASX, but served as a point of contact for senior

external stakeholders, including regulators. Before the new CEO was appointed, the Bank discussed the effectiveness of the interim governance arrangements with the Chairman, including to understand how conflicts of interest are managed.

Risk management system renewal

ASX continued to progress its group-wide technology transformation project during the assessment period. This project aims to upgrade all of ASX's major trading and post-trading systems and rationalise its core technology onto a single services platform.

A particular area of focus for the Bank has been the planned enhancements to ASX's risk management systems. Initial phases of this project, completed in 2015/16, included enhancements to ASX's OTC derivatives default management capabilities and the development of functionality to optimise margin requirements for clearing participants with both OTC derivatives and futures positions.

ASX is working with its technology vendor to finalise the business requirements for a replacement risk management system that would deliver improved stress testing and margining capabilities, including the ability to calculate exposures and margin requirements in close to real time. Once these changes are implemented, the project will move on to enhancing and automating the CCPs' default management capabilities for exchange-traded products, creating a global view of all ASX exposures, and harmonising pre- and post-trade risk management capabilities.

Distributed ledger technology

Another important component of the technology transformation project is the replacement of the CHES clearing and settlement system. This replacement is an

important element of ensuring that ASX's core clearing and settlement infrastructure for cash equities meets international best practice, and that its performance, resilience, security and functionality continue to meet the needs of its users. ASX announced in January 2016 that it had selected a vendor, Digital Asset Holdings (DAH), to develop a potential CHES replacement based on a private 'permissioned' distributed ledger technology (DLT) system. As part of the partnership, ASX initially acquired a 5 per cent equity interest in DAH, increasing this to 8.5 per cent in June 2016.

Working with DAH, ASX has developed a working prototype of the DLT system. This prototype will be developed further over the coming 12–18 months, in consultation with stakeholders. ASX intends to make a final decision on whether to implement the replacement system towards the end of 2017. The Bank will continue to engage closely with ASX throughout the forthcoming period, also keeping the Board updated on developments.

Shorter settlement cycle for cash equities

On 7 March 2016, ASX successfully transitioned from a three-day to a two-day settlement cycle for cash equities. This was identified as a key priority by a forum of participants and other industry stakeholders in 2013/14, and mirrors similar developments in a number of overseas jurisdictions. ASX kept market participants engaged throughout the transition period, ensuring that the industry would be ready for the change. There have not been any material operational issues since the transition, and the proportion of equity transactions that has failed to settle has fallen below historical observations.

Alongside the changes in the Australian cash equities market, the Australian Financial Markets Association endorsed the transition from a three-day to a two-day settlement convention

for wholesale debt securities and NZX Limited similarly transitioned to a two-day cash equities settlement cycle. These changes also took effect on 7 March.

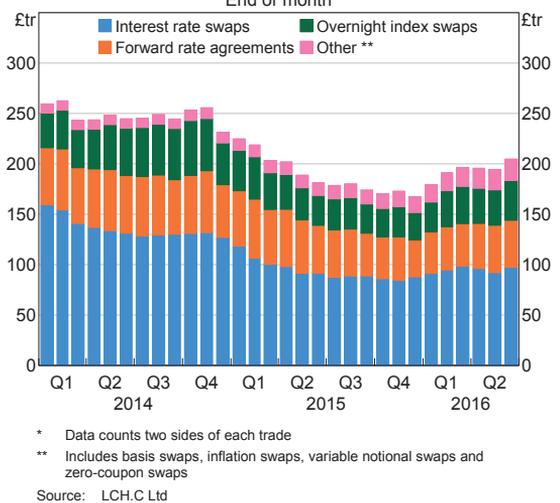
Overseas Licensed Clearing and Settlement Facilities

LCH.Clearnet Limited

Activity in LCH.Clearnet Limited

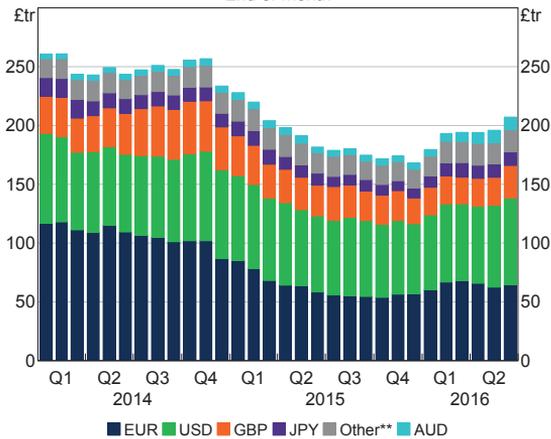
SwapClear clears seven types of IRD products with three accounting for 90 per cent of the notional value outstanding: interest rate swaps (IRS, 48 per cent), forward rate agreements (FRA, 23 per cent) and overnight index swaps (OIS, 19 per cent) (Graph 15).

