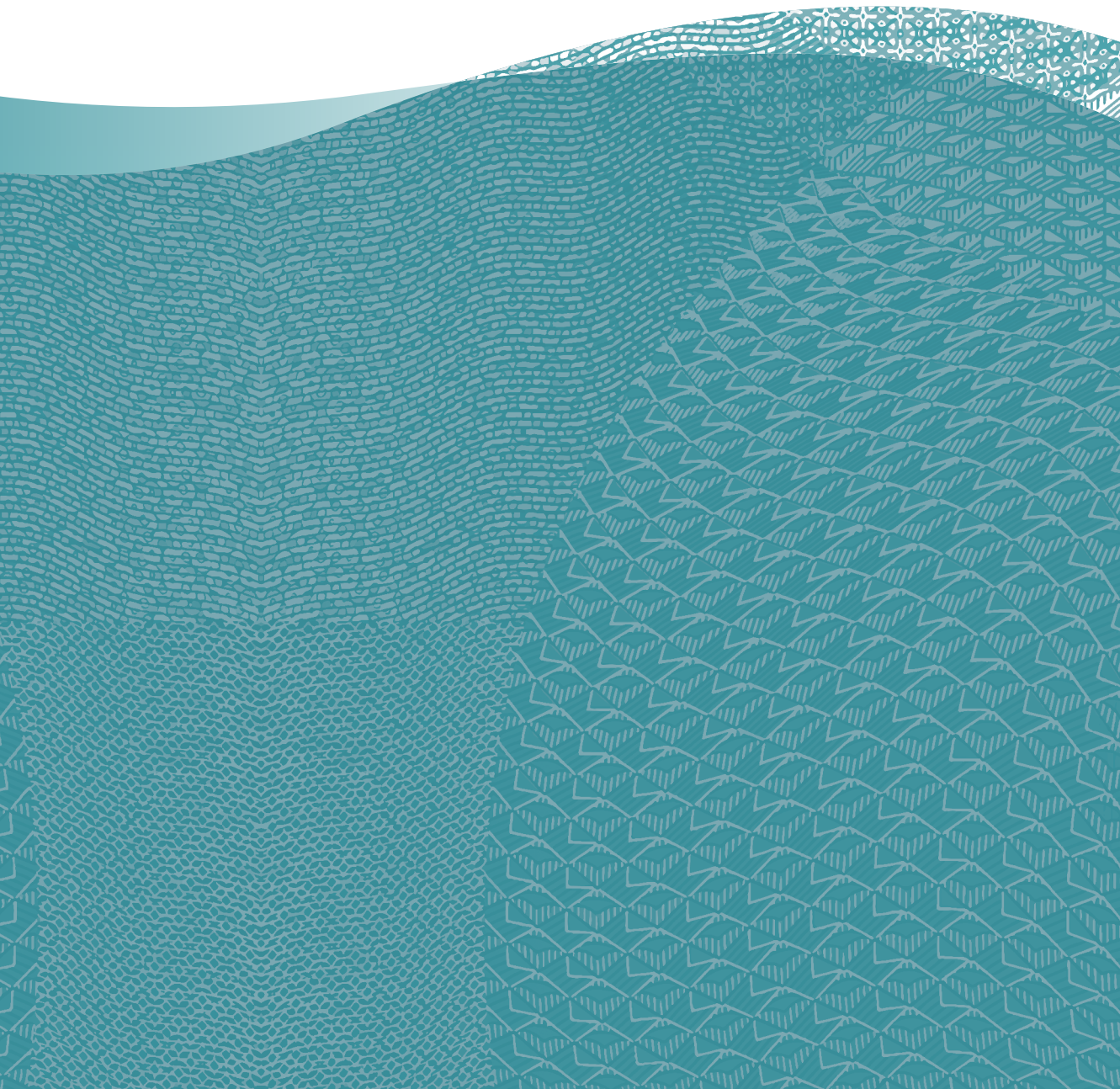


Payments System Board Annual Report

2018





RESERVE BANK OF AUSTRALIA

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27 August 2018

The Hon Josh Frydenberg MP
Treasurer
Parliament House
CANBERRA ACT 2600

Dear Treasurer

RESERVE BANK OF AUSTRALIA PAYMENTS SYSTEM BOARD ANNUAL REPORT 2018

I am writing to seek your agreement to the tabling in the Parliament of the Payments System Board Annual Report for 2018.

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 blue ink, appearing to read 'Philip Lowe', written in a cursive style.

Payments System Board

Annual Report 2018

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Governor's Foreword

The past year has continued to see significant change in the Australian payments system. A major landmark was the public launch of the New Payments Platform (NPP) in February. The NPP enables financial institutions to provide their customers with real-time payments, with immediate funds availability, on a 24/7 basis. This has been a major project for the industry over the past five years in response to the strategic objectives set by the Board in June 2012 in the conclusions to its Strategic Review of Innovation in the Payments System. Transaction volumes through the NPP have been growing steadily and are expected to pick up materially as the major banks complete rolling out NPP access to most of their customers.

It is noteworthy that so many small institutions have established connections to the NPP, with around 70 banks, credit unions and building societies now using the NPP to provide their customers with real-time payments. NPP Australia Ltd has plans to add significant functionality to the system so that it provides a platform for innovation. It is also working with external entities to encourage the provision of overlay services that leverage the ability to send real-time, easily addressed and data-rich payments. The Board expects that NPP participants will continue to commit resources so that the roll-out of additional services is not held up by a few slow movers. The Board will also be monitoring access arrangements to ensure that new entrants to the payments industry are able to take advantage of the functionality of the NPP.

The NPP will contribute to the ongoing shift towards greater use of electronic payments. Despite this, cash is still used frequently for many types of transactions and is likely to play an important role in the Australian payments system for some years to come. To ensure that Australians continue to have high quality and secure banknotes, the Bank is currently upgrading the existing banknotes. The new \$10 note was released in September 2017, and the new \$50 note will enter into circulation this October.

It is important that electronic payments are secure and low cost and that merchants and consumers have choice. Over the past year, the Board has strongly encouraged the payments industry to provide least-cost routing of debit card payments to merchants, as a means of increasing competitive pressure in the debit card market and thereby holding down payment costs in the economy. When a dual-network debit card is presented in a contactless transaction, it is important that the merchant is able to accept the payment via the lower-cost network. The major acquirers have provided assurances that they will offer this functionality. The Bank is continuing to monitor progress closely.

The Board has devoted significant effort to understanding crypto-assets, distributed ledger technology and related issues. There was a speculative mania late in 2017 around crypto-assets but this has now unwound to a significant degree. It seems unlikely that a privately-issued crypto-asset will replace money

as we now know it in Australia, especially given the electronic transfer systems that we have. But new technologies raise interesting questions regarding whether central banks should issue digital versions of existing national currencies. At the moment, the Bank does not yet see a public policy case to issue e-cash for household use, although there may be a case to issue a new form of digital money for use within some wholesale settlement systems. More broadly, while the Bank sees significant potential for the use of distributed ledger technology in many sectors of the economy, most of these are likely to use permissioned networks with some form of central governance, as opposed to the decentralised unpermissioned models seen in crypto-assets like Bitcoin.

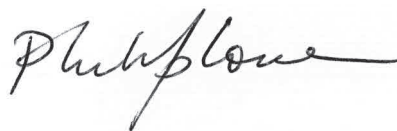
The Board continues to devote significant attention to the resilience of payment systems and financial market infrastructures. The Bank's oversight of central counterparties (CCPs) licensed to operate in Australia is now using new CCP Resilience Guidance that was developed by the international standard-setting bodies and published in July 2017. This guidance raises the bar in relation to financial risk management at CCPs, focusing on five key elements: governance; stress testing; the level of coverage of financial resources; margin; and a CCP's contribution of its financial resources to losses.

In addition, the Bank's oversight of clearing and settlement facilities (CS) and systemically important payment systems pays considerable attention to the management of operational risk. Over the past year this included an external review of technology governance, operational risk and control frameworks in markets and CS facilities operated by ASX Ltd. The Bank will be continuing to monitor the ongoing operation of the existing CHES system as ASX develops a new clearing and settlement system for cash securities transactions.

The Bank has also focused on cyber resilience. A number of incidents in recent years have highlighted the importance of strong security in systemically important networks and payment systems, including the individual participants in those systems. Over the past few years, the Bank has reviewed both our own real-time gross settlement system and the ASX CS facilities for consistency with international guidance on cyber resilience for financial market infrastructures. It has also contributed to the international policy work to reduce the risk of wholesale payments fraud.

Payment systems are networks and networks often work best when participants work together. The launch of the NPP has highlighted the benefits of industry collaboration. Another example is the work by AusPayNet (or the Australian Payment Network), the self-regulatory body for the payments industry, to develop an industry framework to tackle the growing problem of online payment fraud. It is also supporting the Australian Payments Council's work to develop a framework for an effective system for individuals and entities to prove their identity in the digital environment, both in payments and more broadly. This is an important issue in the transition to a digital economy and the Bank strongly encourages the payments industry to work together and to collaborate with other stakeholders, including government entities.

The Bank's dedicated staff support the Board with calm professionalism and carry out their work to a very high standard. The Payments System Board joins me in thanking them for their contribution to the efficiency and stability of Australia's payments system.



Philip Lowe
Governor and Chair,
Payments System Board
27 August 2018

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 payment 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 2017/18.

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 five other non-executive members.

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 2017/18 are shown below and details of the qualifications and experience of members are provided on pages 9 to 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 2017/18, 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.

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.

Table 1: Board Meetings in 2017/18
Number of meetings

	Attended	Eligible
Philip Lowe (Governor)	4	4
Michele Bullock (RBA)	4	4
Wayne Byres (APRA)	4	4
Gina Cass-Gottlieb	4	4
Paul Costello	3	4
Deborah Ralston	4	4
Catherine Walter	4	4
Brian Wilson	4	4

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. Following review of the Code of Conduct by the Board in August 2018, some minor drafting changes proposed by management were endorsed.

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

Towards the end of 2017, the Board conducted its annual review of the key risks inherent in the consideration of payments policy and the payments policy risk register and control framework. Some minor changes were made to the risk register, in relation to the need to ensure recruitment and retention of staff of sufficient quality and expertise, and the ability of staff with responsibilities for payments policy to draw on specialist IT expertise in other parts of the Reserve Bank. The control framework

was assessed to be operating effectively and managing risks adequately.

At the same time, the Board conducted its annual review of its own operation and processes. It concluded that Board processes were functioning effectively. Members acknowledged the importance of finding means for the Board to acquire knowledge of emerging payments issues, specifically digital disruption.

Indemnities

Members of the Payments System Board are indemnified against liabilities incurred by reason of their appointment to the Board or by virtue of holding and discharging such office. Indemnities for those members appointed prior to 1 July 2014 were in accordance with section 27M of the *Commonwealth Authorities and Companies Act 1997* (CAC Act), which specified when indemnity for liability and legal costs was not allowed. Indemnities for members appointed after 1 July 2014, when the CAC Act was repealed, have reflected the substance of the previous CAC Act restrictions. A revised form of the indemnity for new members of both the Reserve Bank Board and the Payments System Board, which continues to reflect the substance of the previous CAC Act restrictions, was approved by the Reserve Bank Board in March 2017.

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 2017/18.

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. 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 In May 2018, the Board approved changes to the Bank's policy on the management of conflicts of interests following discussion of a set of arrangements to govern the Bank's ongoing engagement with NPP Australia Ltd (NPPA). Details of the steps taken to achieve compliance with the conflicts policy, 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 2018 and reviewed by the Board in August 2018.

In the case of the Bank's oversight of RITS, the Board plays a governance role in managing conflicts of interest. In particular, while an internal financial market infrastructure (FMI) Review Committee has the formal responsibility to review and approve assessments of other FMIs, the Board retains primary responsibility for approving the staff's periodic assessments of RITS.

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 (APRA) and up to five other non-executive members appointed by the Treasurer.

There was one retirement from the Board in 2017/18: Paul Costello in mid July 2018. A tribute by the Board to Mr Costello is shown on page 15.

August 2018



Philip Lowe

BCom (Hons) (UNSW), PhD (MIT)

Governor and Chair

Governor since 18 September 2016

Present term ends 17 September 2023

Philip Lowe was Deputy Governor from February 2012 until his appointment as Governor took effect in September 2016. Prior to that, he held various senior positions at the Reserve Bank, including Assistant Governor (Economic) and Assistant Governor (Financial System), where he was responsible for overseeing economic and policy advice to the Governor and Reserve Bank Board. He spent two years with the Bank for International Settlements working on financial stability issues. Mr Lowe has authored numerous papers, including on the linkages between monetary policy and financial stability. He is a signatory to The Banking and Finance Oath.

Other roles

Chair – Reserve Bank Board

Chair – Council of Financial Regulators

Chair – Financial Markets Foundation for Children

Chair – Bank for International Settlements Committee on the Global Financial System

Member – Financial Stability Board

Co-Chair – Financial Stability Board Regional Consultative Group for Asia

Member – Bank for International Settlements Group of Governors and Heads of Supervision

Member – Trans-Tasman Council on Banking Supervision

Director – The Anika Foundation



Michele Bullock

BEC (Hons) (UNE), MSc (LSE)

Assistant Governor (Financial System) and Deputy Chair

Deputy Chair since 29 October 2016

Michele Bullock has held various senior positions at the Reserve Bank. Most recently, she held the position of Assistant Governor (Business Services). She has also been in the positions of Assistant Governor (Currency), Adviser for the Currency Group and, before that, Head of Payments Policy Department. In her current position as Assistant Governor (Financial System), Ms Bullock 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, APRA

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 – Bank for International Settlements Group of Governors and Heads of Supervision

Member – Council of Financial Regulators

Member – Trans-Tasman Council on Banking Supervision



Gina Cass-Gottlieb

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

Non-executive member

Member from 15 July 2013 to 14 July 2018

Reappointed from 1 August 2018

Present term ends 31 July 2023

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.

Other roles

Director – Sydney Children's Hospitals Foundation



Deborah Ralston

BEC, Dip. Fin Mgt, MEd (UNE), PhD (Bond)

Non-executive member

Member since 15 December 2016

Present term ends 14 December 2021

Deborah Ralston has extensive experience in financial services, with particular interests in financial regulation, superannuation, innovation and commercialisation. Professor Ralston is a researcher and recognised thought leader in financial services and has been widely published in these areas. Professor Ralston has held senior leadership positions in Australian universities, including Dean of Business at the Universities of Southern Queensland and the Sunshine Coast, Pro Vice-Chancellor Business, Law and Information Systems at the University of Canberra, and most recently as Executive Director of the Australian Centre for Financial Studies. She has over 20 years' experience as a non-executive director on public and private sector boards. She is a Professorial Fellow at Monash University Business School and a Fellow of CPA Australia and the Australian Institute of Company Directors.

Other roles

Chair – SMSF Association

Member – YBF Fintech Hub Advisory Board



Greg Storey

Non-executive Member

Member since 1 August 2018

Present term ends 31 July 2023

Greg Storey is an experienced cards and payments industry professional, with specialist knowledge in the evolution and operation of debit cards, credit cards and payments systems. He was Vice-President and Head of Visa Checkout, Asia Pacific, from 2012 to 2016. Mr Storey had over 20 years of experience with Visa, spanning the roll-out of numerous VisaNet-related solutions and services, product and strategy, micropayments solution (Payclick) and the roll out of Visa Checkout (and V.me) products across the Asia Pacific region. Prior to his roles at Visa, Mr Storey worked at St. George Bank in various cards and payments roles, as CIO of an independent payment solution provider, and has established and overseen merchant POS and ATM switching operations.

Other roles

Director – Dozen Avenue Pty Ltd



Catherine Walter AM

LLB (Hons), LLM, MBA (Melbourne)

Non-executive member

Member since 3 September 2007

Present term ends 2 September 2022

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.

Other roles

Chair – Financial Adviser Standards and Ethics Authority

Chair – Melbourne Genomics Health Alliance

Director – Australian Foundation Investment Company



Brian Wilson AO

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. He is the former Chairman of Australia's Foreign Investment Review Board. 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. In May 2017, Mr Wilson was awarded a Doctor of the University, honoris causa (DUniv) by the University of Technology Sydney.

Other roles

Deputy Chancellor – University of Technology, Sydney

Director – Bell Financial Group Ltd

Senior Advisor – The Carlyle Group



Retirement from the Board

Paul Costello

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

Non-executive Member

Member from 15 July 2013 to 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.

Other roles

Chair – Investment Committee, QIC Global Infrastructure Fund

Director – AIA Australia Limited

Director – Qantas Superannuation Limited

Member – Six Park Investment Advisory Committee

Member – International Advisory Council of the China Investment Corporation

Resolution Passed by the Payments System Board – 23 February 2018

Paul Costello informed members that, owing to his illness, this would be his final meeting as a member of the Payments System Board. On behalf of all members, the Governor paid tribute to Mr Costello's contribution to the Board's deliberations over the preceding four and a half years, drawing on his experience in the areas of investments, governance and operations in the Australasian financial services sector. The Governor thanked Mr Costello for his constructive and collegial style and his strong support of the work of the Board. Members expressed their admiration and appreciation for the grace, dignity and industry with which Mr Costello had contributed to the work of the Board during his illness.

Accountability and Communication

The Payments System Board seeks to ensure a high degree of transparency and accountability around its actions through the Bank's communication program, which includes media releases, speeches, research publications, and community and industry liaison. The Bank also engages in various international forums relating to payment systems and financial market infrastructures (FMI).

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 in addition to the Bank's own policies on transparency and communication that serve to ensure the accountability of the Board.

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 2017/18 the Bank made submissions to the Productivity Commission's Inquiry into Competition in the Australian Financial System and the Government's Review into Open Banking in Australia.

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

Communication

The Board 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 Bank's policies and decisions.² Consistent with its statutory

² For a detailed list of publications, see 'The Board's Announcements and Reserve Bank Reports' p75.



Meeting of the Payments System Board, 24 August 2018

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 remains open to discussions with any and all parties that may be affected by the Bank's regulatory actions.

Media releases around Board decisions

The Bank publishes a media release in the afternoon immediately following each Board meeting, outlining matters that were discussed by the Board and foreshadowing any forthcoming documents to be released by the Bank. Media releases also accompany any major announcements following decisions taken by the Board.

Speeches

During 2017/18, senior Bank staff gave a number of public speeches and participated in discussion panels on various payments system-related topics. Speeches covered topics including merchant payment costs and least-cost routing

in retail payments, the development of the New Payments Platform (NPP), cryptocurrencies and distributed ledger technology and the merits of a digital Australian dollar. 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 publications in conjunction with other members of the Council of Financial Regulators (CFR), the coordinating body for Australia's main financial regulatory agencies. These included developing a set of minimum conditions for safe and effective competition in cash equity settlement, as well as revisions to the minimum conditions for cash equity clearing and the regulatory expectations applicable to the ASX Group's conduct in operating cash equity clearing and settlement services until such time as a committed competitor emerged.³

³ See <<https://www.cfr.gov.au/media-releases/2017/mr-17-01.html>>

Research

The Bank's quarterly *Bulletin* contains analysis of a broad range of economic and financial issues, including payments system issues from time to time, as well as aspects of the Bank's operations. During the year in review, the *Bulletin* included articles on developments in the ATM industry, central counterparty margin frameworks and over-the-counter derivatives using new trade repository data.

As well as the *Bulletin*, the Bank occasionally publishes expanded analysis of payment system topics in Research Discussion Papers. In 2017/18, the Bank published a paper examining Australian consumer payments behaviour using data from its 2016 Consumer Payments Survey.

To supplement the Bank's research and policy work, statistics on retail payments are collected by the Bank on a monthly basis from financial institutions, card companies, and other payments system participants. The collected data cover debit, credit and charge cards, ATM transactions, merchant fees, bulk electronic transfers, the NPP and cheques, and aggregate series are published on the Bank's website each month. In 2017/18, the Bank completed a multi-year review that resulted in some changes to the content of this statistical collection and the reporting entities. The review was aimed at enhancing the relevance of the data collected and reducing industry reporting burden. As part of the project, the Bank developed a new and more secure method for reporting entities to provide their data to the Bank.

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 responsibilities.

Liaison Activity

The Bank engages with a wide range of stakeholders in Australia and overseas.

Domestic liaison

The Bank continued to engage extensively with a range of participants in the payments industry in 2017/18. In August 2017, the Board held its annual meeting with members of the Australian Payments Council, which included discussion of the Council's progress against the initiatives it had outlined in its 2015 Australian Payments Plan.⁴ One particular area of focus was the Council's work on developing a framework for portable digital identity in Australia, which the Board believes will deliver significant security and efficiency benefits for the payments system and the economy more broadly. Engagement between the Board and the Council occurs pursuant to a memorandum of understanding between the two organisations that was signed in 2015 and is published on the Bank's website.