Graph 15
SwapClear: Notional Value Outstanding, by Type (Stock)*
End of month



SwapClear clears products denominated in 17 currencies, with the vast majority of activity in a few major currencies (Graph 16). Of the notional value outstanding in SwapClear at end June 2016, around 31 per cent was denominated in euro (EUR), 36 per cent in US dollars (USD) and 13 per cent in pound sterling (GBP). Around 5 per cent was denominated in Australian dollars.

Graph 16
SwapClear: Notional Value Outstanding, by Currency (Stock)*
 End of month



* Data counts two sides of each trade
 ** Includes CAD, CHF, CZK, DKK, HKD, HUF, NOK, NZD, PLN, SEK, SGD, ZAR

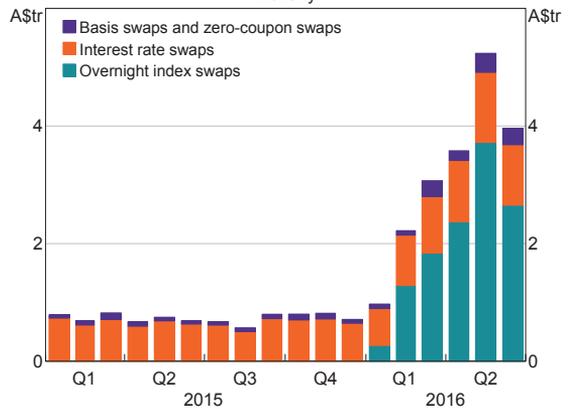
Source: LCH.C Ltd

The notional value outstanding at SwapClear at end June 2016 was around £200 trillion, up moderately from end June 2015 but down considerably since end June 2014. The decline in notional value outstanding through 2015 largely reflected trade compression activity (Graph 15; Graph 16). Compression involves identifying offsetting trades in participants' portfolios and terminating them, while leaving those participants' market-facing exposures unchanged or within a stated tolerance. Compression reduces the operational overhead and operational risk of managing a large volume of redundant trades. It also simplifies default management processes, reducing the volume of trades that would need to be priced and auctioned in the event of a participant default. During 2015/16, £230 trillion of notional value outstanding was compressed in the SwapClear service.

An estimated 90 per cent of the notional value outstanding of all centrally cleared AUD OTC IRD trades is cleared via SwapClear. AUD activity at

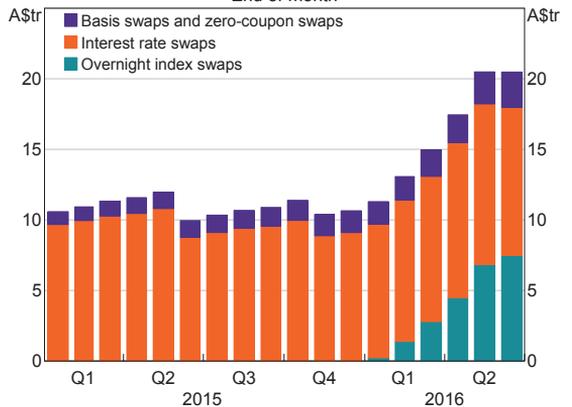
LCH.C Ltd increased significantly after it began clearing AUD OIS in January (Graph 17). In June, AUD OIS accounted for around two-thirds, by value, of LCH.C Ltd's total AUD IRD registered in flow terms. However, given the longer average tenor of IRS compared with OIS, AUD OIS only accounted for around one-third of LCH.C Ltd's total stock of AUD IRD outstanding by notional value (Graph 18).

Graph 17
SwapClear: Notional Value of LCH.C Ltd AUD Interest Rate Derivatives Registered (Flow)*
 Monthly



* Data counts two sides of each trade
 Source: LCH.C Ltd

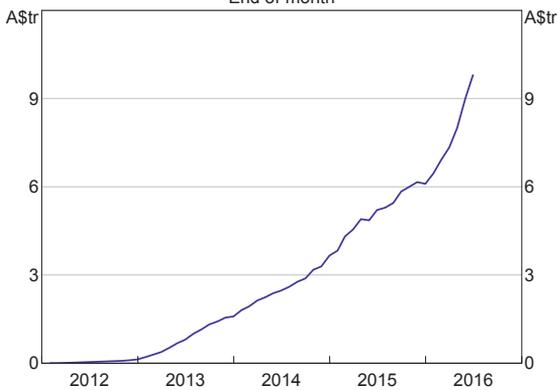
Graph 18
SwapClear: Notional Value Outstanding of LCH.C Ltd AUD Interest Rate Derivatives (Stock)*
 End of month



* Data counts two sides of each trade
 Source: LCH.C Ltd

At end June SwapClear had five Australian direct clearing participants. The four major Australian banks all became direct participants during 2013/14 and 2014/15, with an Australian subsidiary of Goldman Sachs joining during 2015/16. The major Australian banks have also centrally cleared OTC IRD trades indirectly, as clients of other clearing participants, since early 2012. The total notional value outstanding of Australian banks has increased strongly since then (Graph 19).