In the retail payments area, Bank staff met with a range of stakeholders to discuss policy issues and market development. Discussions on policy issues over the past year have focused on ATMs and least-cost routing of transactions on contactless debit cards, among other issues. Following the conclusion of the Bank's Review of Card Payments Regulation in May 2016, the staff have continued to engage closely with schemes and financial institutions around

⁴ The Australian Payments Council was established in 2014 as a strategic coordination body for the payments industry. Its members are senior executives from a range of payments organisations including financial institutions, card schemes, retail acquirers and other payment service providers, as well as AusPayNet and the Bank (in its role as provider of banking services to the government). The Bank has responsibility for appointing a number of the Council members.

the implementation of the new standards and reporting requirements introduced by the new standards. Another focus of the Bank's engagement with payments industry participants in 2017/18 was on payments technology and innovation, especially in relation to digital currencies, the use of distributed ledger technology and payments-related fintech activity more broadly.

Bank staff meet regularly with senior staff of the Australian Payments Network (AusPayNet) to discuss industry developments, including discussions around initiatives to reduce card fraud and AusPayNet's work program to support the Australian Payments Council. These meetings take place consistent with an agreement on liaison arrangements between the two organisations that is published on the Bank's website. The staff also meet periodically with counterparts from a range of government agencies, including the Australian Competition and Consumer Commission (ACCC) in relation to the surcharging framework. In 2017/18, a number of Bank staff participated in the payments-related workstreams of the Government's Black Economy Taskforce, the final report from which was published in October 2017.

The Bank was closely involved in the development of the NPP and remains very engaged even after its public launch in February. The Bank built the Fast Settlement Service, which enables the settlement of NPP payments individually in real time. In addition, the RBA's Banking Department has been involved in the NPP as a direct participant and currently provides NPP services to its government clients. The Head of Payments Settlements Department is a Bank-nominated member of the NPP Australia Ltd (NPPA) Board and during the NPP development phase, the Head of Payments Policy Department also participated as an

observer. The Bank also participates in the NPPA Board's management committees. Since the launch, staff from Payments Policy Department have established a regular liaison meeting with senior staff from NPPA to discuss developments in relation to the NPP, including new payment services that are being developed to utilise the NPP infrastructure and access arrangements for new participants. The Bank and NPPA are currently developing a memorandum of understanding (MoU), which will formally define the regular liaison procedures and information-sharing arrangements between the two organisations, consistent with arrangements for the Bank's involvement with the NPP that were approved by the Board in May. The finalised MoU will be made available on the Bank's website.

In the FMI area, the Bank meets at least quarterly with each FMI. These meetings cover a wide range of topics including developments in financial and operational risk management. As the Bank and the Australian Securities and Investments Commission (ASIC) have complementary regulatory responsibilities for the supervision of clearing and settlement (CS) facilities, where relevant, the two agencies coordinate their liaison.

As described in other chapters of this report, the Bank continued to work closely with other agencies of the CFR (and where relevant, the ACCC) on a number of policy issues, including FMI resolution, competition in clearing and settlement of equities as well as review of the regulatory framework for purchased payment facilities. The CFR agencies, along with the Australian Transaction Reports and Analysis Centre (AUSTRAC), also participated in a working group considering the implications of distributed ledger technology for the financial system and regulation.

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

Payments Consultation Group

The Bank established the Payments Consultation Group in 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, as input to its interactions with the Australian Payments Council and its other policy work.

The Payments Consultation Group met twice in 2017/18 and discussed a range of topics including the provision of least-cost routing functionality to merchants, card surcharging, the NPP, card payment fraud, distributed ledger technology and other payments innovations, and open banking initiatives. The Board appreciates the valuable feedback provided by the participants and their willingness to engage in this process.

International engagement

The Bank is a member of the Committee on Payments and Market Infrastructures (CPMI), which is hosted by the Bank for International Settlements and serves as a forum for central banks to monitor and analyse developments in payment, clearing and settlement infrastructures and sets international standards in this area. Joint working groups of the CPMI and the International Organization of Securities Commissions (IOSCO) bring together members of these two bodies to coordinate policy work on the regulation and oversight of FMIs.

Senior staff from Payments Policy Department attend CPMI meetings and also contributed to CPMI reports, including on central bank digital currencies (produced with the BIS Markets Committee) and wholesale payments security. Staff are also members of the CPMI–IOSCO Steering Group, CPMI–IOSCO Implementation Monitoring Standing Group, and CPMI–IOSCO Policy Standing Group. An officer in Payments Policy Department is also contributing to the work on enhancing resolution arrangements for central counterparties, which is being led by a working group under the Financial Stability Board Resolution Steering Group. For more details on the Bank's involvement in recent international work on FMIs, see the Policy Development section in the chapter on 'Oversight, Supervision and Regulation of Financial Market Infrastructures'.

The Bank is also a member of the Executives' Meeting of East Asia-Pacific Central Banks (EMEAP) Working Group on Payments and Market Infrastructures (WGPMI; formerly known as the Working Group on Payment and Settlement Systems). This group is a regional forum for sharing information and experiences relating to the development, oversight and regulation of retail payment systems and FMIs. The group discussed a range of issues over the year in review, including: the application of new technologies and other enhancements to FMIs, particularly those focused on building resilience; the development of fast retail payment systems and other efforts to facilitate the shift towards electronic payments; the emergence of crypto-asset markets; and efforts to promote fintech development. A study group of the WGPMI has also been examining the development and impact of various digital innovations on financial systems and central banks in the EMEAP region. The areas of focus

for this group have included payments-related fintech, distributed ledger technology, virtual currencies and central bank digital currencies.

The Bank also participates in several multilateral and bilateral arrangements to support its oversight of overseas-based FMI, such as CLS Bank International, LCH Limited and CME Inc.

Regulator Performance Framework

The Bank adheres to the Australian Government's Regulator Performance Framework (RPF), which aims to encourage regulators to undertake their functions with the minimum impact necessary to achieve regulatory objectives. It is focused on the administration, monitoring and enforcement of regulation, rather than the setting of policy. The RPF requires the Bank to measure and report on its performance against six key indicators that articulate the Government's expectations for regulator performance.

The Bank's third annual self-assessment of its performance against these indicators is underway. Self-assessments are conducted in close consultation with the regulated industry. The Bank, in consultation with the entities it regulates, has developed two sets of metrics to allow assessment against the indicators – one focusing on its regulation of clearing and settlement facilities and the other on its regulation of retail payment systems. Each year, regulated entities are asked to respond to a survey that seeks their feedback on these metrics and on the Bank's regulatory performance more broadly. This year, the Bank sought feedback from all licensed CS facilities, designated card schemes and a sample of card acquirers. The latter group was included for the first time this year, reflecting the introduction of regulatory requirements for acquirers in Standard No 3 of 2016. From next year, the Bank will also seek feedback from a

sample of card issuers reflecting new regulatory requirements in Standard No 1 of 2016 and Standard No 2 of 2016.

The Bank appreciates the feedback that was provided by the respondents to the 2018 survey and will consider how best to incorporate and respond to that feedback in its self-assessment. Regulated entities will also be given the opportunity to provide feedback on the Bank's draft self-assessment before it is finalised. The self-assessment will then be provided to the Minister and published on the Bank's website by the end of 2018.

Trends in Payments, Clearing and Settlement Systems

The Payments System Board monitors trends in retail payments, and activity and risk exposures across financial market infrastructure (high-value payment systems, securities settlement systems and central counterparties). This is consistent with the Board’s responsibilities to promote efficiency and competition, and control risk, in the Australian payments system.

Retail Payments

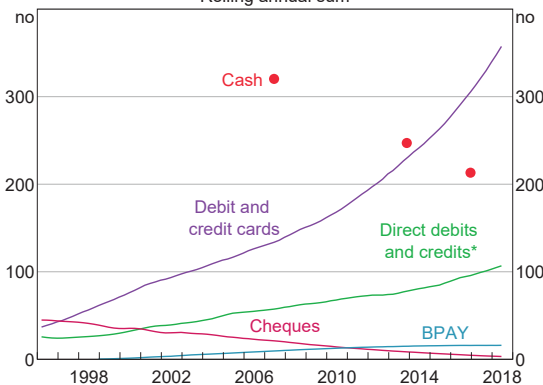
The past few decades have seen a gradual shift in Australian consumers’ use of electronic payment methods, such as cards and direct debits, to make their payments (Graph 1). This shift appears to have accelerated in recent years. On average, Australians made around 480 electronic transactions per person in 2017/18, compared with 215 transactions per person a decade earlier. By contrast, the use of paper-based payment methods such as cash and cheques has declined. On average, Australians made about 210 cash

payments per person in 2016, the latest year for which we have data, down from 320 transactions in 2007. Consistent with these broad trends, the Reserve Bank’s Consumer Payments Survey (CPS), which was last undertaken in 2016, showed that cards had overtaken cash as the most frequently used payment method by Australian consumers.

Cash payments

According to the 2016 CPS, the share of consumer payments made in cash fell to 37 per cent of the number of payments in 2016, from around 70 per cent in the 2007 survey (Graph 2).⁵ The decline in the relative use of cash over the past decade or so largely reflects consumers preferring to use their debit and credit cards for in-person payments, with an increase in the share of online transactions also playing a role. In recent years, there has been a significant reduction in the share of lower-value payments made using cash, facilitated by the adoption of contactless ‘tap-and-go’ functionality by consumers and merchants at the point of sale. Nonetheless, cash still accounted for over 60 per cent of payments under \$10 in 2016, and cash is

Graph 1
Transactions per Capita
Rolling annual sum



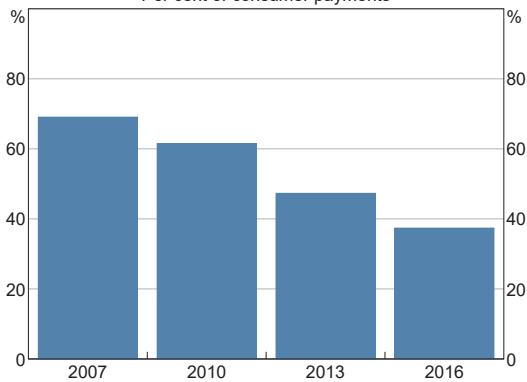
* Adjusted for a reporting change in May 2018, which decreased the number of direct credit and direct debit payments

Sources: ABS; AusPayNet; BPAY; Colmar Brunton; Ipsos; RBA; Roy Morgan Research

⁵ For more information, see: Davies C, M-A Doyle, C Fisher and S Nightingale (2016), *The Future of Cash*, RBA *Bulletin*, December, pp 43–52 and Doyle M-A, C Fisher, E Tellez and A Yadav (2017), ‘How Australians Pay: Evidence from the 2016 Consumer Payments Survey’, Research Discussion Paper 2017-04.

still used relatively intensively at some types of merchants, such as food retailers. Moreover, cash continues to be used relatively often by some segments of the community, including older Australians and lower-income households. A shift away from cash to electronic payment methods has also been evident in many other countries, though there is still a fairly wide variation in how intensively cash is used across comparable countries (Box A).

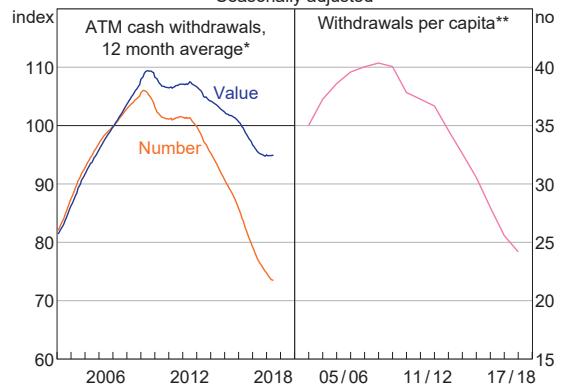
Graph 2
Number of Cash Payments
Per cent of consumer payments



Source: RBA calculations, based on data from Colmar Brunton, Ipsos and Roy Morgan Research

The declining use of cash for transactions has been reflected in falls in the use of ATMs for cash withdrawals (Graph 3, left panel). The number and value of ATM withdrawals declined by 4 per cent and 0.3 per cent, respectively, in 2017/18, slower than the average rates of decline of the past few years. In 2017/18, Australians made an average of around 24 ATM withdrawals per person, down from 40 a decade ago (Graph 3, right panel). The significant fall in ATM use over the past decade has increased the incentives for ATM deployers to rationalise their fleets. After rising for much of the past two decades, the number of ATMs in Australia has begun to decline, falling by about 3½ per cent over the year to June. Per-capita ATM coverage is still high in Australia in comparison to many other developed economies.

Graph 3
ATM Cash Withdrawals
Seasonally adjusted



* January 2007 = 100
** Annual transaction volumes as at June
Sources: ABS; RBA

Despite the decline in the transactional use of cash, demand for cash more generally remains strong.⁶ The value of banknotes in circulation increased by 2.6 per cent over the year to June 2018, to about \$75 billion (or around 4 per cent of GDP). This increased demand partly reflects the use of cash as a store of value, often for precautionary purposes. Around 70 per cent of participants in the 2016 CPS reported holding some cash outside of their wallet. The use of cash as a store of value is also consistent with the strong growth in high-denomination banknotes in recent years (although it has moderated somewhat in 2018).⁷ There is also evidence that overseas demand has contributed to growth in high-denomination banknotes. Over time, the increase in notes in circulation, together with declining use of cash for payments, has translated into a fall in the share of outstanding banknotes that are used for transaction purposes (rather than as a store-of-value).

6 Flannigan G and A Staib (2017), 'The Growing Demand for Cash', *RBA Bulletin*, September, pp 63–74.

7 Flannigan G and S Parsons (2018), 'High-denomination Banknotes in Circulation: A Cross-country Analysis', *RBA Bulletin*, March, viewed 27 August 2018. Available at <<https://www.rba.gov.au/publications/bulletin/2018/mar/high-denomination-banknotes-in-circulation-a-cross-country-analysis.html>>.

Box A

International Trends in Consumer Payments

Consumers globally are increasingly using electronic methods, such as cards and mobile apps, instead of cash and cheques to make their payments. For example, data across a range of countries indicate that consumers' use of payment cards has increased in recent years (Graph A1).¹ These trends reflect advances in technology, changing consumer preferences, and, to some extent, government policies aimed at facilitating increased use of electronic payment methods.

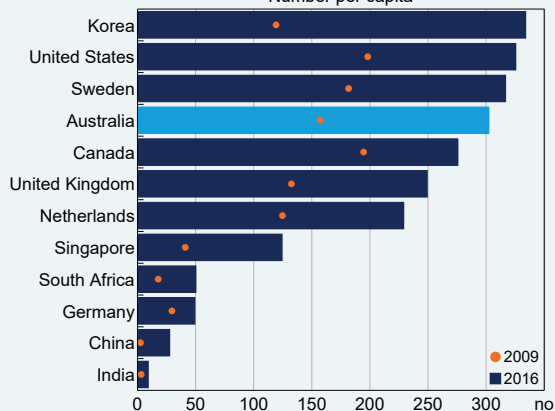
In Australia, the Reserve Bank's triennial Consumer Payments Survey (CPS) shows that the share of consumer payments made in cash has been falling steadily for a number of years and, in the 2016 survey, debit and credit cards overtook cash as the most commonly used consumer payment method (Graph A2). A number of advanced countries also conduct surveys of consumer payment patterns. Although they are not fully comparable due to survey design differences, these surveys show that Australian consumers are not alone in shifting away from cash for transaction purposes, although there are some notable differences across countries.

Swedish consumers, for example, now use cash relatively infrequently: less than 15 per cent of respondents to a central bank survey in 2018 reported that they had used cash for their most recent purchase, compared to around 40 per cent in 2010.² A pronounced shift away from cash for

1 CPMI (2017), 'Statistics on payment, clearing and settlement systems in the CPMI countries – Figures for 2016', December. Available at <<https://www.bis.org/cpmi/publ/d172.pdf>>.

2 Sveriges Riksbank (2018), 'Payment Patterns in Sweden 2018', May. Available at <<https://www.riksbank.se/globalassets/media/statistik/betalningsstatistik/2018/payments-patterns-in-sweden-2018.pdf>>.

Graph A1
Card Payments
Number per capita



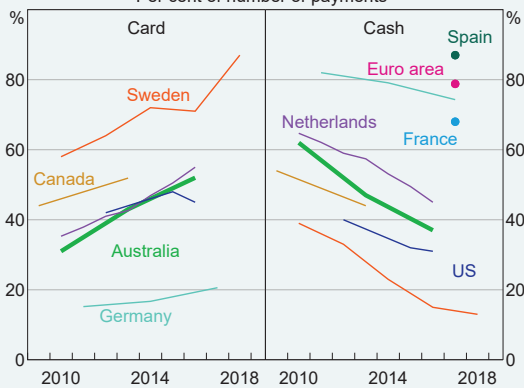
Sources: CPMI; RBA

consumer payments has also occurred in Norway.³ While cards are the most commonly used means of payment in Sweden, use of the mobile payment service Swish – which allows real-time consumer payments – has increased rapidly in recent years. The Swedish central bank has, however, noted concerns that the rapid decline in the use and acceptance of cash could lead to problems for segments of the population that still rely heavily on cash. It has also noted concerns about the resilience and possible monopolisation of private electronic payment systems. Reflecting these concerns, it has been analysing the case for the central bank to issue an electronic form of the krona and considering requirements on banks to continue to provide cash services.⁴

3 Norges Bank (2018), 'Retail payment services 2017', Norges Bank Papers 2. Available at <<https://www.norges-bank.no/en/Published/Publications/Norges-Bank-Papers/2018/norges-bank-memo-22018/>>.

4 See, for example, Ingves S (2018), 'Money and payments – where are we heading?', Stockholm School of Economics, Stockholm, 4 June. Available at <<https://www.bis.org/review/r180725e.pdf>>.

Graph A2
Trends in Card and Cash Payments
Per cent of number of payments*



* Cash and card do not sum to 100; observations are not directly comparable due to differing survey methods and inclusions across countries
Sources: Bank of Canada; Colmar Brunton; De Nederlandsche Bank; Deutsche Bundesbank; European Central Bank; Federal Reserve Bank of San Francisco; Ipsos; RBA; Roy Morgan Research; Sveriges Riksbank

In contrast, cash remains the dominant means of payment in some other European countries (although the share of cash payments has also fallen). According to a recent European Central Bank survey, cash still accounted for around 80 per cent of payments at the point of sale in the euro area in 2016.⁵ In particular, cash was used relatively intensively in southern euro area countries – including Greece, Italy and Spain – and in Germany among others. Cash was used particularly intensively for low-value payments, and many consumers in these countries reportedly use cash because of speed and the ability to aid budgeting. On average, euro area consumers used contactless card payments for around 2 per cent of point-of-sale transactions, whereas Australian consumers made around one-third of their in-person payments with contactless cards in the 2016 CPS.⁶

Payment trends in a number of other countries have been broadly similar to those in Australia.

For example, while consumers in Canada, the United States and the Netherlands use cash less frequently than in the past, according to the most recent surveys it remains an important part of the payments mix. As in Australia, cards are now the most common way of making consumer payments in these countries. Research by the Federal Reserve Bank of Boston suggests that mobile (phone) payments that connect to card networks are also gaining popularity in the United States, with a third of consumers making such payments in 2016.⁷ However, cheques remain a significant payment method in the United States, where the decline in their use has not been as pronounced as it has been in Australia and some other advanced economies. In the Netherlands, for example, the processing of cheques was terminated in 2001.

While consumer survey data are typically unavailable for other regions and for less-developed economies, there is evidence that a shift to electronic payment methods is occurring globally, albeit with significant variation across countries. In some cases, government policies are aiming to promote electronic payments and reduce the economy's reliance on cash. For example, in 2015, the Thai government introduced its National e-Payment initiative, a series of projects aimed at improving the efficiency of financial infrastructure by reducing the need for cash.

In some developing economies, a notable development has been a move away from cash to the use of mobile payment methods. In China, for example, the use of mobile payment apps such as AliPay and WeChat Pay has grown rapidly in recent years, particularly for low-value transactions. These non-bank systems use quick response (QR) code technology to

5 Esselink H and L Hernández (2017), 'The use of cash by households in the euro area', European Central Bank Occasional Paper Series 201.

6 See Doyle M-A, C Fisher, E Tellez and A Yadav (2017), 'How Australians Pay: New Survey Evidence', RBA Bulletin, March, pp 59–66.

7 Greene C and S Schuh (2017), 'The 2016 Diary of Consumer Payment Choice', Federal Reserve Bank of Boston Research Data Reports 17-7.

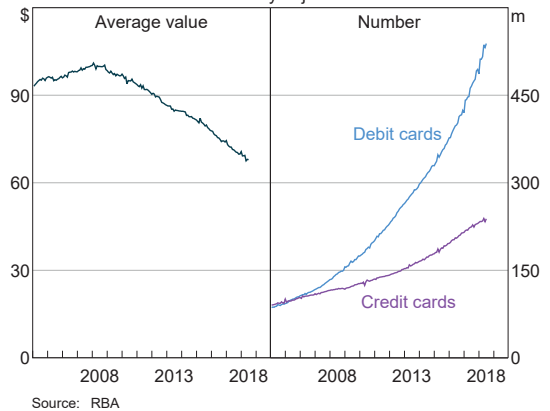
facilitate transactions between users' accounts. This technology has provided a cost-effective way for merchants to accept electronic payments in an environment where many of them were previously unable to do so, largely because of a lack of access to card terminals. Mobile payment technology has also played a significant role in facilitating financial inclusion in some developing countries with large unbanked segments of the population; a notable example is Kenya, where the M-Pesa system is widely used to transfer value and make payments using text messages on mobile phones (without the need to access card networks).

Card payments

Debit and credit cards combined are the most frequently used payment method in Australia. In 2017/18, domestic personal and business cardholders made around 8.7 billion card payments worth \$591 billion, an increase of around 13 per cent and 7 per cent respectively from the previous year (Table 2). Reflecting the increased use of cards for low-value payments, the average value of card payments continued to fall and is now just below \$70 (Graph 4, left panel). This is consistent with both changing consumer preferences and merchants being more willing to accept cards for low-value transactions.

Growth in card payments has been underpinned by the rising popularity of debit card payments (Graph 4, right panel). Both the number and value of debit card transactions continues to grow at a faster pace than credit card transactions. The number of debit card transactions has grown at an average annual rate of 14 per cent over the past decade, compared to 7 per cent for credit cards. The share of debit card payments made using the international (Mastercard or Visa) debit

Graph 4
Card Purchases
Seasonally adjusted



system has been increasing steadily over the past five years, while the share of the domestic eftpos system has been declining. This largely reflects the increased use of contactless payments, which were only supported by the international debit schemes until eftpos introduced the capability around a year ago. For credit card payments, the combined market share of American Express and Diners Club (by value of transactions) has declined noticeably in recent months as several banks have ceased issuing American Express

Table 2: Non-cash Payments

	2017/18						Average annual growth 2012/13–2017/18	
	Per cent of total		Average value	Growth (per cent)		Per cent		
	Number	Value	\$	Number	Value	Number	Value	
Cards	73.5	5.4	68	13.1	7.1	12.0	7.1	
Debit cards	51.1	2.7	48	16.2	11.5	13.6	10.1	
Credit cards	22.4	2.8	114	6.8	3.2	8.8	4.6	
Direct credits ^(a)	16.6	62.8	3,483	6.9	2.8	7.5	4.8	
Direct debits ^(a)	5.8	18.7	2,955	16.2	4.2	13.2	3.7	
BPAY	3.4	3.8	1,053	2.1	9.7	3.3	9.5	
Cheques	0.7	9.2	12,506	-19.6	-12.5	-17.4	-3.4	
Total	100.0	100.0	922	11.5	1.9	10.4	3.9	

(a) Adjusted for a reporting change in May 2018, which decreased the number and value of direct credit and direct debit payments
Sources: BPAY; RBA

companion cards (see the chapter on 'Retail Payments Regulation and Policy Issues').

Mobile payments – contactless payments made with a mobile device using an electronic representation of a debit or credit card – are now being offered by an increasing number of card issuers via their own mobile banking applications or third-party electronic wallets (such as Apple Pay and Android Pay). The Bank's 2016 CPS indicated that mobile payments accounted for a small share of in-person payments, with only around 10 per cent of respondents reporting that they had made a mobile payment or were interested in making them. Other sources suggest that this share has increased modestly since then.

Merchant fees

Merchant fees are paid by merchants to their financial institution (or directly to the card scheme in the case of American Express and Diners Club) for the provision of card acquiring services. The level of merchant fees is heavily influenced by the wholesale interchange fees paid from a merchant's financial institution (known as the acquirer) to the cardholder's financial institution for each transaction and the scheme fees that

acquirers pay to the schemes. They can also include annual or monthly fees, terminal fees, terminal rentals, joining fees and other fees charged to merchants by their acquirers.

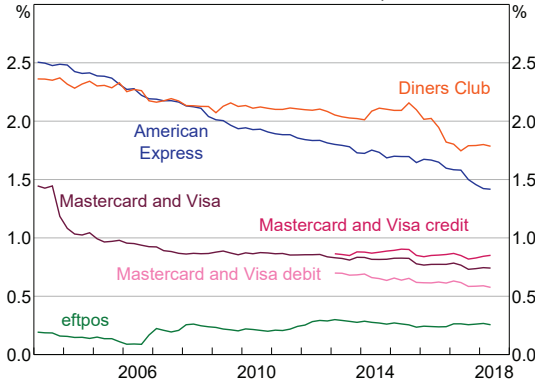
Average merchant fees for international scheme cards have declined since the early 2000s when the Bank started its card payments reforms. In 2017/18, the average merchant fee for transactions on Mastercard and Visa debit cards declined by 4 basis points, to 0.58 per cent in the June quarter, after being unchanged the previous year (Graph 5). This decline followed a reset in the scheme's debit interchange fees following the lowering of the Bank's weighted-average interchange fee benchmark for debit cards in July 2017; overall, however, the fall in merchant fees appears to have been only around half what would have been seen if there had been full pass-through by acquirers of the fall in interchange fees.⁸ The average merchant

⁸ As noted in the section on 'Interchange fees' in the chapter on 'Retail Payments Regulation and Policy Issues', under the new standards, the weighted-average interchange fee benchmark for debit cards was reduced from 12 cents to 8 cents, and applies jointly to debit and prepaid cards in each designated scheme. The weighted-average benchmark for credit cards was maintained at 0.50 per cent. These weighted-average benchmarks are now also 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.

Graph 5

Total Merchant Fees

Per cent of transaction values acquired



Source: RBA

fee for eftpos transactions was 0.26 per cent of transaction values in the June quarter, broadly unchanged over the year and remaining well below the average rates for transactions in the international debit networks.

The average merchant fee for Mastercard and Visa credit cards was 0.85 per cent of transaction values in the June quarter, broadly unchanged relative to the past few years. By contrast, the average fee for American Express transactions has continued to decline, falling by 16 basis points over 2017/18, to 1.42 per cent in the June quarter. This reflects reductions in fees for some merchant types by American Express to bolster its acceptance. Over the same period, the average fee for Diners Club remained broadly unchanged at around 1.8 per cent.

Over the past year, the Bank has focused on some issues regarding the cost of electronic payments to merchants. In late 2017, the Bank asked all the larger acquirers to provide anonymised merchant-level data on the costs to their merchants of accepting different types of cards. The data were collected for about 680,000 merchant accounts and included the total value of card payments and the average cost of payments (in terms of merchant service fees and other costs) in 2016/17 for each of the four-party card

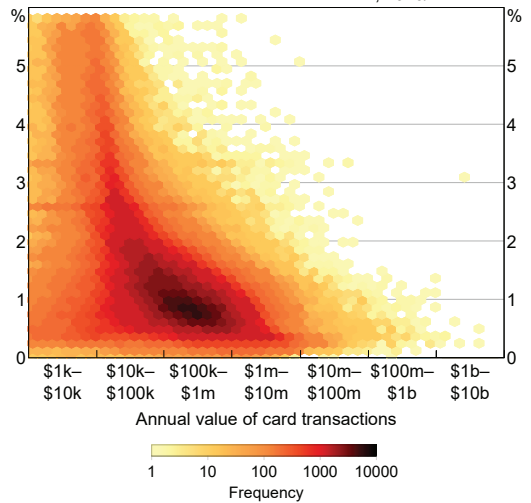
schemes (eftpos, Debit Mastercard, Visa Debit, Mastercard credit, Visa credit, and UnionPay).

The data corresponded to the information that acquirers are now required to provide their merchants each year as part of the Bank's new surcharging framework.⁹ A scatter plot of these data shows that there is a wide range in the cost of payments (averaged across all schemes) for merchants of different sizes, with a tendency for merchants' payment costs to fall as their transaction values rise (Graph 6).

Graph 6

Cost of Acceptance by Merchant Size

Per cent of value of card transactions, 2016/17



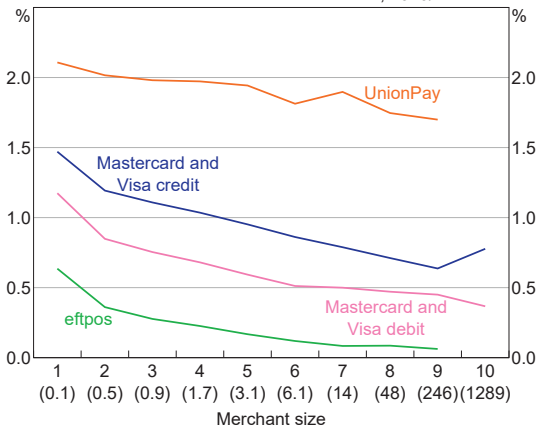
Source: RBA

For each of the four-party schemes, average payment costs decline fairly consistently as merchant size increases. Furthermore, merchants of all sizes pay less on average for transactions via eftpos as opposed to the international debit schemes. On average, across different merchant sizes, eftpos is around 44 basis points less expensive than scheme debit, which in turn is around 32 basis points less expensive than scheme credit. UnionPay costs are significantly

⁹ See the chapter on 'Retail Payments Regulation and Policy Issues' for a discussion of the new surcharging framework, including the obligations on acquirers to provide information to merchants on the cost of acceptance for designated card schemes to assist merchants' surcharging decisions.

higher than the other international scheme credit costs, which is not surprising given that most UnionPay transactions in Australia are made with overseas-issued cards that usually have higher interchange fees (UnionPay is not covered by the Bank's interchange standards) (Graph 7).

Graph 7
Average Cost of Acceptance by Merchant Size*
 Per cent of value of card transactions, 2016/17



* Merchants ranked in value deciles, with average annual value of card transactions (\$m) in parentheses
 Source: RBA

Direct Entry and BPAY payments

Direct Entry payments account for the bulk of the value of non-cash retail payments (Table 2). Banks and other financial institutions use this system for a wide range of payments, including consumers' internet 'pay-anyone' transactions and various types of bulk payments (such as salary and welfare payments) by businesses, corporations and governments. The average value of Direct Entry payments has declined over the past decade, but remains large relative to other electronic payment methods: around \$3,500 and \$2,950 for direct credits and direct debits, respectively.

In 2017/18, the number and value of BPAY transactions increased by 2.1 per cent and 9.7 per cent, respectively. Consumers and businesses use BPAY to make a range of bill payments, including

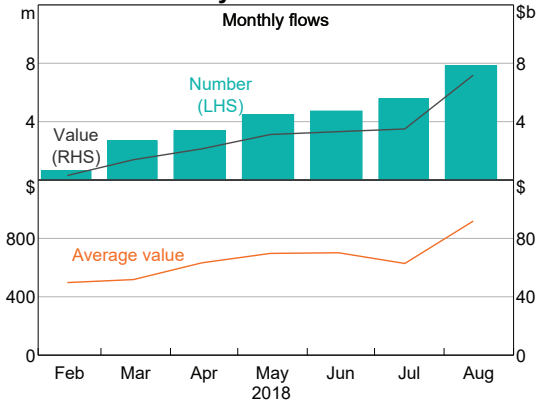
for utilities, education fees and investments. BPAY payments are much less common than card payments, but the high average value of these payments means they account for a greater share of the value of electronic retail payments than either credit or debit cards. According to the 2016 CPS, consumers are increasingly paying their bills automatically, including via BPAY.

New Payments Platform

The New Payments Platform (NPP) was launched to the public on 13 February. The NPP was developed through industry collaboration to enable households, businesses and government agencies to make real-time payments on a 24/7 basis. Each NPP payment message is capable of carrying up to 280 characters, permitting richer remittance information than the 18 characters currently available for Direct Entry payments. In addition, the NPP provides a 'PayID' service, which allows a payment to be made to a registered mobile phone number, ABN or email address (instead of sending a payment to a BSB and account number).

As expected, the financial institutions connected to the NPP have been rolling out services to customers gradually, with some choosing to bring on particular channels or customer segments earlier than others. In addition, a number of financial institutions are still in the process of connecting to the new infrastructure. However, there has been significant progress in this regard recently. Consistent with the gradual rollout, NPP transactions have been growing steadily since its launch (Graph 8). More than 1.9 million PayIDs had been created as of late August, and around 29 million payments worth \$21 billion had been sent through the platform. The average value of an NPP payment has increased and is now around \$900, consistent with the NPP being used for some larger-value payments that previously would have gone through the Direct Entry system. Over time,

Graph 8
New Payments Platform*



* August number and value are estimates based on Osko data
Sources: BPAY; RBA

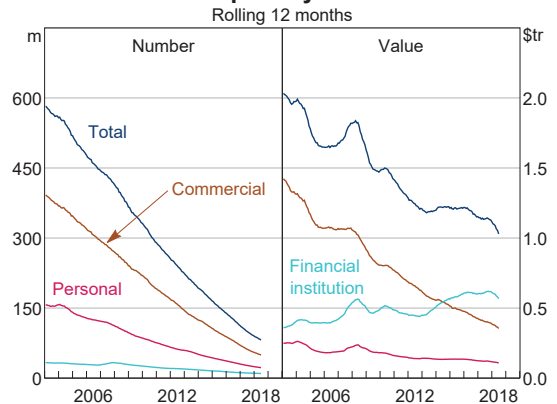
it is expected that the NPP will replace an even greater share of Direct Entry payments, particularly those that are more time critical or which benefit from the additional data capabilities.

Cheque payments

The decline in cheque use in Australia has continued, driven by changing preferences and payment innovations. The total number of cheque payments fell by around 20 per cent in 2017/18 (Graph 9). While the decline was driven by commercial cheques, the number of personal and financial institution (bank) cheques also declined. Overall, the number of cheque payments in Australia has fallen by around 80 per cent over the past decade. As a result, cheques now account for less than 1 per cent of the number of non-cash payments or around 9 per cent by value (Table 2). Where cheques are still used, they are most often for relatively large transactions, including some property purchases. This is reflected in the high average value of cheques written of around \$12,500.

The shift away from cheques to electronic payments is expected to continue. The recent launch of the NPP, with its capacity to attach

Graph 9
Cheque Payments



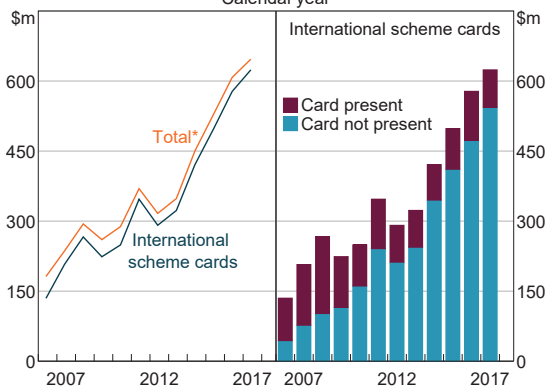
Source: RBA

richer data to payment messages, as well as e-conveyancing systems like Property Exchange Australia (PEXA), will likely encourage a further reduction in cheque use. As cheque use declines, the per-transaction cost of supporting the cheque system will continue to rise and it is likely that more businesses and other payees will eventually stop accepting cheques. The Australian Payments Council has been developing a strategy to manage the decline in the cheque system in a way that ensures that the payment needs of individuals and businesses continue to be met in a safe, convenient and efficient manner.

Payment fraud

According to data collected by AusPayNet, losses related to fraudulent payment transactions increased by 6 per cent in 2017, to around \$650 million, a slightly slower pace of growth than in the past few years (Graph 10, left panel). The estimated fraud rate (the value of fraudulent transactions as a share of overall transactions) increased to 34 cents per \$1,000 transacted, from 32 cents in 2016. The vast bulk of fraud losses, around 95 per cent, come from international scheme debit, credit and charge

Graph 10
Payment Fraud Losses
Calendar year



* Includes cards, cheques, eftpos and ATM transactions
Sources: AusPayNet; RBA

cards; these fraud losses rose by 8 per cent to about \$625 million in 2017 (this includes cards issued and/or acquired in Australia). Fraud losses from ATM transactions and on eftpos-only cards declined from \$24 million to \$17 million in 2017, while cheque fraud remained broadly steady at \$6 million.

Consistent with the trend in recent years, the increase in card fraud in 2017 was driven by the fraudulent use of scheme cards in the card-not-present (CNP) environment (i.e. online, telephone or mail order). This type of fraud rose by 15 per cent in 2017 to around \$550 million, accounting for nearly 90 per cent of total scheme card fraud losses (Graph 10, right panel). Around half of CNP fraud losses in 2017 occurred at Australian merchants (on both Australian and overseas-issued cards) and the other half was perpetrated overseas using Australian-issued cards.

In contrast to CNP fraud, card-present (CP) scheme fraud losses fell by around \$25 million in 2017. For domestic scheme transactions, CP fraud losses have been relatively stable over the past few years, and are lower than they were a decade or so ago, consistent with the enhanced security measures that have been introduced, including chip-and-PIN. CP fraud committed with lost

and stolen cards has been increasing in recent years, rising by a further 6 per cent in 2017 and accounting for around 80 per cent of CP scheme fraud losses. The rise in this type of fraud has likely been facilitated by tap-and-go payments that do not require a PIN for transactions below \$100. Nonetheless, these fraud losses are still significantly less than CNP fraud losses.

While the industry has had success in reducing CP fraud, there has been more focus recently on measures to tackle the significant rise in CNP fraud, particularly given the expectation that online shopping will continue to grow. An industry framework for mitigating CNP fraud is currently being developed by AusPayNet, and is expected to be implemented over the coming year, subject to industry discussions. The core feature of this framework is a risk-based requirement for merchants and issuers to authenticate customers in CNP transactions using two or more authentication factors, such as one-time passcodes, device information and biometrics (see the chapter on 'Retail Payments Regulation and Policy Issues'). The industry is also pursuing other strategies to combat CNP fraud, including strengthening data security standards and extending the use of tokenisation to a broader range of payment use cases to protect sensitive card data from theft.

Cryptocurrencies

Interest in cryptocurrencies (or crypto-assets or crypto-tokens) has increased significantly in recent years, together with a sharp run-up in prices and the emergence of new products and intermediaries that facilitate trading in them.¹⁰ The prices of Bitcoin and other cryptocurrencies,

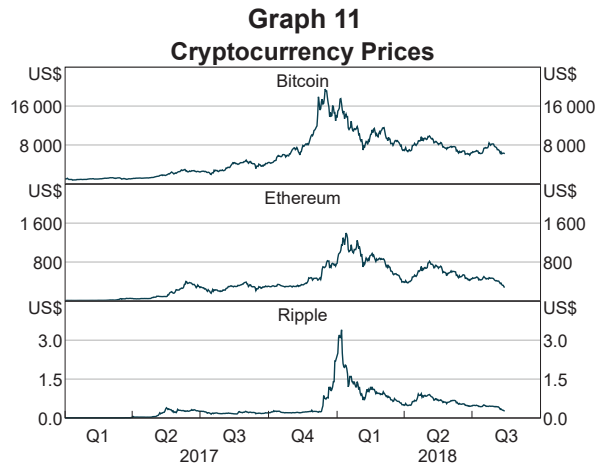
¹⁰ For more information, see Lowe P (2017), 'An eAUD?', Address to the 2017 Australian Payments Summit, Sydney, 13 December. Available at <<https://www.rba.gov.au/speeches/2017/sp-gov-2017-12-13.html>>. Also, see Richards A (2018), 'Cryptocurrencies and Distributed Ledger Technology', Australian Business Economists Briefing, Sydney, 26 June. Available at <<https://www.rba.gov.au/speeches/2018/sp-so-2018-06-26.html>>.

such as those associated with the Ethereum and Ripple systems, rose particularly sharply in late 2017, as part of what appeared to be a speculative mania that has since significantly subsided (Graph 11). The total market capitalisation of cryptocurrencies reached a peak of over US\$800 billion in early 2018, but has since fallen back to around US\$200 billion (Graph 12). One factor contributing to the run-up in prices in 2017 was a surge in Initial Coin Offerings, which are a method of fundraising for distributed ledger-based business ventures in which new digital tokens or coins are issued, usually against the payment of cryptocurrencies.