Graph 19
SwapClear: Notional Value Outstanding of Australian Banks (Stock)*
 End of month



* Data is aggregate of Australian banks' trade sides; trades between two Australian banks will be counted twice
 Source: LCH.C Ltd

2014/15 Assessment of LCH.C Ltd's SwapClear Service

In November the Board approved the publication of the Bank's *2014/15 Assessment of LCH.C Ltd's SwapClear Service*.²³ This assessment was published in December and concluded that LCH.C Ltd had conducted its affairs in a manner that causes, or promotes, overall stability in the Australian financial system. The assessment identified a number of recommended actions and noted other matters that the Bank would

²³ The Bank's *2014/15 Assessment of LCH.C Ltd's SwapClear Service* is available at <<http://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/assessments/lch/2015/pdf/lch-assess-2015-12.pdf>>.

follow up with LCH.C Ltd, which formed the Bank's regulatory priorities for LCH.C Ltd for the 2015/16 assessment period. The SwapClear service is systemically important in Australia and some of these regulatory priorities were determined to ensure that SwapClear's operational and governance arrangements would promote stability in the Australian financial system. The Bank's other regulatory priorities for LCH.C Ltd were set with reference to SwapClear's broader policies and operations. The key priorities and steps taken so far by LCH.C Ltd to address these are set out below, together with other material developments. LCH.C Ltd's progress towards meeting these priorities will be discussed more fully in the Bank's 2015/16 assessment, which will be published in late 2016.

Operating hours in Australia

LCH.C Ltd was encouraged to continue its work to extend the operating hours of the SwapClear service, while ensuring the safety and resilience of its operations. Currently, the SwapClear service is closed for much of the Australian business day, and trades executed during that time are not cleared by SwapClear until the Australian evening when the SwapClear service reopens. LCH.C Ltd incorporated a number of technical changes to its start and end-of-day processes in October 2015; since then it has monitored the stability of its systems closely in order to assess the appropriate approach to further extending its operating hours. LCH.C Ltd has discussed with the Bank a number of options for achieving this, including both shorter-term transitional arrangements and a permanent solution.

Protected Payments System arrangements in Australia

The Bank requested that LCH.C Ltd complete its implementation of its Protected Payments System (PPS) arrangements in Australia to

facilitate payments to and from its clearing participants. LCH.C Ltd operates similar arrangements in the UK and US. LCH.C Ltd is finalising the relevant legal agreements with the clearing participants that will become PPS banks and is putting in place the necessary changes to its operating rules. LCH.C Ltd is also liaising with the Bank's Payments Settlements department to discuss the operational arrangements for implementing the PPS.

Australian dollar cash as initial margin

The Bank has recommended that LCH.C Ltd proceed with its plans to accept AUD cash as initial margin. LCH.C Ltd has received approval from its internal risk governance process and is now seeking regulatory approval from relevant regulators. LCH.C Ltd has already implemented the necessary technical changes needed to accept AUD cash as initial margin. LCH.C Ltd's acceptance of AUD cash as initial margin is contingent on the establishment of the Australian PPS arrangements.

Operational and cyber risk

The Bank recommended that LCH.C Ltd continue to work to enhance its operational resilience and operational risk management and continue to implement recommendations arising from recent internal and external operational risk reviews. LCH.C Ltd was also encouraged to continue its dialogue with the Bank on its cyber risk management arrangements and to review these arrangements in light of CPMI-IOSCO guidance on cyber resilience for FMI, once published. The Bank noted that it expected to engage actively with the Bank of England (BoE) on these priorities, given that the BoE had identified operational and cyber risks as supervisory priorities across all FMIs it supervises.

Client clearing

LCH.C Ltd was encouraged to continue its dialogue with the Bank on its broader client clearing arrangements, including its approach to monitoring risks from tiered participation and its ongoing testing and review of arrangements to support the porting of client positions in the event of a participant default. LCH.C Ltd is planning a series of workshops with clearing participants and their clients to review the porting process and is considering making changes to the default management process to make it easier for clients to port their positions.

Other material developments

Portfolio margining

LCH.C Ltd began offering portfolio margining, which allows clearing participants to take advantage of margin offsets between OTC IRD and listed short term interest rate futures, in May. The implementation of portfolio margining required material changes to LCH.C Ltd's risk management procedures, including the creation of a common default management process for its SwapClear and Listed Rates services. Formal approval of the proposal was based on the results of independent risk assessments by the BoE and European supervisory authorities. The Bank had an opportunity to input into the process via the Global Supervisory College. Portfolio margining is not currently available to Australian clearing participants.