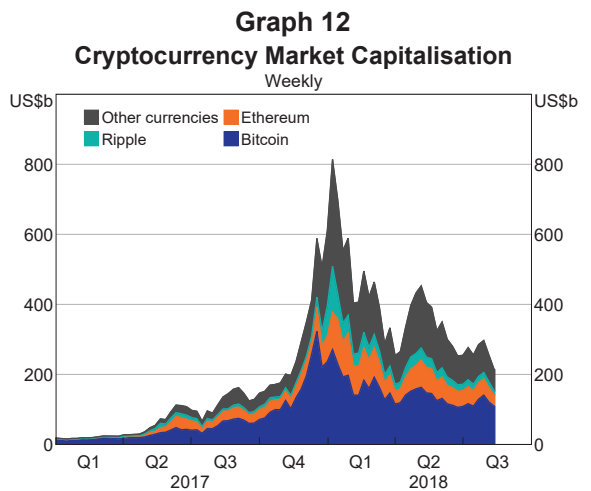
In Australia, it has been estimated that around A\$6 billion of cryptocurrencies were traded (bought and sold) at Australian digital currency exchanges (DCEs) in 2017, according to a study by the Australian Digital Commerce Association and Accenture. Around 60 per cent of the total trading value for that year took place in the month of December alone, when cryptocurrency prices and activity spiked higher. The study estimated that Australian DCEs had around 313,000 customer accounts at the end of 2017, however these figures would overstate the number of unique users to the extent that some users had accounts at more than one DCE.

While they are frequently touted as an efficient and anonymous way of making payments, the demand for cryptocurrencies seems to be more focused on their use as a speculative investment than as a payment instrument.¹¹

Indeed, in Australia, very few merchants accept cryptocurrencies as a means of payment for goods and services, and cryptocurrencies do not display the other economic attributes normally ascribed to 'money'. In particular, the volatility in



Source: Coinmarketcap.com



Source: Coinmarketcap.com

their prices suggests they have not established themselves as a reliable store of value. Moreover, technical features that are required to facilitate trust in a decentralised environment mean that cryptocurrencies are significantly less efficient (e.g. in terms of transaction throughput) than modern payment systems that rely on trusted central parties. It is not obvious, therefore, that cryptocurrencies will ever become a significant part of the payments system in Australia.

¹¹ For a discussion of some policy issues related to cryptocurrencies see the section on 'Technology and Innovation' in the chapter on 'Retail Payments Regulation and Policy Issues'.

High-value Payment and Settlement Systems

In Australia, the final settlement of Australian dollar (AUD) interbank payment obligations occurs across Exchange Settlement (ES) accounts through the Reserve Bank Information and Transfer System (RITS). RITS facilitates settlement of payments on a real-time gross settlement (RTGS) basis. Foreign exchange transactions involving the AUD are generally settled through CLS Bank International (CLS), with AUD funding paid to CLS through RITS. Together these two systems settle the majority of payments in Australia by value. RITS also facilitates the interbank settlement of the payment leg of securities transactions. Securities settlement involves delivery of the security in exchange for payment, typically through a securities settlement facility (SSF).

Reserve Bank Information and Transfer System

RITS is Australia's high-value settlement system, which is used by banks and other approved institutions to settle their payment obligations on a RTGS basis. RITS is used each day to settle time-critical wholesale payments for other financial market infrastructures (FMIs): Australian dollar pay-ins to or pay-outs from CLS; margin payments to central counterparties (CCPs); and debt and equity settlement obligations arising in securities settlement systems. RITS also settles the interbank obligations arising from non-cash retail payments. Over the past financial year average daily volumes and values of RTGS transactions in RITS increased broadly in line with the longer term trends (Table 3 and Graph 13).

Table 3: Payments in Australia
Daily average, 2017/18^{(a)(b)}

	Number ^(c)		Value ^(c)		Interbank settlement value in RITS	
	'000s	Growth over last 3 years (per cent)	\$ billion	Growth over last 3 years (per cent)	\$ billion	Growth over last 3 years (per cent)
RITS RTGS	47	8	181	8	176	8
SWIFT payments	44	8	108	4	108	4
Austraclear ^(d)		12	59	14	55	15
RITS cash transfers	–	–	13	12	13	12
CLS	59	1	282	8	3	10
Retail payments	47,000	39	43	10	5	29
Direct entry ^(e)	12,000	29	37	13		
Cheques	320	–47	4	–17		
Credit/charge cards	10,000	30	1	13		
Debit cards	24,000	52	1	35		

(a) Does not include equity settlements or PEXA payments. NPP was launched in February 2018 and is not included.

(b) Business days

(c) Includes payments between customers of the same financial institution

(d) Primarily debt securities transactions; includes cash-only transactions; excludes intraday repurchase agreements

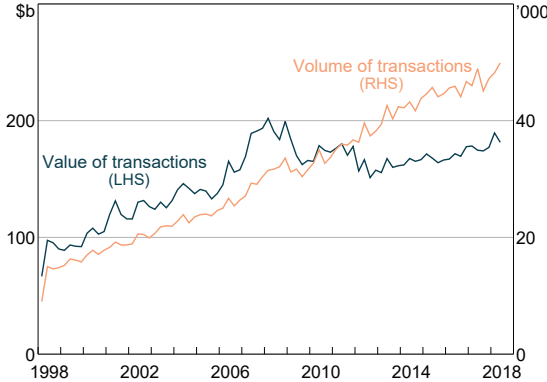
(e) Includes BPAY; adjusted for a reporting change in May 2018, which decreased the number and value of direct credit and direct debit payments

Sources: ASX; CLS; RBA

Graph 13

Real Time Gross Settlements*

Average daily volume and value, quarterly average

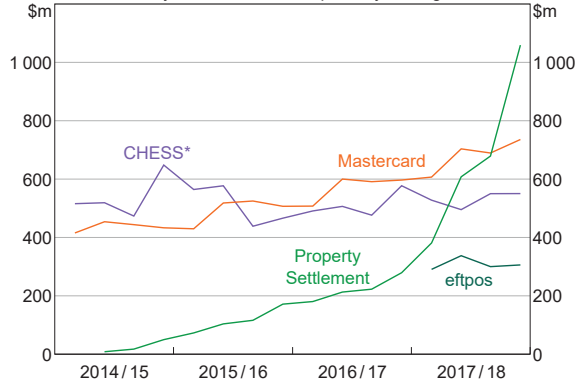


* NPP transactions are not included
Source: RBA

Graph 14

RITS Batch Settlement

Daily net value settled, quarterly average



* One-sided, i.e. a payment from a participant to the CCP, and from the CCP to another participant, is counted as one payment
Source: RBA

Although RITS is primarily an RTGS system, it also facilitates the multilateral net settlement of interbank obligations arising from other systems. These include non-cash retail payments – such as cheques, direct entry payments and card transactions – most of which are netted through the RITS Low Value Settlement Service. Direct entry makes up the majority of the value of retail payments through RITS. RITS also accepts transactions which are netted outside RITS: cash equity transactions through CHES, ASX Settlement Pty Limited’s (ASX Settlement) equities settlement system; Mastercard’s AUD domestic obligations; eftpos scheme obligations and property settlement transactions, managed by PEXA. These batch settlement values have grown very strongly in the financial year due largely to property settlement activity by PEXA and the commencement of the eftpos batch in August 2017 (Graph 14).

During the past year, a new service of RITS – the Fast Settlement Service – was established under the RITS Regulations. The Fast Settlement Service was publicly launched with the NPP in February 2018 and settles transactions submitted via the NPP feeder system on an RTGS basis.

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, i.e. 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. The current daily average value of AUD settlements at CLS is around \$280 billion. It has risen a little this year, consistent with a rise in the average daily turnover in the Australian dollar.

Securities settlement facilities

In Australia, ASX Settlement provides SSF services for ASX-quoted cash equities, debt products and warrants traded on the ASX and Chi-X Australia Pty Ltd (Chi-X) markets. ASX Settlement also provides SSF services for non-ASX listed securities quoted on the National Stock Exchange of Australia and the Sydney Stock Exchange Limited. The average daily value of cash equity settlements through ASX Settlement

has increased moderately in recent years to \$9.5 billion.

Austraclear Limited (Austraclear) provides SSF services for trades in debt securities, including government bonds and repurchase agreements. Over the last five years, the average daily value of debt securities settled in Austraclear (including under repurchase agreements) has increased by almost 20 per cent, to approximately \$48 billion.

Central Counterparties

CCPs play a major role managing the risks associated with trading in financial instruments. CCPs stand between the counterparties to a financial trade, acting as the buyer to every seller and seller to every buyer; this activity is known as clearing. Participants in cleared markets have credit and liquidity exposures only to the CCP, rather than other participants in the market.

In the absence of a participant default, the CCP is not exposed to market risk as it stands between counterparties with opposite (i.e. offsetting) positions. However, in the event that a participant defaults, the CCP must continue to meet its obligations to its surviving participants. In such an event, the CCP faces potential losses from changes in the value of a defaulting participant's portfolio until it closes out the positions in that portfolio.

To mitigate the risk of such losses, CCPs maintain prefunded resources, typically in the form of initial margin and default funds. Initial margin, which is collected from participants, is sized to cover potential future losses on a participant's portfolio in the event they default, to a specified confidence interval. Accordingly, initial margin provides a risk-based measure of the magnitude of exposures faced by CCPs. Default funds (comprising contributions from participants and/or the CCP itself) are available to cover losses if, in

the event of default, the defaulting participant's margin is exhausted.¹²

Four CCPs are licensed to provide services in Australia:

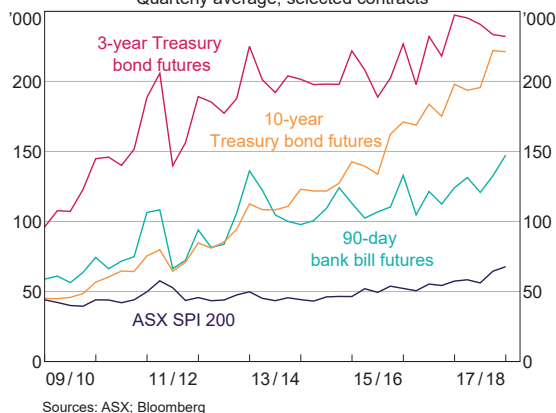
- ASX Clear Pty Limited (ASX Clear) provides CCP services for ASX-quoted cash equities, debt products and warrants traded on the ASX and Chi-X markets and equity-related derivatives traded on the ASX market or over-the-counter (OTC).
- ASX Clear (Futures) Pty Limited (ASX Clear (Futures)) provides CCP services for futures and options on interest rate, equity, energy and commodity products traded on the ASX 24 market, as well as AUD- and NZD-denominated OTC interest rate derivatives (IRD).
- LCH Limited's (LCH Ltd) SwapClear service provides CCP services for OTC IRD.
- 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.

Exchange-traded products

The ASX CCPs clear exchange-traded futures, options, and cash equities. The four major futures contracts cleared – the SPI 200 equity index, the 3-year and 10-year Treasury bond and 90-day bank bill swap – accounted for around 95 per cent of the total volume of transactions cleared at ASX Clear (Futures) in 2017/18 (Graph 15). Transaction volumes increased for each of the four most actively traded contracts on ASX 24 in 2017/18, with the 10-year Treasury bond

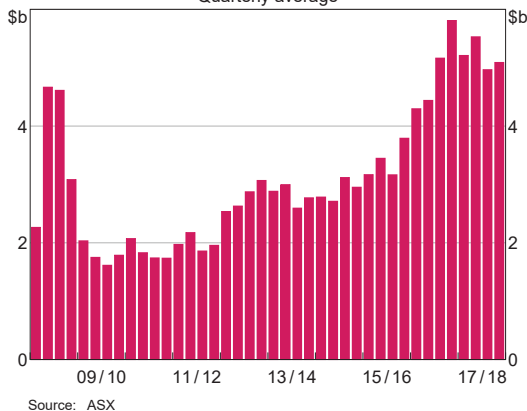
¹² CCPs also call variation margin to cover the exposure to actual changes in market prices, to prevent the build-up of current exposures. It is collected from participants with mark-to-market losses, and typically paid out to participants with gains.

Graph 15
ASX 24 Derivatives Trades
Quarterly average, selected contracts



futures and 90-day bank bill futures contracts experiencing the strongest growth. Exposures at ASX Clear (Futures), measured by initial margin, grew slightly over the year due in large part to growth in transactions in Treasury bond futures (Graph 16).

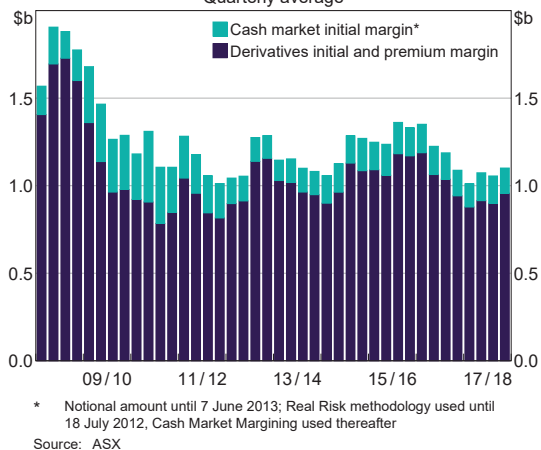
Graph 16
ASX Clear (Futures) Initial Margin
Quarterly average



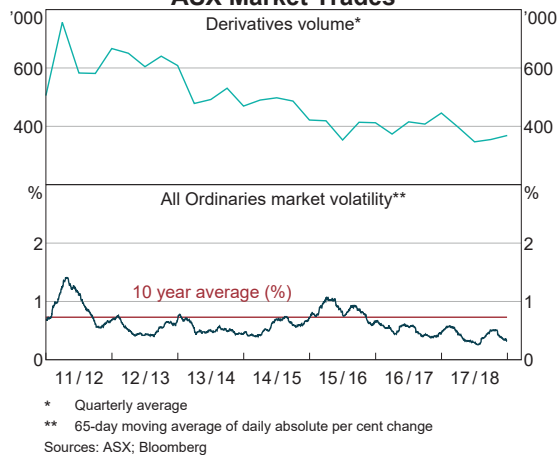
ASX Clear generates exposures from cash equities and equity derivatives products (including exchange-traded options). Exposures from cash equity transactions are much lower than for equity derivatives because of the short duration of cash security trades at two days. ASX Clear's

total exposures (including both equity derivatives and cash equities), as measured by margin, was lower in 2017/18 than in recent years, reflecting the lower activity in equity derivatives products and a decline in the level of volatility in equity markets (Graphs 17 and 18).

Graph 17
ASX Clear Margin
Quarterly average



Graph 18
ASX Market Trades

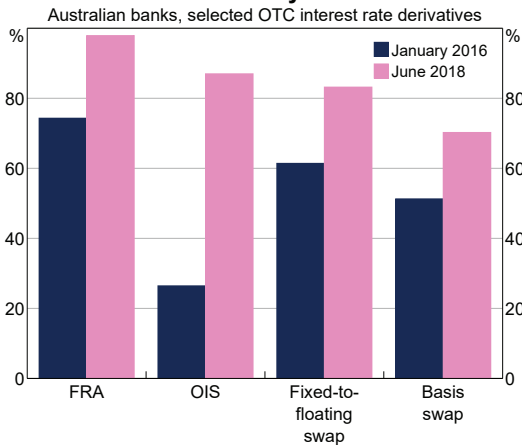


Over-the-counter interest rate derivatives

Consistent with the G20's OTC derivatives reforms, mandatory central clearing of OTC IRD (denominated in AUD and major currencies) between internationally active dealers came

into effect in Australia in April 2016. Due in part to these reforms there has been rapid growth in the proportion of OTC IRD that are centrally cleared. Other regulations, such as higher margin and capital requirements for OTC derivatives that are not cleared, and factors such as increased liquidity and netting benefits, have also provided an incentive for firms to clear more of their derivatives by increasing the relative benefits of clearing. Prior to 2012, Australian banks cleared almost none of their IRDs whereas they now clear over three-quarters of their single-currency interest-rate swaps (Graph 19).

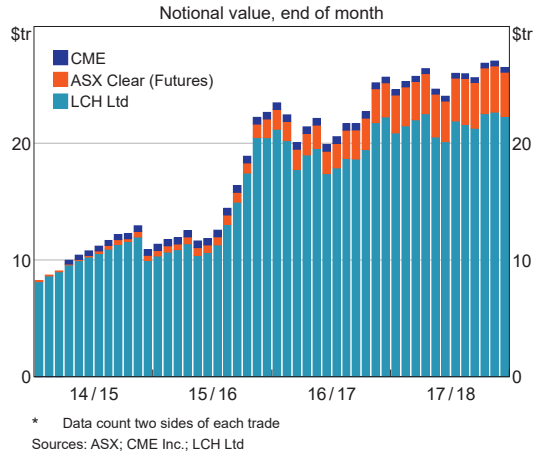
Graph 19
Share Centrally Cleared*



* Proportion of AUD-equivalent notional value outstanding in all currencies; excluding intragroup trades
Sources: DDRS; RBA

CME, ASX Clear (Futures) and LCH Ltd all offer central clearing for AUD-denominated IRD. The products which account for the majority of outstanding AUD positions are interest rate swaps and overnight index swaps. Other products offered include basis swaps, zero-coupon swaps and variable notional swaps. The notional value of all centrally cleared AUD-denominated OTC IRD rose moderately over the 2017/2018 financial year (Graph 20). As at June 2018, 84 per cent of centrally cleared AUD OTC IRD outstanding were cleared at LCH Ltd,

Graph 20
Outstanding AUD-denominated OTC Interest Rate Derivatives*



with most of the remaining share cleared at ASX Clear (Futures). Slower growth in the notional value of outstanding AUD-denominated OTC IRD at LCH Ltd than ASX Clear (Futures) was partly attributable to strong trade compression activity at LCH Ltd. Compression involves identifying offsetting trades in participants' portfolios and terminating them, while leaving the participants exposures largely unchanged. It reduces the operational costs and risks of managing a large volume of redundant transactions. During 2017/18, nearly \$25 trillion in AUD-denominated OTC IRD were compressed by LCH Ltd.

LCH Ltd and CME provide clearing services for OTC IRD in a range of currencies. AUD-denominated contracts make up a small share of outstanding contracts in all currencies – around 5 per cent at LCH Ltd's SwapClear service and around 1 per cent at CME. Australian participation in SwapClear increased over 2017/18, with one new Australian entity joining as a direct participant in April. There are now six Australian-incorporated entities participating as direct clearing participants. CME had no Australian direct clearing participants as at June, though a number of Australian-based banks,

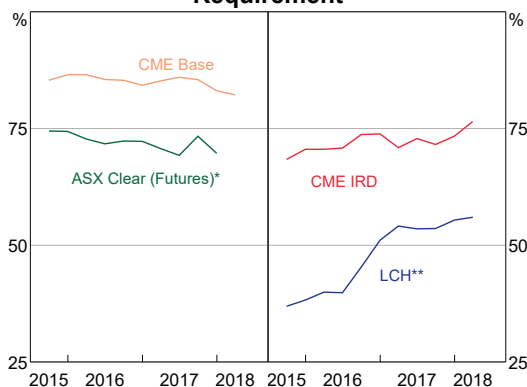
superannuation funds and other institutional investors clear products at CME indirectly as clients.

Client clearing

CCPs' exposures are to their direct clearing participants. These participants may offer clearing services to clients, from whom they collect margin to pass onto the CCP. Client margin accounts for a high share of the total initial margin requirements for the CCPs operating in Australia (Graph 21). One reason for these high shares is that clients tend to hold more directional exposures than clearing participants, which are typically dealers that prefer to hold balanced books. Furthermore, client clearing activity has increased over the past few years in response to regulatory changes in the wake of the global financial crisis. In particular, while clearing is not mandatory for many clients – clearing rules in Australia, for example, apply only to large APRA-supervised entities – it has been encouraged by the implementation of margin rules for uncleared OTC derivatives, which increase the costs of these transactions.

Client clearing changes some of the operational and financial risks faced by CCPs. For example, managing the default of a participant that clears for clients would typically involve the CCP 'porting' client accounts to a non-defaulting participant. But results of CCP default management 'fire drills' have previously indicated that the porting process could be challenging from an operational perspective, in particular for participants that have a large number of clients. And although CCPs usually have no direct credit exposure to clients, the default of a client could adversely affect the participant through which it clears.

Graph 21
Client Share of Total Initial Margin Requirement



* Includes some OTC interest rate derivatives
 ** LCH Ltd's Rates service, including SwapClear (OTC interest rate derivatives) and Listed Rates (exchange-traded interest rate products)
 Sources: ASX; CME Inc; LCH Ltd

Retail Payments Regulation and Policy Issues

The Reserve Bank determines policy for retail payments systems and undertakes research into retail payments issues under its remit to promote a safe, competitive and efficient payments system. Recent policy work has included evaluating the case for reforms that would require least-cost routing functionality to be provided to merchants, and monitoring the implementation of the Bank's recent reforms to the regulatory framework for card payments. There has also been an ongoing focus on innovation in the payments system, including the use of distributed ledger technology, and policy issues associated with digital currencies

Least-cost Routing

Least-cost routing (LCR), or merchant routing, is an initiative aimed at promoting competition in the debit card market and keeping downward pressure on payment costs in the economy. It refers to merchants being given the opportunity to route contactless debit card transactions via whichever card network costs them the least to accept. During 2017/18, the Board responded to the slow pace of industry progress in providing LCR functionality to merchants by considering the case for regulation. Following consultation with stakeholders and commitments from the major acquirers that they would make LCR functionality available by early 2019 or sooner, the Board decided in May that a standard was not required, but that it would reassess the case for regulation if there were further material delays to implementation.

Background

Around four-fifths of debit cards issued in Australia are dual-network cards, which allow a payment to be processed via either eftpos or

one of the two other debit card schemes (Debit Mastercard or Visa Debit). A payment made using a dual-network card typically draws on the same deposit account regardless of which debit card scheme processes the transaction. The three schemes also offer similar protections to the cardholder in relation to fraudulent and disputed transactions. From a merchant's perspective, the cost of accepting a debit card payment can vary depending on which of the three networks processes the transaction. For many merchants, payments via eftpos can be significantly cheaper for them to accept than payments via the international schemes (see the section on 'Merchant fees' in the chapter 'Trends in Payments, Clearing and Settlement Systems').

When a cardholder inserts their dual-network debit card into a terminal to make a payment, they are asked to select the debit card scheme to process the transaction (for example, by pressing CHQ or SAV for eftpos and CR for Debit Mastercard or Visa Debit). By contrast, if the cardholder chooses to make a contactless ('tap-and-go') payment, which is becoming

increasingly common, the transaction is automatically routed to the network which has been programmed as the default network by the issuing financial institution. Until recently, contactless payments were only available through the two international networks, which completed their rollout of contactless cards in 2012, and those networks have been the default. However, with eftpos having completed its rollout of contactless functionality, contactless payments can now also go through the eftpos network. This raises the possibility of LCR, whereby merchants might choose to route contactless transactions via whichever of the two networks on the card costs them less to accept. This would have the direct effect of helping merchants reduce their payment costs, it also increases competitive pressure between the debit schemes such that there is greater incentive for all of them to lower their fees. LCR functionality would typically be made available to merchants by acquirers providing updates to their terminals. Regardless of whether a merchant uses LCR, cardholders would still have the option to select a particular debit network by inserting their card in the terminal and making a selection rather than tapping.

Support for least-cost routing

The Board has long supported the issuance of dual-network debit cards in Australia and giving merchants the ability to choose how contactless transactions on these cards are routed. This support reflects the benefits dual-network cards can have for competition and efficiency of the payments system.¹³

¹³ The Bank had a series of discussions with the debit card schemes in 2012 that resulted in the schemes making voluntary undertakings to the Bank in 2013 that included commitments to work constructively to allow issuers to continue to issue dual-network cards (if issuers wished to do so) and to not prevent merchants from exercising their own transaction-routing priorities for contactless dual-network debit card transactions. See <<https://www.rba.gov.au/media-releases/2013/mr-13-16.html>>.

In recent years, a range of stakeholders have called for acquirers to begin providing merchants with LCR functionality now that most payment terminals and dual-network debit cards in Australia support contactless functionality for eftpos as well as the two international debit schemes. A number of recent government reports have also supported providing LCR functionality to merchants, including the Third Report on the Review of the Four Major Banks by the House of Representatives Standing Committee on Economics (December 2017), the Productivity Commission's Report on Competition in the Australian Financial System (February and August 2018), and the Black Economy Taskforce's (BETF) Final Report (October 2017). The payments-related aspects of these reports are discussed more fully later in this chapter.

Issues and outcome

In response to concerns about the lack of any industry progress in providing LCR functionality, in 2017/18 the Board considered whether regulation was needed to ensure the functionality would be made widely available to merchants. To support this, Bank staff consulted widely with stakeholders and gathered information on merchants' cost of acceptance for different types of payment networks to determine the potential demand for LCR and on the technical changes required to enable LCR functionality.

At its May meeting, the Board reviewed industry progress on providing LCR functionality and noted that:

- One smaller acquirer had already begun offering LCR to its entire merchant base and a large merchant with its own terminal fleet had begun to implement LCR with the cooperation of one of the major banks.

- The four major banks had made commitments to the Reserve Bank to complete the necessary technical work to make LCR generally available within the next year, with two of them expecting to roll out the functionality on their terminals within six months. Other banks and acquirers indicated that they would also be making LCR available within six months.
- Terminal providers were making good progress in developing the necessary functionality, and some large and medium-sized merchants with their own terminals would likely be able to implement LCR independently of their acquirers' schedules.

In view of this progress, the Board decided that consultation on a standard requiring the provision of LCR was not necessary at that point in time. This decision was consistent with the Board's usual approach of regulating only where an appropriate industry solution is not forthcoming. However, the Board indicated that it would reassess the case for regulation if there were further material delays in acquirers providing merchants with LCR functionality.

In addition to the provision of LCR functionality, the Board also considered a number of other issues relevant to the effective implementation of LCR. These included the potential strategic responses of the debit card schemes and the awareness of LCR among merchants, especially small and medium-sized merchants. The issue of strategic responses relates to concerns of some merchants that the international card schemes might respond to a merchant's decision to implement LCR for debit card transactions by increasing the interchange fees that apply to that merchant's credit card transactions. The Bank has raised these concerns with schemes and the three schemes have provided the Bank with

assurances that they will not respond to LCR in ways that would limit competitive pressure in the debit card market. The Australian Competition and Consumer Commission (ACCC) is also aware of these concerns. The Board asked the staff to closely monitor pricing developments in the payment card market and whether smaller merchants are being provided with reasonable access to LCR by the major banks.

Reforms to Card Payments Regulation

The remaining elements of the Reserve Bank's 2016 card payment reforms took effect during 2017/18. In July 2017, the new interchange fee standards took effect, and in September the new surcharging rules took effect for smaller merchants, with reliance on the cost of acceptance information that acquirers were required to provide from mid 2017. For larger merchants, the surcharging rules came into effect a year earlier. These various requirements reflected the conclusions of the Bank's 2015–16 Review of Card Payments Regulation. This review was a comprehensive examination of the regulatory framework for card payments, guided by the Board's mandate to promote competition and efficiency in the payments system.

Interchange fees

Under the new interchange standards, the weighted-average interchange fee benchmark for debit cards was reduced from 12 cents to 8 cents, and applies jointly to debit and prepaid cards in each designated scheme. The weighted-average benchmark for credit cards was maintained at 0.50 per cent. These weighted-average benchmarks are now also 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 they had previously, compliance with the benchmarks is now observed quarterly, based on transactions in the preceding four quarters, rather than being observed every three years. A scheme is required to reset its interchange fee schedule within two months in the event that its average interchange fee over the previous four-quarter period exceeds the relevant benchmark.¹⁴

Card scheme interchange fee resets

When the standard relating to credit card interchange fees came into effect in July 2017, both Mastercard and Visa reset their credit card interchange fee schedules to comply with the new ceilings on individual interchange rates and the revised benchmark methodology. Both schemes made two further schedule resets in 2017/18, in line with the requirements of the

standard, after their weighted-average credit card interchange fees exceeded the benchmark. These further adjustments to the fee schedules were relatively minor (Table 4).

Mastercard and Visa also published new debit and prepaid card interchange fee schedules in July 2017. Mastercard made one further schedule reset during 2017/18 and Visa made two resets to its interchange fee schedule (the changes in these more recent resets were small relative to the July 2017 changes (Table 5)). Both schemes have reduced their interchange fees for consumer premium and commercial card transactions in order to comply with the new ceiling; interchange fees on these transactions were previously as high as 1.05 per cent but are now 0.20 per cent. In addition, Mastercard has changed its consumer standard rate from 0.27 per cent to 12.5 cents per transaction, and increased interchange fees for some of its

Table 4: Selected Credit Card Interchange Fees^{(a)(b)}
Excluding GST; per cent

Category	Mastercard		Visa	
	June 2017	July 2018	June 2017	July 2018
Consumer electronic	–	–	0.25	0.21
Consumer standard	0.29	0.19	0.25	0.21
Consumer elite/high net worth	1.82	0.80	2.00	0.80
Business/Commercial	0.85	0.70	0.84	0.70
Business elite/super premium	1.80	0.80	1.80	0.80
Strategic merchants	0.23 or 0.29	0.18 or 0.23	0.20 to 0.30	0.21 to 0.30
Industry-specific merchants ^(c)	0.29	0.10	0.25	0.25
Benchmark	0.50	0.500	0.50	0.500
Ceiling	–	0.800	–	0.800

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

(b) Only selected interchange categories have been listed; Mastercard has 17 categories overall and Visa has 22 categories

(c) Interchange categories include education, supermarket, government, utilities, insurance, transit and petrol station, if applicable for the card scheme

Sources: Mastercard website; Visa website

¹⁴ The Bank made minor technical variations to the interchange standards in November 2017. The varied standards require schemes to reset their interchange fee schedule within 2 months and 1 day, instead of the 60 days specified previously, if they exceed an interchange fee benchmark. Prior to the variation being determined, Bank staff consulted acquirers and schemes who indicated that the minor change could result in a reduction in compliance costs.

**Table 5: Selected Debit and Prepaid Card Interchange Fees:
Mastercard and Visa^{(a)(b)}**

Excluding GST; cents unless otherwise specified

Category	Mastercard		Visa	
	June 2017	July 2018	June 2017	July 2018
Consumer electronic debit	12.7	–	8.0	8.0
Consumer standard debit	0.27%	12.5	0.42%	0.20%
Consumer electronic/ standard prepaid	12.0	0.20%	8.0 or 0.42%	8.0 or 0.20%
Consumer premium	0.50% or 0.91%	0.20%	0.50% or 1.05%	0.20%
Business/commercial	0.91%	0.20%	1.05%	0.20%
Strategic merchant	2.82 or 3.6	2.82 or 4.5	2.0 to 8.0	2.0 to 8.0
Government ^(c)	7.0	0.20%	6.0	6.0
Petrol/service stations ^(c)	7.0	14.0	6.0	6.0
Recurring payment ^(c)	10.0	15.0	6.0	6.0
Micropayment ^(d)	0.36	0.36	–	–
Masterpass ^(e)	5.9	6.0	–	–
Benchmark^(f)	12.0	8.0	12.0	8.0
Ceiling	–	15.0 cents or 0.200%	–	15.0 cents or 0.200%

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

(b) Only select interchange categories have been listed; Mastercard has 17 categories overall and Visa has 16 categories

(c) Not applicable for Mastercard prepaid transactions

(d) Debit card transactions less than \$15

(e) Contactless debit card transactions equal to or less than \$60

(f) Prior to 1 July 2017, the debit card interchange fee benchmark did not apply to prepaid card transactions

Sources: Mastercard website; Visa website

strategic and industry-specific merchants. Visa also reduced its interchange rate for consumer standard transactions, but has left the rates unchanged for most strategic and industry-specific merchant categories. Both schemes revised their interchange fees on prepaid cards after these transactions became part of the weighted-average benchmark calculation under the new standard.

The eftpos interchange fee schedule was unchanged in 2017/18; no adjustment was needed to meet the lower interchange benchmark for debit and prepaid cards when the standard came into effect. In July this year, eftpos Payments Australia Limited (ePAL) increased its interchange fee for digital transactions and for transactions (at some merchants) on proprietary eftpos cards (Table 6).

Table 6: Selected Debit and Prepaid Card Interchange Fees: eftpos^{(a)(b)}
Excluding GST; cents unless otherwise specified

Category	eftpos Debit and Prepaid	
	June 2017	July 2018
eftpos only (proprietary)	13.6	13.6
Strategic categories	0.0 to 3.6	1.8 to 9.1
Dual network	4.5	4.5
Strategic categories	0.0 to 3.6	0.0 to 4.5
Digital (mobile, online)	13.6	14.5
Strategic categories	1.8 to 5.5	3.6 to 12.7
Deposit and withdrawal	–	0.0
Charity and Medicare Easyclaim Refund	0.0	0.0
Benchmark	12.0	8.0
Ceiling	–	15.0 cents or 0.200%

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

(b) Only select interchange categories have been listed; ePAL has 20 categories overall

Source: ePAL website

Net payments to issuers and other reporting requirements

To prevent possible circumvention of the interchange fee caps and benchmarks, the new standards introduced a requirement that no issuers may receive net compensation from a scheme in relation to card transactions in a given scheme (or scheme pair in the case of debit and prepaid card schemes). This requirement is intended to limit the possibility that schemes may use payments to issuers (and higher scheme fees on acquirers) as an alternative to interchange fee payments from acquirers to issuers.

Schemes and issuers are required to certify their compliance with this requirement annually. The first certifications covered the period 26 May 2016 (when the new standards were registered) to 30 June 2018; subsequent certifications will relate to financial years.

Companion card arrangements

Under the new interchange standards, interchange-like payments and net compensation payments from the scheme to issuers under the American Express companion card arrangements are now subject to

equivalent regulation to those that apply to the Mastercard and Visa credit card systems. These changes addressed concerns that the previous regulatory arrangements were not competitively neutral and may have been distorting market developments. Subsequently, all four of the major banks in 2017/18 either ceased, or announced their intentions to cease, issuance of their companion card products. This may partly reflect the new regulation, which limits the interchange-like revenue for issuers to fund the more generous cardholder rewards these cards had typically provided. As a result, there has been a marked decline in the use of American Express companion cards during the past year.

Surcharging

The Bank's new surcharging standard took effect for large merchants in September 2016 and for all other merchants in September 2017. The new standard preserves the right of merchants to surcharge but ensures that consumers using cards from designated systems cannot be surcharged in excess of a merchant's average cost of acceptance for that card system. Additionally, since June 2017, acquirers and

payment facilitators have been required to provide merchants with easy-to-understand information on the cost of acceptance for each designated scheme that will help merchants in decisions regarding surcharging.

These reforms work in conjunction with legislation passed by the government in 2016 that banned excessive surcharges and provided the ACCC with new enforcement powers. Since the new regime came into effect, the ACCC has investigated a large number of complaints of excessive surcharging and has issued infringement notices to two companies that resulted in the payment of penalties. Additionally, the ACCC has commenced proceedings in the Federal Court against another company over alleged excessive surcharging.

Payment Card Fraud

Bank staff regularly brief the Board on developments in payment card fraud in Australia, consistent with the Board's mandate to promote a safe and efficient payments system. As noted in the chapter on 'Trends in Payments, Clearing and Settlement Systems', there has been a steep rise in card-not-present (CNP) payment fraud over recent years, associated with the rise in online commerce. The Board has been concerned by this trend because CNP fraud imposes significant costs on merchants and other participants in the payments system and can undermine trust in electronic payments.

The industry has been pursuing various strategies to tackle CNP fraud. One strand of work has focused on protecting the card data, including by upgrading security where merchants hold card data and by utilising 'tokens' rather than card numbers in transactions. A second strand has focused on improved fraud detection tools. More recently, however, the industry has been

developing a coordinated strategy to reduce CNP fraud. This required cooperation between issuers, acquirers, payment gateways, schemes and merchants. AusPayNet was tasked with drafting a CNP fraud mitigation framework, which was released for consultation in August 2018.

In broad terms, the framework would make it mandatory for merchants and issuers to perform strong customer authentication (SCA) on CNP transactions acquired in Australia when fraud rates exceed certain specified thresholds. SCA involves verifying that the person making the transaction is the actual cardholder using at least two of the following independent authentication factors: something that only the customer should have (e.g. a card or mobile device); something only they should know (e.g. a PIN or password); and something the customer is (e.g. a biometric such as a fingerprint). Certain transactions will be exempted from SCA requirements, including recurring, card-on-file and mobile wallet transactions, where the customer has already been authenticated. Under the framework, acquirers will be responsible for monitoring and reporting on merchant fraud rates and ensuring that their merchants are complying with the framework. The framework will be incorporated into the rules of AusPayNet's Issuers and Acquirers Community, with participants facing sanctions, including possible financial penalties, if they do not comply. The framework is expected to be implemented over the coming year, subject to industry discussions.

The Board has strongly supported the industry's work on a CNP fraud mitigation strategy and Bank staff will be closely monitoring the implementation of the framework and the impact on CNP fraud. Over time, as SCA becomes more common and familiar to cardholders, there may be scope to reduce the thresholds for mandatory SCA in order to put further

downward pressure on CNP fraud. The Bank will continue to monitor trends in payment fraud and will consider whether there are any other actions it can take to help facilitate or encourage industry initiatives to address payment security.

Digital Identity

An initiative that could also help to mitigate CNP fraud is the development of a system for portable digital identity in Australia, which would allow individuals to prove who they are in the digital environment and then reuse their digital identity in other online interactions. Digital identity is fragmented and siloed today, with people having to separately establish their identity with the different digital services they interact with, resulting in a multitude of identity credentials. This can create vulnerabilities associated with the way in which sensitive identity data are stored and the tendency for consumers to reuse passwords. It also creates inconvenience and inefficiencies, both for consumers and online service providers, which can undermine the development of the digital economy.

Digital identity is one of the key strategic initiatives of the Australian Payments Council, which has a work program currently underway that is developing a model for a coordinated system for digital identity. The Board has been strongly supportive of this work, given the potential for it to deliver significant security and efficiency benefits for Australia's increasingly digital economy. While there would be benefits in a payments context, including by strengthening 'Know Your Customer' processes and helping mitigate online payment fraud, the benefits would extend well beyond this to other parts of the economy.

As with payments, digital identity has network effects and requires the collaboration of multiple parties to maximise the benefits. Though there

have been some hurdles, the Board has been encouraged by the progress that has been made to date and welcomes the willingness of payments industry participants to continue to collaborate on this initiative through the Council. Cooperation with the Government's Digital Transformation Agency (DTA) is also important to ensure that a private sector digital identity system is interoperable with the solution the DTA is developing for government. The Bank, in its capacity as a Council member, has also been actively involved in this work and, along with other participants, has helped fund the project.

Issues in the ATM System

During the past year, the Bank has continued to engage with ATM industry participants on the future of the ATM access reforms that were introduced in 2009. The reforms were designed to increase competition in the ATM industry by making it easier for new deployers to become direct participants, and make pricing more transparent by allowing ATM owners to set their own fees and compete directly for transactions. They were achieved through a combination of an ATM Access Regime imposed by the Bank and an industry administered ATM Access Code.

A number of changes have occurred in the ATM industry since the reforms were introduced that may provide scope for the Bank to step away from regulation at some point. In particular, there has been the development of switches and other hub-based infrastructures that make it easier and cheaper for new entrants to join the system without necessarily having to establish direct bilateral connections with all other participants. There has also been a significant decline in the use of ATMs over the past decade associated with a decline in the use of cash for transactions, which is encouraging many deployers to look at ways to rationalise and consolidate their ATM fleets.

The decisions by many of the bank deployers last September to remove all remaining fees for using their ATMs has effectively created a large network of fee-free ATMs in Australia. This has strengthened the economic incentives for deployers to rationalise their fleets, particularly where multiple fee-free ATMs are in close proximity to each other. Some bank deployers have been discussing the possibility of combining their off-branch ATM fleets into a shared utility as a way to help manage costs and sustainably maintain ATM coverage.¹⁵

Given the changes in the ATM industry since the Access Regime was put in place, the Bank believes it is appropriate to review the future regulatory arrangements for the industry. Following a recent update to the ATM Access Code, the Bank has encouraged the ATM industry to consider whether a self-regulatory model could deal with future access issues and provide scope for the Bank to consider removing the Access Regime at some point. The industry has a work program currently underway that is considering these issues and the Bank hopes to reach agreement on a roadmap for the transition to industry self-regulation in the near future.