Formation of LCH.C Ltd Crisis Management Group

The BoE established the CMG in its capacity as resolution authority for CCPs in the UK. The CMG met for the first time in October 2015. The CMG will ultimately be responsible for developing a resolution plan for LCH.C Ltd. It will also serve as a point of coordination and communication during

any crisis affecting LCH.C Ltd. The Reserve Bank is a member of the CMG.

Merger between London Stock Exchange Group and Deutsche Börse

London Stock Exchange Group (LSEG) and the German exchange operator Deutsche Börse announced in March they had reached agreement on the terms of an all-share merger of equals. The merger, which, if successful, would create the world's largest exchange by revenue, was approved by LSEG and Deutsche Börse shareholders in July. To proceed, LSEG and Deutsche Börse would also require approval from regulators in a number of jurisdictions.

Client clearing

ASIC and the Bank jointly informed LCH.C Ltd in October that they had no objection to LCH.C Ltd allowing its Australian SwapClear clearing participants to offer clearing services to their clients. This did not require a variation to LCH.C Ltd's CS facility licence. However, at the time that the SwapClear service was licensed in Australia, LCH.C Ltd agreed it would not offer such services until ASIC and the Bank had conducted due diligence. The Bank's analysis focused on the ability of LCH.C Ltd to enforce its default rules in the event of the default of an Australian clearing participant that offered clearing for clients. One Australian clearing participant subsequently began clearing for a client in November.

Chicago Mercantile Exchange Inc.

Activity in CME Inc.

CME offers three clearing services: an OTC IRD clearing service; a 'Base' clearing service; and an OTC credit default swaps (CDS) clearing service. Each service is covered by a separate default waterfall. CME is licensed to clear OTC IRD as well as non-AUD-denominated IRD that are traded on

the CME market or the Chicago Board of Trade market and which fall within the Base clearing service. The Base service accounts for the majority of CME's total clearing activity; as well as exchange-traded IRD, the Base service also covers foreign exchange, equity, soft commodity, energy and metal futures.

CME clears five types of OTC IRD products: IRS, zero-coupon swaps, basis swaps, FRAs and OISs. In addition, CME launched a swaptions service in April 2016. CME clears OTC IRD denominated in 19 currencies, including Australian dollars. In the financial year, USD OTC IRD accounted for around 75 per cent of transactions cleared by CME. AUD IRD continue to account for around 1 per cent of the total notional value of OTC IRD outstanding with CME. The notional value of OTC IRD transactions outstanding with CME was estimated to be about US\$33 trillion at end June 2016, a decline from about US\$50 trillion in June 2015.²⁴ The decline in OTC IRD transactions outstanding largely reflects trade compression activity in USD and EUR transactions.

At end June 2016, CME did not have any direct Australian-based clearing participants. However, a number of Australian-based banks, superannuation funds and other institutional investors clear products through CME indirectly as customers of direct clearing participants.

2014/15 Assessment of CME

When CME was granted a CS facility licence in September 2014, the Bank determined a set of initial regulatory priorities for CME to ensure that its operational and governance arrangements promote stability in the Australian financial system. The Bank does not expect CME to make substantial progress against these regulatory priorities until it has material direct

²⁴ This estimate counts both sides of each trade and was calculated by doubling the value on CME's website.

Australian-based clearing participation or until there is a material increase in CME's provision of services in Australian-related products. The Bank also set additional priorities relating to CME's observance of the Financial Stability Standards more broadly. In February, the Bank published its 2014/2015 Assessment of CME, in which it assessed CME's progress against these priorities, and determined CME's regulatory priorities for 2016.²⁵

The Bank's regulatory priorities in 2016 effectively carry over the Bank's initial regulatory priorities for CME. The key priorities and steps taken by CME to address these are set out below, in addition to other material developments discussed in the 2014/15 assessment.

Recovery and wind-down plan

The Bank's initial assessment recommended that CME should implement appropriate recovery and wind-down plans. The 2014/15 assessment noted that, in response to this priority, CME had proposed plans for its three clearing services, and that CME was working to implement rule changes required to give effect to these plans. It was therefore recommended that CME finalise

its recovery and wind-down plans. Once this is completed, the Bank expects to engage with CME regarding how its recovery and wind-down plans meet the requirements of the CCP Standard and the guidance on recovery planning set out by CPMI-IOSCO.

Management of counterparty concentration risk in its investment portfolio

The 2014/15 assessment noted that CME had made progress in addressing this priority including adding additional investment counterparties and taking steps to open accounts with the US Federal Reserve and two other central banks. In light of this, the Bank noted in its 2014/15 assessment that it expected CME to continue to reduce the size and concentration of unsecured investments of cash collateral with non-government obligors. The Bank will also engage with CME to understand governance arrangements regarding its investment exposures.