During the past year, the Board also considered an application by a number of banks and an ATM deployer to extend a scheme that provides fee-free ATM services in certain very remote Indigenous communities. The scheme was originally established in 2012 after a Treasury/RBA Taskforce recommended it as a way to reduce the high expenditure on ATM fees by residents in those communities. The scheme involves participating banks reimbursing an ATM deployer for the costs of providing fee-free ATM services

to customers in those communities. The scheme had an original term of five years and operated under an exemption from relevant parts of the ATM Access Regime that was granted by the Board in 2012 (*Exemption No 1 of 2012*). At its August 2017 meeting, the Board determined that it was in the public interest to allow this exemption to remain in place for another five years so the participants could continue to provide the remote communities with fee-free access to ATM services in a similar way to most Australians. The ACCC also re-authorised the scheme from a competition law perspective in December 2017. The Bank has recently issued its written consent to the extension of the Implementation Agreement for the scheme for up to five years, meaning that *Exemption No 1 of 2012* remains in force.

Government Reports Concerning Payments

During the past year, a number of reports were published by government committees and inquiries that included some findings and recommendations relevant to retail payments systems and the Board's mandate.

House of Representatives Standing Committee on Economics Review of the Four Major Banks (Third Report)

In December 2017, the House of Representatives Standing Committee on Economics tabled the third report from its ongoing review into Australia's four major banks. One area of focus was the increase in merchant payment costs as a result of the shift to 'tap-and-go' (contactless) payments. The Committee observed that contactless transactions on dual-network debit cards usually default to the two international debit schemes, which typically have higher average merchant fees than eftpos. The Committee recommended that the banks provide merchants with the ability to send contactless transactions on dual-network debit

¹⁵ A *Bulletin* article published last December discussed a number of these developments in the ATM industry, including the results of the Bank's fourth survey of ATM participants. See Mitchell S and C Thompson (2017), 'Recent Developments in the ATM Industry', *RBA Bulletin*, December, pp 47–54.

cards through the network of their choice. If the banks do not do this voluntarily, the Committee suggested the Board should take regulatory action to require it. As noted earlier, the Board considered the case for regulatory action at its May 2018 meeting and decided against it based on industry progress and commitments to implement least-cost routing functionality.

Black Economy Taskforce

In May, the Government released the final report of the Black Economy Taskforce (BETF). The BETF was established by the Government in 2016 and tasked with developing policies aimed at combating the black economy in Australia. The BETF made several recommendations relevant to the payments system, all of which were endorsed by the government in its response to the report.

The BETF recommended various measures aimed at reducing the cost of electronic payments and encouraging a further shift away from cash, which was seen as reducing the scope for black economy activity. One recommendation was that the Bank consider taking further action to lower card interchange fees in its next review of card payments regulation. The BETF also recommended that the Board consider regulating to require the provision of LCR functionality as a way to help lower the cost of card payments to merchants. The government referred both these recommendations to the Bank and acknowledged the Bank's existing work in these areas. The government also referred to the Bank a BETF recommendation to undertake further research into the role, use and location of high-denomination banknotes, in particular requesting that the Bank update its March 2018 *Bulletin* article on high-denomination banknotes in circulation.¹⁶

16 Flannigan G and S Parsons (2018), 'High-denomination Banknotes in Circulation: A Cross-country Analysis', RBA *Bulletin*, March, viewed 27 August 2018. Available at <<https://www.rba.gov.au/publications/bulletin/2018/mar/high-denomination-banknotes-in-circulation-a-cross-country-analysis.html>>.

The government also endorsed the BETF's recommendation to introduce a limit of \$10,000 for cash payments. Following consultation on the implementation process, the limit is expected to be effective from July 2019. The limit will only apply to payments to businesses and not to payments between individuals. The government also agreed in principle with the following other payments-related recommendations from the BETF:

- mandating the payment of salaries and wages by bank transfer
- offering tax incentives for businesses to adopt non-cash business models
- providing ABN verification in electronic payments
- introducing standardised digital identity credentials.

Productivity Commission Report on Competition in the Australian Financial System

The Productivity Commission published its final report from its inquiry into Competition in the Australian Financial System in August 2018. While the report largely focused on competition in the banking sector, it made a number of recommendations focused on retail payments. Overall, the report supported the regulatory actions taken by the Board over the past 15 years. The Bank provided an initial submission to the inquiry in September 2017 and a further submission on its draft report in March.

In relation to card payments, the report recommended that the Board introduce a ban on card payment interchange fees and also recommended regulation to ensure that merchants have the ability to determine their preferred network to route contactless transactions for dual-network cards (that is, LCR functionality). The report raised concerns about

access by new participants to the payments system infrastructure and recommended that the Board consider imposing an access regime on the NPP as a way to enhance access and competition. The report also recommended a review of the complex regulatory arrangements for purchased payment facilities and making the ePayments code administered by ASIC mandatory for any entity that sends or receives electronic payments.

At its meeting in August, the Board reviewed the payments-related conclusions of the Commission's final report. The Board discussed the Commission's finding that interchange fees in card payments systems can distort incentives, leading to inefficient outcomes. It noted that regulation of the card payments system was reviewed in 2015/16 and that the impact of the new regulatory framework resulting from that review is still being observed. The Board noted that there are currently a number of different options available to entities wishing to access NPP services and around 60 small financial institutions have already connected to the NPP via aggregators. The Board asked Reserve Bank staff to continue to monitor how access is working in practice and to ensure that new entrants to the payments industry are also able to take advantage of NPP functionality.

Open banking

The government's Open Banking Review delivered its final report in December 2017. The government had already announced its intention to introduce an open banking regime in Australia and had tasked the review with recommending the best approach for implementation. The review proposed a regime to allow bank customers to direct their bank to share transaction-level data from specified deposit and lending products with accredited third parties. The aim is to give customers more control over

their data and promote greater innovation and competition in a range of financial services. To preserve the integrity of customers' data, it was proposed that the ACCC be responsible for determining the criteria for, and method of, accreditation for data recipients that are not authorised deposit-taking institutions. The Bank made a submission to the review, which was supportive of an open banking regime, noting the potential for it to also promote innovation, competition and efficiency in the payments system.

The government has accepted the recommendations of the review and endorsed a phased approach to implementation. The four major banks will be required to make data on credit and debit card, deposit and transaction accounts available by July 2019, and data on mortgages by February 2020. Data on other products will be made available by July 2020. All other banks (excluding foreign bank branches) will be required to implement open banking a year after each of the dates set for the major banks. The ACCC, as the nominated primary regulator of the open banking regime, will be responsible for determining the implementation details and will have flexibility to adjust the timing where necessary. Data61, the data innovation arm of CSIRO, has been tasked with developing the technical standards for data sharing in the system in collaboration with industry, fintechs, and consumer groups.

Open banking will be the first application of the consumer data right in Australia, a more general right being created that will allow consumers to direct businesses to provide their data to third parties. The government plans to implement the consumer data right on a sector-by-sector basis – with banking to be followed by the energy and telecommunications sectors – until it is eventually rolled out across the economy.

Technology and Innovation

The Bank monitors developments in technology and innovation relevant to the payments system, and staff periodically brief the Board on these developments and their implications for the safety, efficiency and competition of the payments system.

One area of focus for the Bank recently has been the significant innovation and change taking place in retail payments systems, both in Australia and overseas, which has been driven by three key factors: the emergence of new payment channels; the application of new technologies; and the influence of new participants.

As consumers have been reducing their use of cash and shifting to electronic payment methods, mobile devices such as smartphones have become an increasingly popular channel for electronic payments. Growth in mobile payments has been associated with the wider availability of mobile-based services that accept in-app payments, as well as the shift to online commerce more generally. Mobile devices are also increasingly being used to make payments at the point of sale. Wearable devices – including smart watches, fitness trackers and jewellery – as well as the ‘internet of things’ more broadly, are also expanding the range of devices through which payments can be made. In Australia, these new payment channels typically rely on the existing payment ‘rails’, particularly the card schemes, though the NPP could become more important as additional services are developed for it.

New technologies are also driving innovation in retail payments. Much of the focus in recent years has been on the application of distributed ledger technology (DLT) to payments and the rise of cryptocurrencies such as Bitcoin, though other technologies, such as cloud computing, artificial intelligence and cryptography, are also contributing to innovation in payment

systems. In the case of DLT, new payment mechanisms using the technology have the potential to be more efficient and reliable, with a reduced role for traditional intermediaries. But while there has been significant interest and experimentation with DLT in recent years, there are still a number of challenges to widespread commercial adoption.¹⁷ While new technologies and innovation have the potential to improve competition and efficiency in the payments system, the Bank is also mindful of the need to ensure that risks associated with new technologies are appropriately managed, particularly in relation to operational resilience, data security and privacy.

The Bank has been closely watching developments in relation to cryptocurrencies, or crypto-assets more broadly. Though there was a significant spike in the demand for many cryptocurrencies in late 2017, mostly driven by speculation, the Bank’s assessment is that cryptocurrencies do not meet the usual attributes of money and, consistent with this, they are rarely used or accepted for everyday payments.¹⁸ As such, cryptocurrencies are not seen as raising significant policy issues for the Bank at this time, but they may pose bigger issues for investor protection, money laundering and terrorist financing, which the relevant regulators in Australia have been responding to.¹⁹ Alongside the focus on cryptocurrencies, the Bank has also been giving thought to the question of whether there is a role for a digital Australian dollar issued by the Bank. The Board has considered some of the policy issues

¹⁷ DLT and its potential application in the Australian market is also discussed in the chapter on ‘The Bank’s FMI Oversight and Supervision Activities’.

¹⁸ For more details on marked developments see the section on ‘Cryptocurrencies’ in the chapter on ‘Trends in Payments, Clearing and Settlement Systems’.

¹⁹ See the section on ‘Crypto-assets, ICOs and DLT’ below for a discussion of international and Australian regulatory responses to crypto-assets.

associated with central bank digital currency and Bank staff are continuing their research and engaging with other central banks on the topic (see 'Box B: Central Bank Digital Currency').

A third force shaping retail payments systems has been the entry of non-traditional participants. Large technology firms are increasingly offering payment services, leveraging their large networks for existing services. In China, for example, there has been a drastic reshaping of the payments market in recent years as a result of the rise of two non-bank payment providers focused on mobile payments, Alipay and WeChat Pay, which now dominate retail payments in that country. In Australia, the most visible examples of non-traditional participants entering the payments market have been the launch of mobile wallet applications by technology companies like Apple, Google and Samsung. There has also been a proliferation of start-up fintech firms active in the payments space and new digital-focused (neo) banks have recently launched. While the entry of new players can be beneficial for competition and innovation in the payments system, it can also pose a challenge for regulators to ensure that the regulatory perimeter remains appropriately calibrated to encourage innovation while maintaining the safety and efficiency of the payments system.

Though Australia's regulatory framework for retail payments has generally served the country well, a few areas of potential improvement have been identified in recent government inquiries and, in an environment of rapid innovation, it is important to ensure that regulation remains 'fit for purpose'. One area of potential improvement is the regulatory framework for purchased payment facilities (PPFs), which has been identified as being unnecessarily complicated, involving multiple regulators (including the Bank) and various regulatory thresholds, requirements

and exemptions. The CFR has established a working group, chaired by the Bank and with representation from APRA, ASIC and Treasury, which is considering ways that retail payments regulation could be improved, with a focus on the regulation of PPFs.

To inform its work on innovation in payments, the Bank regularly engages with a range of industry participants, including potential new entrants, representatives from industry groups (e.g. fintech hubs) and technology providers. The Bank also engages with other domestic regulators in relation to payments innovation, both informally and through formal channels. For example, the Bank is an observer on ASIC's Digital Finance Advisory Committee and chairs a CFR working group on DLT with representatives from ASIC, APRA, Treasury and AUSTRAC. This working group has provided advice to the CFR on the implications of DLT and crypto-assets for the financial system and acts as a forum for inter-agency information sharing. The Bank also regularly communicates with other central banks about their work in the area of payments innovation, and participates in relevant work streams of the international standard-setting bodies. For example, the Bank is a member of a CPMI Working Group on Digital Innovations that has recently been considering a number of policy and design issues associated with central bank digital currencies.

Operational Incidents in Retail Payment Systems

With ongoing growth in the share of payments made electronically, the resilience of electronic retail payment systems has become more important. Accordingly, the Bank monitors retail operational incidents and disseminates related data, in line with the November 2012 conclusions from an informal consultation on operational

Box B

Central Bank Digital Currency

The emergence of cryptocurrencies has stimulated discussion about whether central banks should issue digital versions of their existing currencies. In this context, the term 'central bank digital currency (CBDC)' is used to refer to a digital version of fiat currency, a form of digital money that is a liability of the central bank rather than a commercial bank and which is legal tender. Similar to cash and commercial bank deposits, a CBDC would be denominated in the sovereign currency and convertible at par with other forms of money.

The Bank has been researching some of the policy issues associated with CBDC. The Bank's initial assessment – which the Governor set out in a speech in December 2017 titled 'An eAUD?' – is that there is not a strong case at present for the Bank to issue a digital currency for retail use (that is, a CBDC for use by households).¹ This assessment is based on physical banknotes still being widely available and used for transactions in Australia and households having access to a range of safe and convenient electronic payment methods. The NPP is expected to further enhance the available payment options for households. The introduction of a CBDC that is widely available to households could also have significant implications for the size and structure of the financial system, and for financial stability and the central bank's balance sheet. For example, in times of financial sector stress, the relative ease of switching from commercial bank deposits to a CBDC (compared to switching to physical banknotes) could heighten the risk of runs on the banking sector, which might have adverse implications for financial stability.

Many other central banks that have been considering the case for CBDC have also concluded that they do not see a strong case to issue a CBDC for household use in the near future. One exception is Sweden's Riksbank, which is actively exploring a CBDC for household use in the context of a considerable decline in the use and availability of banknotes in Sweden. The Riksbank has stated that it plans to make a decision on whether to issue a digital version of its currency by late 2019.

CBDC has also been considered by the BIS' CPMI and Markets Committee, which released a joint report in March 2018 that set out the potential implications of CBDC for payments, monetary policy and financial stability. The Bank contributed to this paper through its participation in the CPMI's Working Group on Digital Innovations.

Having made an assessment on CBDC for retail use, some central banks, including the Reserve Bank, are exploring the case for a new digital form of central bank liability that could be used as a settlement asset in transactions between businesses and financial institutions, separate from existing RTGS systems. The availability of such an instrument might enable payment and settlement processes to become more highly integrated with other business processes, generating potential efficiencies and risk reductions for businesses. The CPMI's Working Group on Digital Innovations is currently analysing the safety and efficiency considerations associated with wholesale digital currencies, both central bank and privately issued.

¹ Lowe P (2017), 'An eAUD?', Address to the 2017 Australian Payments Summit, Sydney, 13 December. Available at <<https://www.rba.gov.au/speeches/2017/sp-gov-2017-12-13.html>>.

incidents in retail payment systems.²⁰ As part of this work, the Bank collects information from Exchange Settlement (ES) account holders on significant operational incidents in retail payment systems, as well as other incidents resulting in less severe disruptions to participants' retail payment systems.

In 2017/18, there were more significant incidents compared with the previous year, and the average duration of these incidents increased. The increase in duration was caused by a number of unusually long incidents in the first quarter of 2018. Similar to previous years, the bulk of significant incidents during 2017/18 were caused by software issues or IT change activities, while online banking and mobile banking were the payment channels most frequently disrupted by these operational incidents. Since the second half of 2017, the Bank has been providing anonymised quarterly statistics to relevant ES account holders via AusPayNet in order to facilitate peer benchmarking.

Central banks and regulators have traditionally paid most attention to the resilience of high-value payment systems because of the systemic disruption that would likely occur if such systems were to experience an outage. However, as retail electronic payments have become more important, some regulators are starting to focus on the operational risks associated with retail payment systems, and whether the operators and participants of those systems are meeting appropriately high standards of resilience. The Bank has been closely monitoring the resilience of retail payment systems in Australia and will consider whether there are additional actions it should take to reduce operational incidents, consistent with its mandate to promote efficiency and safety of payment systems.

²⁰ Available at <<https://www.rba.gov.au/payments-and-infrastructure/resources/publications/payments-au/201211-operational-incidents-in-retail-payments-systems-conclusions/pdf/conclusions-112012.pdf>>.

International Developments

The Bank monitors payments system policy and regulatory developments in other jurisdictions as they can be relevant to Australia given the globalised nature of many payment systems and the scope for similar issues to emerge. In 2017/18, a number of jurisdictions introduced regulations focused on improving the efficiency, competitiveness and security of their payment systems. The adoption of faster payment systems and the ISO 20022 payments messaging standard continued to gain momentum across many jurisdictions. In the European Union (EU), the revised Directive on Payment Services (PSD2) came into effect in January 2018, with some EU member states expanding the scope of the reforms as part of their domestic implementations.

Fast payments

There has been significant further progress in the development of fast retail payment systems over the past year. As at August, fast payment systems were available in 40 jurisdictions, including recently in Australia with the launch of the NPP, and a further 5 systems are under development.²¹

In the United States, a national taskforce on faster payments published the final part of its report on fast payment options in July 2017, endorsing the development of competing interoperable fast payment solutions. The US Federal Reserve endorsed the taskforce's recommendations and indicated that it would provide faster settlement capabilities to support real-time payments, either by developing a new real-time settlement service or by enhancing existing settlement services (for example, by introducing more frequent batch settlement). Also in 2017/18, the Clearing House progressed its plans for faster payments by launching the first interbank real-time payments

²¹ See <<https://www.fisglobal.com/flavors-of-fast-2017>>.

clearing system in the US in November 2017.²² The system is open to all US financial institutions and third-party service providers, and operates on a 24x7 basis. The Clearing House intends the platform to be available to every US resident by 2020.

In the United Kingdom, in October 2017, the Faster Payments Scheme Limited announced a competitive tender process to renew and manage the Faster Payments Service (FPS) for up to 10 years. The winning bidder will be responsible for transitioning the system to the ISO 20022 international messaging standard and developing a new clearing and settlement risk management system for push payments. The renewal is expected to make it easier for participants to join the FPS, to generate operational efficiencies and to reduce the risks of cyber attacks.

Elsewhere, Payments Canada concluded a consultation on the design of a new core clearing and settlement system and a real-time payment system in February. The real-time payment system is expected to go live in the second half of 2019. The Hong Kong Monetary Authority has been conducting internal and industry testing of its faster payments system, which it plans to launch in September 2018. There is also work underway in Asia and Europe to connect a number of national fast payment platforms to facilitate cross-border payments.

ISO 20022 messaging standard

ISO 20022 is the global industry standard for financial messaging, and is intended to enable fully interoperable payment systems. It allows richer information to be sent with payments, which can provide a number of compliance and end-user benefits.

A number of jurisdictions are in the process of implementing the ISO 20022 messaging standard in their payment systems, and it is already used in Australia's NPP system. Progress has been made in North America on ISO 20022 implementation. The Clearing House's new real-time payments platform is ISO 20022 compliant. The standard will also be adopted in several payment systems as part of Canada's Payments Modernization Program. Jurisdictions in Europe have similarly made advances in adopting ISO 20022; the SEPA payment schemes, including SCT Inst which launched in November 2017, are based on this standard. In the United Kingdom, regulators initiated a consultation in June on adopting the ISO 20022 standard for a number of payment systems.

SWIFT is also consulting on a phased migration from the existing MT messaging standard to ISO 20022 for cross-border payments, commencing in 2021 or 2022 and taking around five years.²³ SWIFT has indicated that sometime after cross-border payments have been migrated, it will seek to discontinue support for MT messages. SWIFT is planning to make a decision on the roadmap and timing of the migration later in 2018.

Cards regulation

As required by PSD2, EU member states introduced a ban on surcharging of four-party card schemes (such as Mastercard and Visa) in January 2018; it does not apply to three-party card systems (such as American Express). The ban only applies to payments that are subject to a hard cap on interchange fees under PSD2, namely consumer card payments within the European Economic Area. While the ban does not apply to payments using commercial cards or cards issued outside the EU, some EU members

²² The Clearing House is a company owned by 26 large banks that operates the CHIPS interbank settlement and clearing system.

²³ The SWIFT consultation paper is available at <<https://www.swift.com/resource/iso-20022-migration-study>>.

have introduced additional requirements that are not stipulated in PSD2. For example, the United Kingdom implemented a ban on surcharges for all payment methods used by households in January 2018.