The Bank expects to publish its next assessment of CME's progress towards its priorities in March 2017.

²⁵ The 2014/15 Assessment of CME between October 2014 and December 2015 is available at <<http://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/assessments/chicago-mercantile-exchange/2016/pdf/cme-assessment-2016-03.pdf>>.

Regulatory Developments in Financial Market Infrastructures

The Reserve Bank works with other regulators (both domestically and abroad) on issues relevant to the regulation and oversight of Financial Market Infrastructures. In Australia, much of this work has been coordinated by the Council of Financial Regulators and, internationally, the Bank engages closely with relevant international standard-setting bodies.

The Bank continues to work with other regulators on issues relevant to the regulation of FMI. Where relevant to the Board's responsibilities, the Board has been kept updated on developments and members' input and guidance have been sought.

The agencies of the CFR have continued to progress their implementation of the G20's OTC derivatives reforms, with mandatory CCP clearing of IRDs denominated in Australian dollars and the major currencies coming into effect in April.

In light of the international implementation of mandatory CCP clearing for OTC derivatives, the resilience of CCPs remains a strong focus in the global standard setting bodies. These bodies have established a joint CCP Workplan to examine potential risks to stability arising from the increasingly prominent role of CCPs, and to consider the need for additional policy guidance.

Bank staff have been closely engaged in this international work, given its relevance to domestic regulatory standards. Domestically, the Bank has also contributed to CFR-led work to develop a special resolution regime for FMIs, as well as continued work on competition in the clearing of Australian cash equities. A new and increasingly important area of focus for the Bank

and other CFR agencies has been the application of DLT by FMIs.

Mandatory Clearing of OTC Derivatives

Since the global financial crisis, international policymakers have sought to strengthen practices in OTC derivatives markets, including by committing that all standardised OTC derivatives would be cleared through CCPs. While contributing to the CFR's OTC derivatives market policy is a broader responsibility of the Bank, the Board's views have been sought. This has especially been the case in respect of mandatory clearing, given potential implications for the Bank's role in CCP oversight and supervision.

Further to recommendations by the APRA, ASIC and the Bank in 2014, in August 2015 the government issued a ministerial determination and a set of amendments to the *Corporations Regulations 2001*.²⁶ These documents defined the broad product and institutional scope for mandatory clearing in Australia. Consistent with the government's recommendations, it was

²⁶ The ministerial determination is available at <<https://www.legislation.gov.au/Details/F2015L01392>> and the Corporations Regulations are available at <<https://www.legislation.gov.au/Details/F2015L01411>>.

determined that the mandate should cover trades between internationally active dealers in IRD denominated in Australian dollars, US dollars, euros, British pounds and Japanese yen.

Within this scope, ASIC drafted Derivative Transaction Rules that set out the details of the mandatory clearing requirement. In accordance with obligations under the Corporations Act, ASIC consulted with APRA and the Bank. These rules were finalised in December 2015 and the clearing obligation commenced in April.²⁷

Implementation Monitoring

Since the PFMI were finalised, CPMI and IOSCO have been monitoring their implementation internationally. During the past year CPMI and IOSCO have published three assessments that consider implementation of the PFMI in Australia:

- *Implementation of the Responsibilities.* The PFMI not only establish a set of principles that set expectations for the design and operation of FMIs, but also five 'Responsibilities for Authorities' that have regulatory responsibility for FMIs. These responsibilities cover the scope of the regulatory regime, the powers and resources available to the relevant authorities, the disclosure of policies, the adoption of the PFMI, and cooperation between authorities. During 2015, the IMSG assessed 28 jurisdictions' implementation of the responsibilities for all FMI types. The report, published in late November, found that good progress had been made across jurisdictions, with 16 of the 28 jurisdictions – including Australia – assessed as fully observing all five responsibilities across all FMI types.²⁸
- *Implementation of the PFMI in Australia.* Also during 2015, CPMI and IOSCO conducted a peer review of the completeness and consistency of legal and regulatory measures to implement the PFMI in Australia. The review, published in December, covered implementation measures for all FMI types.²⁹ The report confirmed that Australia's implementation was complete and consistent in most respects. A small number of minor observations were nevertheless made.
- *Consistency in outcomes of CCP's implementation of the PFMI.* CPMI and IOSCO have also recently published their first assessment of the consistency in outcomes achieved by FMIs' implementation of the PFMI, beginning with an assessment of financial risk management and recovery arrangements at ten derivatives CCPs.³⁰ The scope of this review included three CCPs that are licensed in Australia: ASX Clear (Futures), CME and LCH.C Ltd's SwapClear service. The review found that the ten surveyed CCPs had made important and meaningful progress in implementing arrangements consistent with the PFMI, including in those areas where the PFMI had 'raised the bar'. The report nevertheless identified that some CCPs' implementation measures were not fully consistent with the requirements in the PFMI on recovery planning, ongoing coverage of financial resources and liquidity stress testing. CPMI and IOSCO have committed to a targeted follow-up review of CCPs' progress in addressing these three issues in the first half of 2017. This review will cover a wider range of CCPs and product classes, with progress to be assessed as of end December 2016.