There have been further findings over the past year in a number of court cases relating to interchange fees or merchant steering. In the United Kingdom, the Court of Appeal recently ruled in favour of a group of retailers, concluding that the multilateral interchange fees set by Mastercard and Visa limited the pressure that merchants could exert on card acquirers and restricted competition. This finding overturned earlier judgements in favour of the card schemes, and the three relevant cases have been remitted to the Competition Appeal Tribunal for reassessment. In the United States, the Supreme Court found that American Express's anti-steering rules do not violate antitrust laws. American Express does not allow US merchants to steer consumers to use rival cards that would result in lower acceptance costs, and the court held that the complainant had not demonstrated that any cost increase to merchants from American Express's anti-steering rules also harmed consumers.

Regulatory reviews for retail payments activities

A number of jurisdictions have been reviewing their regulatory arrangements for retail payments to ensure that consumers are appropriately protected and that AML/CTF risks are being addressed. For example, the Monetary Authority of Singapore issued a consultation paper on a revised Payment Services Bill in November 2017. The proposed bill would extend the regulatory perimeter to include additional payments services – including money transfer, merchant acquisition and virtual currency services – within the regulatory framework. The bill would also create a single licensing framework for

payment providers, and introduce compliance requirements based on the size of the payments provider and the risks associated with the payments activities. The Canadian authorities are also reviewing the regulatory perimeter and compliance requirements for retail payments, and have proposed that a new federal retail payments regulator be established.

Data sharing

Australia's approach to implementing open banking (see above) has been able to draw on the experiences of a number of other jurisdictions that are in the process of developing their own data-sharing regimes.

Most prominently, in Europe, PSD2 has introduced data-sharing requirements for providers of online payment accounts, such as banks, and established a licensing framework for third-party payment service providers that wish to access the data. Under these rules, EU member states must ensure that banks provide regulated third-party payment service providers with access to customer payment account information and that such providers can initiate payments, if the customer provides consent. These reforms are intended to promote competition in the payments market.

While PSD2 came into effect in January 2018, a key Regulatory Technical Standard (RTS) that addresses the data-sharing element of PSD2 does not come into effect until September 2019. In particular, the RTS dealing with strong customer authentication and secure communication will ban data collection using screen-scraping technology and, instead, require third parties to access data using bank-provided secure communication channels, such as application programming interfaces (APIs). Many entities will need to make changes to their systems to ensure they meet these requirements.

In January 2018, key elements of a related Open Banking reform came into effect in the United Kingdom. This reform was initiated by the UK's Competition and Markets Authority (CMA) in 2016 and, while it was expected to assist UK banks in meeting their PSD2 obligations, was originally envisaged to have a narrower scope than the directive. For example, it applied to just nine large UK banks and initially only covered personal and small business bank accounts. However, in November 2017 the scope was widened to all account types covered under PSD2. Open Banking required the nine banks to develop open APIs to facilitate both 'read' and 'write' data sharing with third-party providers, with a staggered release date across account types. Three of the banks were ready to launch the read/write access in January as scheduled and six were granted extensions to the deadline by the CMA. The UK's technical specifications on APIs and data transfer were recommended by the Commonwealth Treasury's Open Banking Review as a starting point for Australia's open banking regime.

Crypto-assets, ICOs and DLT

A range of international and national regulatory bodies have been examining the benefits and risks associated with crypto-assets and the implications for regulatory frameworks.²⁴ At their recent meetings, G20 Finance Ministers and Central Bank Governors agreed that the technological innovations underlying crypto-assets, such as DLT, could deliver significant benefits to the financial system and broader economy. However, they noted that crypto-assets still lack the key attributes of sovereign currencies and raise issues with respect to consumer and investor protection, market integrity, tax evasion,

money laundering and terrorist financing. While crypto-assets are generally not viewed as posing significant financial stability risks, the Financial Stability Board and international standard-setting bodies were asked to continue to monitor the risks associated with them and to assess whether any multilateral policy responses are needed. The Financial Action Task Force, which determines international standards for combating money laundering and terrorist financing, has also been asked to review how its standards apply to crypto-assets.

Regulators have been responding to the growth in crypto-asset activity in a range of ways. For example, South Korea's Financial Services Commission has required digital currency trading accounts to be linked to a bank account with the same name as a way to help mitigate AML/CTF risks. The Reserve Bank of India, on the other hand, announced that regulated banks and financial institutions would no longer be able to provide services to individuals or entities dealing or settling cryptocurrencies. In Australia, AUSTRAC recently required digital currency exchanges to register with it and have a program to manage and mitigate money laundering and terrorist financing risks. These actions are specifically directed at AML/CTF risks and do not imply any official endorsement of crypto-assets or entities dealing in them. Indeed, ASIC has issued investor warnings to those considering trading in crypto-assets and it received a delegation of power from the ACCC in April that enables it to investigate deceptive or misleading conduct related to crypto-assets, even when such products are not deemed to be a 'financial product' and therefore outside ASIC's usual jurisdiction.

Similarly, many regulators have expressed concerns around initial coin offerings (ICOs) and the potential risks they pose to consumers and

²⁴ The term 'crypto-assets' is used here to refer to cryptocurrencies and other crypto-tokens such as Initial Coin Offerings. This is consistent with the term used in recent reports by international bodies such as the International Monetary Fund and Financial Stability Board.

investors. ICOs are a method of raising funds for DLT-based business ventures, where the business issues digital tokens or coins in exchange for funds from investors. There have been reports of many ICOs that have failed or have been fraudulent; various estimates suggest that anywhere between 20 and 80 per cent of ICOs are fraudulent. Regulators have responded in a range of ways. For example, Chinese regulators have declared ICOs illegal while the US Securities and Exchange Commission indicated that it was actively assessing ICOs under its existing regulatory framework for securities regulation. In Australia, ASIC has issued guidance to help issuers of ICOs understand the application of the *Corporations Act 2001* to their business and has also issued investor warnings about the risks associated with ICOs.

Meanwhile, DLT itself continues to attract considerable interest and investment from financial sector participants. Financial institutions and financial market infrastructures continue to experiment with DLT to better understand how it could be used to increase the efficiency and resilience of their businesses. A number of central banks have also been actively exploring the potential use of DLT for interbank payments and securities settlement, and some have been undertaking proofs-of-concept to further their understanding. Despite all the research activity, there are still few commercial applications of DLT in payments.

Oversight, Supervision and Regulation of Financial Market Infrastructures

Financial market infrastructures (FMIs) are institutions that facilitate the clearing, settlement and recording of financial transactions. The Bank has a role in overseeing and supervising three types of FMIs: central counterparties (CCPs) and securities settlement facilities (SSFs)²⁵ – together referred to as clearing and settlement (CS) facilities – as well as systemically important payments systems.

The Bank's Regulatory Regime for FMIs

The *Corporations Act 2001* assigns to the Bank a number of powers and functions related to the supervision and oversight of CS facilities. Under the *Reserve Bank Act 1959*, 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.

In accordance with the Reserve Bank Act, the Payments System Board also plays a role in the governance of the Bank's oversight of systemically important payments systems.

CS facilities

CS facilities that operate in Australia are required to be licensed or exempted under Part 7.3 of the Corporations Act. The requirement to be licensed applies to both domestic and overseas facilities. Under this Act, the Bank and the Australian Securities and Investments Commission (ASIC) have separate, but complementary, regulatory responsibilities for the supervision of CS facilities. The Corporations Act assigns to the Bank a number of powers and functions related to

the supervision and oversight of CS facilities. In particular, the Bank is responsible for:

- providing advice to the Minister regarding applications for CS facilities, variations to or imposition of conditions on licences, or the suspension or cancellation of licences
- determining standards (the Financial Stability Standards) for the purposes of ensuring that CS facility licensees conduct their affairs in a way that causes or promotes overall stability in the Australian financial system
- assessing how well a licensee is complying with its obligation under the Corporations Act, to the extent that it is reasonably practicable to do so, comply with these standards and do all other things necessary to reduce systemic risk.

Under the Reserve Bank Act, the Payments System Board is responsible for ensuring that the Bank exercises these powers and functions in a way that will best contribute to the overall stability of the financial system.

²⁵ Referred to internationally as 'securities settlement systems'.

Financial Stability Standards

The Bank has determined two sets of Financial Stability Standards – one for CCPs²⁶ and one for SSFs.²⁷ It is an obligation of each licensed CS facility that it meets the relevant set of Standards.

The objectives of the Standards are to ensure that CS facility licensees identify and properly control risks associated with the operation of the facility, and conduct their affairs in accordance with the Standards in order to promote overall stability of the Australian financial system. The Standards set principles-based requirements and regulatory expectations, rather than prescribing detailed rules and obligations.

In developing these Standards, the Bank has given close regard to the internationally agreed standards for FMIs set out in the *Principles for Financial Market Infrastructure* (PFMI). The PFMI are designed to ensure that the FMIs supporting global financial markets are financially, legally and operationally robust. The overall objective is to ensure that FMIs promote stability and efficiency in the financial system.

The consistency of the Bank's Standards with the PFMI has been verified through a peer review conducted in 2015 by the Committee on Payments and Market Infrastructures (CPMI) and the Technical Committee of the International Organization of Securities Commissions (IOSCO), the standard-setting bodies that developed the PFMI.²⁸

No new Standards were determined in 2017/18.

26 Available at <<https://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/standards/central-counterparties/2012/>>.

27 Available at <<https://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/standards/securities-settlement-facilities/2012/>>.

28 *CPMI–IOSCO, Implementation monitoring of PFMI: Level 2 Assessment Report for Australia*, December 2015. Available at <<http://www.bis.org/cpmi/publ/d140.pdf>>.

The application of additional PFMI guidance to CS facilities

In recent years CPMI and IOSCO have developed additional guidance on a number of aspects of the PFMI, which the Bank applies in interpreting its Financial Stability Standards.²⁹ This guidance seeks to enhance FMI risk management practices by providing further clarity and detail on the existing requirements within the PFMI. The guidance covers, for example, areas of emerging risk or areas in which CPMI and IOSCO had identified that there were inconsistencies in how particular standards in the PFMI had been interpreted or adopted. The guidance encourages FMIs to adopt best practices and seeks to foster international consistency where that is appropriate.

In 2017/18, the Bank completed assessments of domestic CS facilities against the CPMI–IOSCO *Guidance on Cyber Resilience for Financial Market Infrastructures* (the Cyber Resilience Guidance)³⁰ and two sets of guidance published in July 2017:

- *Resilience of Central Counterparties (CCPs): Further Guidance on the PFMI* (the CCP Resilience Guidance), which seeks to clarify and elaborate on requirements in the PFMI related to CCP resilience³¹
- *Recovery of financial market infrastructures* (the revised Recovery Guidance).³²

Licensed CS facilities

At present there are seven CS facilities licensed to operate in Australia:

- Four ASX Group facilities – ASX Clear Pty Limited (ASX Clear), ASX Clear (Futures) Pty

29 For the full list of guidance that the Bank has adopted see the notes to the Financial Stability Standards at <<http://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/standards/>>.

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

31 Available at <<http://www.bis.org/cpmi/publ/d163.htm>>.

32 Available at <<http://www.bis.org/cpmi/publ/d162.htm>>.

Limited (ASX Clear (Futures)), ASX Settlement Pty Limited (ASX Settlement) and Austraclear Limited – which are domiciled in Australia.

- IMB Limited, an Australian building society, which operates a market for trading in its own shares by its members, and an associated SSF to settle these trades.
- The UK-based LCH Limited (LCH Ltd).
- The US-based Chicago Mercantile Exchange Inc. (CME).

In 2017/18 there were no new CS facility licences granted; there was, however, a variation of LCH Ltd's licence to amend its legal name from LCH. Clarnet Limited to LCH Limited.

Assessments

As part of its obligations under the Corporations Act, the Bank must periodically assess how well a CS facility licensee is complying with the Financial Stability Standards and doing all other things necessary to reduce systemic risk.³³ The Bank also assesses prospective licensees against these standards at the time of their licence application. The Bank has set out in policy statements its broad approach to assessments,³⁴ and also the frequency with which it will conduct assessments.³⁵ Consistent with the CPMI–IOSCO Principles for Financial Market Infrastructures: Disclosure Framework and Assessment Methodology (PFMI),³⁶ which encourages greater

transparency regarding the activities of FMIs, the Bank publishes its assessments of CS facilities.

In July 2018, the Bank and ASIC published their updated joint self-assessment against the Responsibilities for Authorities (which are part of the PFMI) with respect to CS facilities.³⁷ This report provides more transparency around the Bank's and ASIC's role in the regulation and oversight of CS facilities and, in particular, the application of the PFMI to these facilities. The report concludes that the Bank and ASIC observe the relevant Responsibilities for Authorities, but nevertheless commits the Bank to certain actions in the spirit of continuous improvement.

Approach to assessments

When undertaking assessments of a domestic CS facility's compliance with the standards, the Bank's methodology is guided by CPMI–IOSCO's Assessment Methodology for the PFMI, which provides a framework for assessing and monitoring observance of the PFMI.³⁸

The Bank complements the periodic information it receives with in-person meetings with CS facility personnel, including: annual meetings with the board and, separately, the chair of the board to discuss strategic issues and compliance with the Financial Stability Standards, semi-annual senior executive-level discussions of strategy and relevant market developments; quarterly meetings with executives/senior management to discuss developments relevant to compliance with the standards and other material developments; quarterly meetings with management/staff to discuss developments in financial and operational risk management; and other ad hoc meetings as needed.

33 The exception is IMB Limited, which is currently exempt from the Financial Stability Standards owing to its small size.

34 The Reserve Bank's Approach to Assessing Clearing and Settlement Facility Licensees', available at <<http://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/standards/assess-csf-licensees.html>>.

35 'Frequency and Scope of Regulatory Assessments of Licensed Clearing and Settlement Facilities', available at <<http://www.rba.gov.au/payments-and-infrastructure/payments-system-regulation/frequency-of-assessments.html>>.

36 CPMI–IOSCO, *Principles for financial market infrastructures: disclosure framework and assessment methodology*, December 2012. Available at <<http://www.bis.org/cpmi/publ/d106.htm>>.

37 Available at <<http://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/principles/assessment-against-responsibilities/responsibilities-of-authorities/2018/>>.

38 Available at <<http://www.bis.org/cpmi/publ/d106.htm>>.

The Bank's assessment reports of a domestic CS facility's compliance with the standards typically comprise: an assessment of progress in addressing recommendations and stated regulatory priorities identified in previous assessments; a discussion of material changes in the operation of the facility and their implications for compliance with the standards; a more comprehensive and detailed 'deep dive' assessment against a subset of the standards; and a review of how the CS facility's arrangements address each of the standards.

The Bank's supervisory approach to overseas CS facilities depends on a number of factors:

- whether the supervisory regime in an overseas CS facility's home jurisdiction is sufficiently equivalent to that in Australia
- whether satisfactory information sharing and regulatory cooperation arrangements have been established between the Bank and the relevant overseas authorities.

Where these conditions are met, the Bank will, in general, look to rely on the CS facility's primary regulator, rather than undertake direct supervision. Given that the Bank and many other jurisdictions have incorporated the PFMI into their regulatory regimes, the Bank would in general expect this to be the case for most overseas CS facilities looking to operate in Australia. However, there may still be some differences in detail between the Bank's standards and the overseas regime that mean the Bank undertakes a direct assessment of the facility's compliance with these aspects of the standards. In practice, these differences are typically where the standards specify Australian-specific regulatory reporting and notification requirements and/or measures to enhance Australian regulatory influence over cross-border facilities.

For all overseas CS facility licensees, the Bank reserves the right to gather information through a range of interactions with the licensee to aid its understanding of material developments affecting the licensee or to assess progress against stated regulatory priorities, including participation in supervisory 'colleges' organised by the primary regulator.

In accordance with the above information sharing expectations, there are a number of bilateral and multilateral agreements relevant to the Bank's oversight of the two overseas CS facility licensees that operate in Australia.³⁹

- Memoranda of Understanding (MoU) are in place with the Bank of England (with respect to oversight of LCH Ltd) and with the US Commodity Futures Trading Commission (with respect to oversight of CME). These MoUs establish cooperation arrangements and the exchange of information between the Bank and the relevant overseas regulators.
- The Bank is also a member of two international multilateral cooperative arrangements as part of its oversight of LCH Ltd: the Multilateral Arrangement for Regulatory, Supervisory and Oversight Cooperation on LCH Ltd (LCH Ltd Global College), which is a forum of LCH Ltd's international regulators; and the LCH Ltd Crisis Management Group, which was formed to create arrangements between international regulators to undertake recovery and resolution planning for LCH Ltd.

Frequency and scope of assessments

The frequency of assessment against the relevant standards is considered with reference to whether: (i) a facility is systemically important

³⁹ These agreements are available at <<http://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/memoranda-of-understanding.html>>.

in Australia, and/or (ii) has a strong domestic connection. The Bank has determined that the four domestic ASX Group CS facility licensees meet these criteria and therefore are assessed annually. In addition, the Bank has determined that one overseas facility, LCH Ltd, should also be assessed annually.

Assessments of other CS facilities will typically be undertaken at a reduced level of detail and may be carried out on a less frequent basis. In the case of overseas facilities, the assessment cycle of the home regulator will be a relevant consideration. Furthermore, depending on the nature and scope of a CS facility's activities in Australia, detailed assessments against all parts of the standards may not be necessary. Where the Bank has set regulatory priorities, however, an update on progress against these would be expected to be carried out. These arrangements currently apply in the case of CME.

Systemically important payments systems

A key element of the Payments System Board's responsibility for the safety and stability of the payments system in Australia is the oversight of systemically important payments systems.

The only domestic payment system that the Bank regards as systemically important, and hence for which an assessment against international principles is necessary, is Australia's real-time gross settlement (RTGS) system, the Reserve Bank Information and Transfer System (RITS).⁴⁰ Consistent with the criteria for systemic importance outlined in the PFMI, this view reflects the fact that RITS:

- is the principal domestic payments system in terms of the aggregate value of payments

- mainly handles time-critical, high-value payments
- is used to effect settlement of payment instructions arising in other systemically important FMIs.

Effective oversight of RITS is assured through internal governance arrangements within the Bank that separate operational and oversight functions, as well as by transparent assessments against the PFMI. Since 2013, the Bank has published annual assessments of RITS against the PFMI.⁴¹ These assessments are reviewed by the Board, which also reviews any material developments occurring between assessments.

CLS Bank International (CLS) is an international payments system for settling foreign exchange trades in 18 currencies, including the Australian dollar. Since CLS settles a significant, and growing, value of Australian dollar-denominated foreign exchange-related payments, the Bank has identified CLS as a systemically important international payments system. CLS is regulated, supervised and overseen by the US Federal Reserve, in cooperation with an oversight committee that includes the Bank and a number of other overseas central banks. Through this forum the Bank is involved in overseeing how well CLS meets the requirements of the PFMI. CLS is also required to publish a disclosure describing its operations and approach to observing the applicable principles.

While SWIFT is not a payment system, it provides critical communications services to both RITS and CLS, as well as other FMIs and market participants in Australia and overseas. 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

⁴⁰ In conducting these assessments the Bank has regard to relevant guidance issued by CPMI and IOSCO. In particular, from 2016/17 the Bank has been applying the June 2016 *Guidance on Cyber Resilience for Financial Market Infrastructures*.

⁴¹ Between 2015 and 2017 the Bank changed the time of year that it conducts its assessment of RITS resulting in a longer gap between these two assessments.

OG is chaired by the National Bank of Belgium. The 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. Through the SWIFT Oversight Forum, these central banks receive information on the OG's conclusions and have 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 PFMI.

The Bank also monitors developments in the payments landscape periodically to consider whether any other payments systems should also be subject to ongoing oversight and assessments against the PFMI.

In July 2018, the Bank updated its self-assessment against the Responsibilities for Authorities with respect to systemically important payments systems.⁴² The report provides more transparency around the Bank's role in the regulation and oversight of systemically important payments systems and, in particular the application of the PFMI to these facilities. The report concludes that the Bank observes the relevant responsibilities, but nevertheless commits the Bank to certain actions in the spirit of continuous improvement.

The Bank's FMI Oversight and Supervision Activities

Day-to-day oversight and supervision of FMIs is undertaken by the Bank's Payments Policy Department, in accordance with the approach to assessments discussed above. In carrying out these activities, the Bank works closely with ASIC.

The Bank's oversight and supervision activity is overseen by an internal body of the Bank, the FMI Review Committee, which was established by, and reports to, the Bank's Executive Committee; the FMI Review Committee's annual report is also provided to the Payments System Board. This committee is chaired by the Assistant Governor (Financial System), who is also Deputy Chair of the Payments System Board. Other members include the heads of the Payments Policy, Payments Settlements and Domestic Markets departments, as well as senior staff members with expertise in FMI-related matters but who are not currently directly involved in the Bank's oversight and supervision of FMIs. A core part of the committee's role is to ensure that oversight activities are carried out in a manner that is consistent with policies established by the Board. The committee meets quarterly, approximately six weeks before Board meetings, as well as dealing with matters by written procedure as needed. Staff of Payments Policy Department provide reports to the Board on the Bank's oversight and supervisory activities.