²⁷ The Derivative Transaction Rules (Clearing) are available at <<https://www.legislation.gov.au/Details/F2015L01960>>.

²⁸ The report is available at <<http://www.bis.org/cpmi/publ/d140.htm>>.

²⁹ The report is available at <<http://www.bis.org/cpmi/publ/d139.htm>>.

³⁰ *Implementation Monitoring of PFMI: Level 3 assessment – Report on the Financial Risk Management and Recovery Practices of 10 Derivatives CCPs.* Available at <<http://www.bis.org/cpmi/publ/d148.htm>>.

CCP Workplan

In light of the increasing systemic importance of CCPs, the FSB has been taking a deeper interest in CCP resilience. Since this interest cuts across the existing mandates of CPMI, IOSCO and the Basel Committee on Banking Supervision (BCBS), the chairs of these standard-setting bodies have developed a joint CCP Workplan.³¹ The Workplan identifies priorities and establishes principles for coordination among the standard-setting bodies.

As discussed in 'Accountability and Communication', the Bank is closely involved in two of the main workstreams, both of which are well progressed:

- *CCP resilience and recovery measures.* CPMI and IOSCO are currently consulting on additional guidance that seeks to clarify and elaborate on existing requirements in the PFMI related to CCP resilience and recovery.³² The proposed additional guidance, which has been informed by related implementation monitoring work, addresses a number of aspects of CCPs' risk frameworks, including stress test and margin practices and associated governance arrangements.
- *CCP resolution.* The FSB Cross-border Crisis Management Group for Financial Market Infrastructures (fmiCBCM) has been tasked with considering whether more detailed standards or guidance are required to support the development of effective strategies and plans for resolution of CCPs. This work builds on an FMI-specific annex to the FSB's Key Attributes of Effective Resolution Regimes for Financial Institutions (the Key Attributes). The fmiCBCM recently issued for comment a

discussion note on the design of resolution strategies for CCPs, covering matters such as the timing of entry into resolution, the adequacy of financial resources in resolution, and cross-border cooperation.³³ The fmiCBCM expect to issue more detailed guidance for consultation by early 2017.

A third workstream is analysing international interdependencies between CCPs, including via common participants. This work is expected to be progressed by early 2017.

A Resolution Regime for FMIs in Australia

Following consultation early in 2015 on proposals to establish a special resolution regime for FMIs, the CFR published a response in November.³⁴ The response observed that consultation respondents had universally supported the principle of establishing an FMI resolution regime, and had agreed that the Australian regime should be aligned with the FSB's Key Attributes and emerging international practice. The response also addressed feedback in a number of specific areas related to the design and scope of the regime.

During 2016, the CFR has continued to advise the government on the development of draft legislation consistent with the proposals in the February 2015 consultation and the response to consultation. Development of this draft legislation is expected to proceed alongside legislative changes to enhance crisis management powers for APRA in respect of the entities that it regulates. Since under the proposed legislation the Bank would be the

³¹ The Workplan and an update on implementation as of September 2015 are available at <<http://www.bis.org/cpmi/publ/d134.htm>>.

³² *Resilience and Recovery of Central Counterparties (CCPs): Further Guidance on the PFMI – Consultative Report.* Available at <<http://www.bis.org/cpmi/publ/d149.htm>>.

³³ *Essential Aspects of CCP Resolution Planning.* Available at <<http://www.fsb.org/2016/08/essential-aspects-of-ccp-resolution-planning/>>.

³⁴ *Resolution Regime for Financial Market Infrastructures: Response to Consultation.* Available at <<http://www.cfr.gov.au/publications/cfr-publications/2015/resolution-regime-financial-market/pdf/report.pdf>>.

resolution authority for CCPs and SSFs, Bank staff are also working with CFR colleagues to develop more practical plans and arrangements for the use of its prospective resolution powers. As noted, the Bank is also actively involved in international work to develop further guidance to support CCP resolvability and resolution planning.

Operating in Australia

Also early in 2015, the CFR released a consultation paper proposing amendments to the Corporations Act that would implement a new approach to assessing when an overseas CS facility should be subject to regulation in Australia. The proposal rests on a test of the materiality of a CS facility's connection to the Australian financial system. Given the narrow scope of this consultation, there were relatively few submissions. On balance, stakeholders agreed that the proposed approach would provide useful additional clarity. There was support for the proposed criteria and stakeholders generally acknowledged the need for the test to be flexible.

The CFR released a formal response to consultation in November and is advising the government on the development of draft legislation. It is anticipated that the legislative amendments will proceed alongside the proposed changes to the Corporations Act to implement a special resolution regime for FMI, since the resolution regime would build on the licensing regime.

Competition in Clearing Australian Cash Equities

On 30 March 2016, the government endorsed the recommendations of the review of competition in clearing Australian cash equities carried out by the CFR and the ACCC – together, the

agencies – in the first half of 2015.³⁵ The agencies had identified three core conclusions from their consultation and supporting analysis:

- *The policy approach should be one of openness to competition.* This would recognise the potential benefits of competitive discipline and be consistent with prevailing legislative settings. To prohibit competition would be unprecedented internationally.
- *Competition, even if permitted, may not emerge for some time, if at all.* There remain strong forces in favour of a single provider of clearing services, so a competing CCP may never emerge.
- *The regulators should have powers to deal with an ongoing monopoly.* Regulatory mechanisms may be necessary to discipline ASX's conduct as a monopoly provider.

Reflecting these views, the agencies developed a number of recommendations. These included recommendations that the government confirm a policy stance of openness to competition, and implement legislative reforms giving the relevant regulators rule-making and arbitration powers that would enable them to enforce, as necessary:

- a set of minimum conditions that support competition in the clearing of cash equities, while also ensuring the safety and efficiency of the market
- a set of regulatory expectations for ASX's conduct in operating its cash equity clearing and settlement services until such time as a competitor emerged.

In its announcement, the government committed to develop and consult on legislative changes in accordance with these

³⁵ The conclusions and the government's response are available at <<http://www.treasury.gov.au/ConsultationsandReviews/Consultations/2015/Review-of-competition-in-clearing-Australian-cash-equities>>.

recommendations. The government also committed to developing legislative proposals to bring ownership restrictions on ASX into line with similar limits on other important financial sector entities.

Distributed Ledger Technology

An increasing number of FMLs, such as ASX (see 'Supervision of Clearing and Settlement Facilities' for details), have started exploring DLT. There is also growing interest in these issues in international forums. As discussed in 'Retail Payments Policy and Developments', the CFR agencies and AUSTRAC have established a working group to assess the potential implications of greater use of DLT for the financial system. Given the Board's responsibility for CS facilities, the Board has begun to give close consideration to how DLT might be applied in the CS space and the regulatory issues that could emerge.

Since trust is paramount in financial markets, it is expected that applications in financial markets will most likely involve private 'permissioned' ledgers, whereby access to the network is granted only subject to an institution meeting certain standards or criteria. In addition, given the need for industry-wide coordination to change existing market practices, changes seem likely to be incremental, working with, rather than against, the prevailing operating environment.

Nevertheless, since the application of DLT could introduce significant changes to the way CS facilities operate, the Bank and other members of the CFR working group will have to assess whether any aspects of the current regulatory framework need to be changed.

Central Clearing of Repos in Australia

In October 2015, the Bank published its conclusions from a consultation on the costs and benefits of CCP clearing of repos in Australia. Given the participation structure of the market and existing risk management practices – and in particular the significant role of the Bank as a cash provider – the Bank concluded that there was no clear financial stability case to actively promote the introduction of a repo CCP in the Australian market. Nevertheless, the Bank recognised the in-principle support for a repo CCP among market participants. The Bank also identified the potential scope for a CCP to be a catalyst for other operational and infrastructural enhancements that could deepen the repo market and improve its functioning. Therefore, should the industry proceed with a proposal for the introduction of such a CCP, the Bank stated that it would engage actively in the debate and that it would be willing to consider participation, subject to certain pre-conditions on continuity, location and design and terms of access.

The Board's Announcements and Reserve Bank Reports

This section lists developments since mid 2015. The *Payments System Board Annual Report 2006* contained a list of the Board's announcements and related Reserve Bank reports up to that time. Subsequent annual reports have contained an annual update.

2015

Opening Statement to the Senate Economics References Committee Inquiry into Matters Relating to Credit Card Interest Rates, 27 August 2015

Media Release 2015-14, 'Payments System Issues: Payments Council MoU, EFTPOS Access Regime and Review of Card Payments Regulation', 28 August 2015

'Submission to the Senate Inquiry into Matters Relating to Credit Card Interest Rates', Submission to the Senate Economics References Committee, August 2015

Media Release 2015-19, 'Review of Card Payments Regulation: Designation of Payment Systems', 15 October 2015

Remarks to APCA's Australian Payments 2015 Conference, Tony Richards, 21 October 2015

'The Transition to Central Clearing of OTC Derivatives in Australia', Malcolm Edey, International Swaps and Derivatives Association's (ISDA) 2015 Australia Conference, 22 October 2015

Central Clearing of Repos in Australia: Conclusions, Reserve Bank of Australia, Sydney, October 2015

Media Release 2015-22, 'Payments System Board Update: November 2015 Meeting', 20 November 2015

Overseas Clearing and Settlement Facilities: The Australian Licensing Regime – Response to Consultation, Council of Financial Regulators, Canberra, November 2015

Report on the Australian OTC Derivatives Market, Australian Prudential Regulation Authority, Australian Securities and Investments Commission and Reserve Bank of Australia, Sydney, November 2015

Resolution Regime for Financial Market Infrastructures: Response to Consultation, Council of Financial Regulators, Canberra, November 2015

Media Release 2015-24, 'Consultation on Changes to the Bank's Standards for Card Payment Systems', 3 December 2015

Review of Card Payments Regulation – Consultation Paper, Reserve Bank of Australia, Sydney, December 2015

'CCPs and Banks: Different Risks, Different Regulations', *RBA Bulletin*, December 2015

2016

Media Release 2016-03, 'Payments System Board Update: February 2016 Meeting', 19 February 2016

'The Ongoing Evolution of the Australian Payments System', Tony Richards, Payments Innovation 2016 Conference, 23 February 2016

Review of Competition in Clearing Australian Cash Equities: Conclusions Paper, Council of Financial Regulators, Canberra, March 2016

'The ATM System since the 2009 Reforms', *RBA Bulletin*, March 2016

'The Cards Payments Review', Malcolm Edey, Cards and Payments Australia Conference, 12 May 2016

Media Release 2016-14, 'Payments System Board Update: May 2016 Meeting', 20 May 2016

Media Release 2016-15, 'Review of Card Payments Regulation: Conclusions', 26 May 2016

Review of Card Payments Regulation – Conclusions Paper, Reserve Bank of Australia, Sydney, May 2016

Abbreviations

ABS	Australian Bureau of Statistics	CEO	Chief Executive Officer
ACCC	Australian Competition and Consumer Commission	CFR	Council of Financial Regulators
AMLD	Anti-Money Laundering Directive	CFTC	Commodity Futures Trading Commission
APCA	Australian Payments Clearing Association	Chi-X	Chi-X Australia
APRA	Australian Prudential Regulation Authority	CLS	CLS Bank International
ASIC	Australian Securities and Investments Commission	CME	Chicago Mercantile Exchange Inc.
ASX	Australian Securities Exchange	CMG	LCH.C Ltd Crisis Management Group
ASX Clear	ASX Clear Pty Limited	CNP	Card-not-present
ASX Clear (Futures)	ASX Clear (Futures) Pty Limited	CPMI	Committee on Payments and Market Infrastructures (formerly Committee on Payment and Settlement Systems)
ASX Settlement	ASX Settlement Pty Limited	CS	Clearing and Settlement
ATM	Automated Teller Machine	DAH	Digital Asset Holdings
AUD	Australian Dollar	DE	Direct Entry
AUSTRAC	Australian Transaction Reports and Analysis Centre	DFAC	Digital Finance Advisory Committee
Austraclear	Austraclear Limited	DLT	Distributed Ledger Technology
BBY	BBY Limited	ePAL	eftpos Payments Australia Ltd
BCBS	Basel Committee on Banking Supervision	ESA	Exchange Settlement Account
BIS	Bank for International Settlements	EU	European Union
BoE	Bank of England	EUR	Euro
BSB	Bank State Branch	FMI	Financial Market Infrastructure
CCP	Central Counterparty		

fmiCBCM	Cross-border Crisis Management Group for Financial Market Infrastructures	OG	SWIFT Oversight Group
		OIS	Overnight Index Swaps
FRA	Forward Rate Agreements	OTC	Over-the-counter
FSB	Financial Stability Board	PAN	Primary Account Number
FSI	Financial System Inquiry	PEXA	Property Exchange Australia Ltd
FSS	Fast Settlement Service	PFMI	Principles for Financial Market Infrastructures
FX	Foreign Exchange	PPS	Protected Payments System
GBP	Pounds Sterling	PSD2	European Union's revised Directive on Payment Services
HVCS	High-value Clearing Stream		
IFR	Interchange Fee Regulation	PSR	Payment Systems Regulator
IMSG	Implementation Monitoring Standing Group	RBA	Reserve Bank of Australia
IOSCO	International Organization of Securities Commissions	Repo	Repurchase Agreement
		RITS	Reserve Bank Information and Transfer System
IRD	Interest Rate Derivatives	RTGS	Real-time Gross Settlement
IRS	Interest rate swaps	SEPA	Single Euro Payments Area
KPI	Key Performance Indicator	SSF	Securities Settlement Facility
LCH.C Ltd	LCH.Clearnet Limited	TSP	Token Service Provider
LSEG	London Stock Exchange Group	UK	United Kingdom
MoU	Memorandum of Understanding	US	United States
NPP	New Payments Platform	USD	United States Dollar
NPPA	New Payments Platform Australia Limited		