The following summarises activity and material developments over 2017/18 for the six CS facilities and the systemically important payments systems overseen and supervised by the Bank.

ASX

The four domestic CS facility licensees required to meet the standards are all part of the ASX Group. In September 2018, the Bank published its latest assessment of these facilities.⁴³ This assessment concluded that the CS facilities 'observed' all relevant requirements under the standards, with the following exceptions: all four CS facilities were downgraded from 'observed'

42 This self-assessment is available at <<http://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/principles/assessment-against-responsibilities/systemically-important/>>.

43 The Bank's *September 2018 Assessment of the ASX CS Facilities* is available at <<https://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/assessments/2017-2018/>>.

to 'partly observed' against the operational risk standard and from 'observed' to 'broadly observed' against the governance standard; both CCPs were downgraded from 'observed' to 'broadly observed' against the liquidity risk and credit risk standards; ASX Clear (Futures) maintained a rating of 'broadly observed' against the margin standard. The steps taken by ASX to address the Bank's regulatory priorities for the annual assessment period ending June 2018, as well as other material developments, are set out below.

Assessments against international guidance

During the assessment period, the Bank assessed ASX against the Cyber Resilience Guidance, drawing on a self-assessment by ASX against the guidance and an external assessment of ASX against industry standards. The Bank's assessment concluded that ASX's cyber security arrangements are consistent or broadly consistent with the Cyber Resilience Guidance, apart from the expectation that ASX is able to safely resume critical services within two hours of a disruption in extreme but plausible cyber-attack related scenarios. It should be noted, however, that the two-hour target is an ambitious one that FMIs globally are typically not yet able to meet. Consistent with the Cyber Resilience Guidance, ASX has developed and is implementing a concrete plan to improve its capabilities to recover from a cyber attack.

The new CCP Resilience Guidance raises the bar in relation to financial risk management at CCPs, focusing on five key elements of a CCP's financial risk management framework: governance; stress testing; the level of coverage of financial resources; margin; and a CCP's contribution of its financial resources to losses. Although no additional standards are imposed by this guidance, it was expected to prompt enhancements to risk management practices

at many CCPs, with implementation expected by the end of 2017. The Bank's assessment concluded that ASX's practices are consistent or broadly consistent with the guidance. Although ASX meets the majority of the guidance, the Bank identified a number of gaps, some of which were of potential concern, spread across six Financial Stability Standards. The more significant gaps related to the liquidity risk and credit risk standards.

The revised Recovery Guidance provides guidance for FMIs and authorities on the development of recovery plans, which are required by the Financial Stability Standards because a disorderly failure of a systemically important FMI could lead to severe systemic disruption. This guidance is an update of guidance initially published in October 2014 and covers the recovery planning process and the content of recovery plans, including an overview of some of the tools an FMI may include in its recovery plan. Building on its previous assessments of ASX's recovery arrangements, the Bank concluded that ASX's practices were consistent with the revised guidance.⁴⁴

CCP risk management changes

The CCP Resilience Guidance clarifies that CCPs should maintain a level of prefunded financial (i.e. capital) and liquid resources sufficient to withstand the default of its largest clearing participants on an ongoing basis. As the ASX CCPs are recognised in the European Union they are expected to have sufficient resources to cover the default of their largest two participants (known as Cover 2). Over a six-month period to January, the ASX CCPs reported nine Cover 2 capital requirement breaches and in each case

⁴⁴ The Bank assessed ASX's recovery arrangements in its *September 2015 Assessment of the ASX CS Facilities*, which is available at <<https://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/assessments/2014-2015/>>.

the ASX CCPs were reliant on margin to be received the following day to meet the Cover 2 capital requirement. In response to these breaches, the ASX CCPs implemented lower stress test exposure limits, which will result in the ASX CCPs receiving additional margin before the largest two stress test exposures exceed the size of the default fund, rather than the ASX CCPs calling for additional margin at the point a breach occurs and then receiving the margin by midday the following day.

In response to increased activity during the ASX 24 Night Session and the extended operating hours of the over-the-counter (OTC) Clearing Service, ASX Clear (Futures) commenced calling for overnight initial margin from certain futures and OTC participants from late November 2017. These overnight margin calls are denominated in US dollars, and can be called Monday to Saturday. Participants are required to maintain a margin buffer to cover less-than-extreme potential variation margin exposures created in the overnight session. If this buffer proved to be insufficient, ASX Clear (Futures) also introduced the ability to call additional margin overnight; although for practical reasons ASX Clear (Futures) is only expected to make such a call in extreme circumstances. These changes mostly addressed the Bank's September 2017 recommendation that ASX to implement its plans to introduce a scheduled intraday margin call during ASX 24's Night Session to improve its management of intraday exposures created during that session. In the longer term, ASX Clear (Futures) is expected to put arrangements in place to be able to monitor and manage intraday exposures created during ASX 24's Night Session on a near real-time basis, or take other steps to ensure comprehensive management of intraday exposures created during that session.

ASX operational risk review

At the instigation of the Bank and ASIC, in September 2017 ASX commissioned an independent external review of ASX's technology governance, operational risk and control frameworks covering ASX's licensed markets and CS facilities. This followed a number of operational disruptions over the previous two years. The review was concluded in December and identified a number of areas for improvement in ASX's risk management and technology strategy, governance practices, operational risk measurement and monitoring, knowledge management and resource management arrangements. Building on existing initiatives underway in these areas, ASX has established a program to address the findings of this review. The detail on the findings, along with ASX's work program to address these findings, is provided in the Bank's 2018 Assessment of ASX.

CHESS replacement

During 2017/18, ASX continued to develop the replacement for the CHESS clearing and settlement system. This is an important element of ensuring that ASX's core infrastructure for the cash equities market meets international best practice, and that its performance, resilience, security and functionality continue to meet the needs of its users.

In late 2017, ASX formally selected Digital Asset Holdings (DA) as the vendor for the distributed ledger technology-based platform that will replace CHESS. As an input to making this decision, ASX conducted a preliminary self-assessment against the Financial Stability Standards and the PFMI, which concluded there was nothing intrinsic to the technology that would prevent ASX Clear and ASX Settlement from complying with their regulatory obligations on an ongoing basis. The ASX Board also considered the results of two external security

assessments of the prototype platform that DA has developed.

In April, ASX issued a public consultation paper on the CHES functionality it intends to offer, both on Day 1 and in the longer term. The proposed new functionality is based on new business requirements proposed by stakeholders in industry working groups along with additional functionality identified separately by ASX. ASX is currently aiming for the new system to commence operation in early 2021, subject to stakeholder feedback and technological build considerations.

The Bank will continue to monitor the development of the new clearing and settlement system for cash securities transactions, in addition to monitoring the ongoing maintenance and smooth functioning of the existing CHES system in the transition to its replacement system.

New Zealand dollar OTC interest rate derivative clearing

In November, ASX Clear (Futures) implemented rule changes to support the expansion of its OTC Clearing Service to include New Zealand dollar OTC interest rate derivatives (IRD). The products initially eligible for clearing included bank bill benchmark (BKBM) interest rate swaps (IRS) and overnight index swaps (OIS), both to a maximum maturity of two years. The maximum maturity of BKBM IRS was extended to 15 years in February.

LCH Ltd

LCH Ltd is licensed in Australia to provide CCP services for OTC IRD and inflation rate derivatives.

In December 2017, the Bank published the *2016/17 Assessment of LCH Limited's SwapClear Service*.⁴⁵ This assessment concluded that LCH Ltd

⁴⁵ Available at <<https://www.rba.gov.au/payments-and-infrastructure/financial-market-infrastructure/clearing-and-settlement-facilities/assessments/lch/2017/pdf/lch-assess-2017-12.pdf>>.

met the CCP Standards and either met or made progress towards meeting the Bank's regulatory priorities. Steps taken so far by LCH Ltd to address these priorities, as well as other material developments, are set out below.

Operating hours in Australia

LCH Ltd has continued 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 afternoon when the SwapClear service opens. The official opening time remains at 6 am London time, though in practice LCH Ltd has opened the service an hour earlier where possible. LCH Ltd is continuing its work to extend the operating hours of the SwapClear service following the completion of a system upgrade, in line with the Bank's regulatory priority.

Protected Payments System arrangements in Australia

The Bank requested that LCH Ltd complete its implementation of its Protected Payments System (PPS) arrangements in Australia to facilitate payments to and from its Australian clearing participants. The four major Australian banks and Macquarie Bank (which became a SwapClear member in April) are required to use the Australian PPS arrangements to settle their Australian dollar obligations directly with LCH Ltd using their Exchange Settlement Accounts at the Bank. All five of these banks are now meeting this requirement. In December, LCH Ltd announced that it will accept Australian dollar cash for initial margin via the Australian PPS.

Areas of supervisory focus

In addition to the regulatory priorities in its 2016/17 Assessment, the Bank also identified

three areas of supervisory focus for its supervision of LCH Ltd. These related to governance, operational resilience and cyber risk management, and developments in international standards. These areas had either experienced significant change that the Bank intended to monitor, or areas where the Bank considered that further analysis was required. The Bank has been engaging with LCH Ltd and the Bank of England on these areas and will provide a formal update in its 2017/18 Assessment of LCH Ltd.

Chicago Mercantile Exchange Inc.

CME is licensed to provide CCP services for OTC IRD and non-Australian dollar IRD traded on the CME market or the Chicago Board of Trade market for which CME permits portfolio margining with OTC IRD. In March 2018, the Bank published its assessment of CME for the 12 months ending December 2017, which concluded that CME had either met, or made some progress towards meeting, the regulatory priorities identified by the Bank in its previous assessment.

Given the nature and scope of CME's current activities in Australia, the Bank did not consider it necessary to conduct a detailed assessment of CME against all of the CCP Standards. Once CME has material direct Australian-based clearing participation, or there is a material increase in CME's provision of services in Australian-related products, the Bank will expect CME to ensure that CME's operational and governance arrangements promote stability in the Australian financial system.

The Bank's previous assessment published in March 2017 included a priority that CME should materially reduce the size and concentration of its unsecured investments of cash collateral with non-government obligors. CME has expanded the number of its investment counterparties

and substantially increased the share of cash collateral deposited at central bank accounts, fully addressing this regulatory priority.

The most recent assessment carried forward priorities relating to CME's recovery and wind-down plans and its liquidity risk management framework. CME has provided the Bank with relevant documents and the Bank expects to complete a review of the updated recovery and wind-down plans and the results of an external validation of the liquidity risk management framework in the current assessment period.

Reserve Bank Information and Transfer System

RITS is Australia's high value payments system that is used by banks and other financial institutions to settle their payment obligations. The most recent assessment of RITS against the PFMI was endorsed by the Board and published in May 2018.⁴⁶ The assessment concluded that RITS had observed all of the relevant principles. Key developments in the Bank's areas of oversight focus are set out below.

Cyber resilience

During the assessment period, the Bank continued work to address recommendations from a series of reviews carried out in 2016 of RITS' cyber resilience arrangements. The highest priority recommendations were addressed in early 2017, with a number of the lower priority recommendations also since completed. The remainder of the lower priority recommendations are scheduled to be addressed in 2018, with the exception of a small number of recommendations that are being addressed via related projects that may extend beyond 2018.

⁴⁶ Available at <<http://www.rba.gov.au/payments-and-infrastructure/rits/self-assessments/>>.

The Bank has carried out work to meet security standards established by SWIFT as part of its Customer Security Programme. At the end of 2017, the Bank lodged its first annual attestation relating to compliance with these standards and, in June, the Bank was assessed to be compliant with all 16 mandatory controls by an external auditor. The Bank is also continuing to evaluate current and emerging technology options that may further enhance the capability of RITS to recover from cyber attacks in a timely manner.

Fast Settlement Service

A new service of RITS – the Fast Settlement Service – was publicly launched with the New Payments Platform (NPP) in February (see the ‘New Payments Platform’ section in the chapter on ‘Trends in Payments, Clearing and Settlement Systems’). The Fast Settlement Service allows NPP transactions between customers of different banks to be settled 24/7 on a real-time gross settlement basis, which supports immediate funds availability to payment recipients. The Bank has amended the RITS Regulations in order to incorporate changes supporting the Fast Settlement Service.

Although governed by the RITS Regulations, the Fast Settlement Service operates as a separate service from the core RITS service. Given the current level of transactions in the NPP and Fast Settlement Service, the Bank does not presently assess these systems against the PFMI, apart from their interactions with the core RITS system. The Bank will continue to monitor developments in the NPP and Fast Settlement Service, and periodically review whether an assessment against the PFMI should be conducted in future.

CLS Bank International

Over 2017/18 CLS progressed plans to develop a stand-alone CCP service – CLSClearedFX – to settle centrally cleared deliverable FX products.

CLSClearedFX provides net settlement of centrally cleared FX obligations, which will minimise the liquidity risk faced by CCPs using the service. The LCH Ltd settlement service launched in July 2018. At launch, it cleared deliverable FX options in eight currency pairs, including Australian dollar/US dollar. The Eurex service is expected to launch later in 2018.

SWIFT

During 2017/18, cyber resilience remained an important focus of SWIFT and its overseers. By December 2017, SWIFT members were required to provide their first attestations of their level of compliance with the mandatory security controls in SWIFT’s Customer Security Programme. SWIFT members are expected to comply with these mandatory controls, which are based on widely accepted best practices, by the end of 2018 at the latest. SWIFT recently updated its Customer Security Programme to include additional mandatory controls that will need to be complied with by the end of 2019.

SWIFT is also consulting on a phased migration to ISO 20022 messages for cross-border payments (see the chapter on ‘Retail Payments Regulation and Policy Issues’).

Policy Development

The Bank works with other regulators (both domestically and abroad) on issues relevant to the regulation and oversight of FMIs. In Australia, much of this work has been coordinated by the Council of Financial Regulators (CFR) and, internationally, the Bank engages with relevant international standard-setting bodies. Where relevant to the Board’s responsibilities, the Board has been kept updated on developments and members’ input and guidance have been sought.

International

A focus of international policy work on FMIs over recent years has been on developing guidance in relation to CCP resilience, recovery and resolution. This work has been conducted under a joint CCP workplan developed by CPMI, the Financial Stability Board, IOSCO and the Basel Committee on Banking Supervision.⁴⁷ The Bank has been closely engaged in this international policy work, as well as other work areas including monitoring of implementation of the PFMI and the development of a strategy to reduce the risk of wholesale payments fraud. Domestically, the Bank has contributed to CFR-led work to develop a special resolution regime for FMIs and continued work on competition in the clearing and settlement of cash equities in Australia.

CCP workplan and supervisory stress tests

As noted in last year's Annual Report, Payments Policy Department was closely involved in two of the main components of the joint CCP workplan, which were published in July 2017.⁴⁸ Staff also facilitated the inclusion of data from the ASX CCPs in an analysis of central clearing interdependencies produced as part of the CCP workplan.⁴⁹ Staff have also been involved in an ongoing joint CCP workplan project considering the adequacy of financial resources for CCP resolution and the treatment of CCP equity in resolution.

Complementing the resilience aspects of the CCP workplan, Payments Policy Department contributed to a recently published CPMI and IOSCO framework for supervisory stress tests (SSTs).⁵⁰ The framework aims to help authorities

to design and execute SSTs. SSTs can be used by authorities to understand the risks that could materialise if multiple CCPs were to face a common stress event.

Implementation monitoring

In 2017/18 Payments Policy Department continued to contribute to the international monitoring of implementation of the PFMI by the CPMI–IOSCO Implementation Monitoring Standing Group. In May CPMI–IOSCO published a report which reviewed the progress made by 19 globally active and regionally focused CCPs in achieving consistency in outcomes achieved in the implementation of the PFMI.⁵¹ This report included three CCPs that are licensed in Australia: ASX Clear (Futures), LCH Ltd and CME. The staff also contributed to peer review exercises that assess the extent to which a jurisdiction's implementation measures are complete and consistent with the PFMI, including a recently published report on Canada.

Wholesale payments security

In May 2018, CPMI released a report, which Payments Policy Department contributed to, that sets out a strategy for reducing the risk of wholesale payments fraud related to endpoint security.⁵² The strategy is directed at operators of wholesale payment systems and messaging networks, their participants and relevant regulatory authorities and encourages holistic efforts to strengthen the prevention, detection, response to and communication about fraud in the wholesale payments ecosystem. SWIFT's Customer Security Programme (discussed above) is one way of addressing certain aspects of CPMI's strategy.

47 Available at <<http://www.bis.org/cpmi/publ/d165.pdf>>.

48 The CCP Resilience Guidance and the Financial Stability Board's *Guidance on Central Counterparty Resolution and Resolution Planning*, which is available at <<http://www.fsb.org/wp-content/uploads/P050717-1.pdf>>.

49 Available at <<https://www.bis.org/cpmi/publ/d181.htm>>.

50 Available at <<https://www.bis.org/cpmi/publ/d176.htm>>.

51 Available at <<https://www.bis.org/cpmi/publ/d177.htm>>.

52 Available at <<https://www.bis.org/cpmi/publ/d178.htm>>.

Domestic

In developing domestic policy for FMIs, the Bank works with the other regulators through the CFR, the coordinating body for Australia's main financial regulatory agencies. During 2017/18, the focus of the CFR's work on FMIs has been on FMI resolution and competition in clearing and settlement of equities.

A resolution regime for FMIs in Australia

During the past year, the CFR agencies have continued work to develop a special resolution regime for FMIs.⁵³ Alongside this, the CFR will also work with the government to draft legislation to amend the approach Australian authorities take in assessing whether an overseas CS facility should be subject to regulation in Australia. The proposal, which was consulted on in 2015, rests on a test of the materiality of a CS facility's connection to the Australian financial system, and stakeholders have expressed support for the proposed criteria as well as the need to be flexible.⁵⁴

Competition in clearing and settlement of cash equities in Australia

In September 2017, the CFR, in collaboration with the Australian Competition and Consumer Commission (ACCC), released a policy statement setting out the *Minimum Conditions for Safe and Effective Competition in Cash Equity Settlement in Australia* (Minimum Conditions (Settlement)).⁵⁵ This statement aims to mitigate any adverse implications for financial system

stability, the effective functioning of markets and access should competition in settlement of cash equities emerge. Feedback received from stakeholders through the consultation process and the agencies' responses were also released.⁵⁶ The Minimum Conditions (Settlement) complements the CFR's existing policy documents to establish a flexible framework that underpins the government-endorsed policy stance of openness to competition.⁵⁷ Elements of these policies are not, however, enforceable under the existing regulatory framework. Consequently, the CFR and ACCC are working with the government to implement legislative changes to the statutory framework for CS facilities.

53 The CFR consulted on the resolution regime in early 2015 and released a response to consultation later that year. For more information, see *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>>.

54 See <<http://www.cfr.gov.au/publications/cfr-publications/2015/ocsf-aus-licensing-regime/>>.

55 Available at <<https://www.cfr.gov.au/publications/cfr-publications/2017/minimum-conditions-safe-effective-competition/pdf/policy-statement.pdf>>.

56 *Safe and Effective Competition in Cash Equity Settlement in Australia: Response to Consultation*. Available at <<https://www.cfr.gov.au/publications/cfr-publications/2017/safe-effective-competition-response/pdf/response-to-consultation.pdf>>.

57 The *Minimum Conditions for Safe and Effective Competition in Cash Equity Clearing in Australia* is available at <<https://www.cfr.gov.au/publications/cfr-publications/2016/minimum-conditions-safe-effective-cash-equity/pdf/policy-statement.pdf>>; The *Regulatory Expectations for Conduct in Operating Cash Equity Clearing and Settlement Services in Australia* are available at <<https://www.cfr.gov.au/publications/cfr-publications/2016/regulatory-expectations-policy-statement/pdf/policy-statement.pdf>>.

The Payments System Board's Announcements and Reserve Bank Reports

This section lists developments since mid 2017. The *Payments System Board's 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.

2017

Media Release 2017-14, 'Payment Systems and Netting Act 1998: Approval of Netting Arrangement', 24 July 2017

'How Australians Pay: Evidence from the 2016 Consumer Payments Survey', RBA Research Discussion Paper No 2017-04, July 2017

Media Release 2017-17, 'Payments System Board Update: August 2017 Meeting', 18 August 2017

Media Release 2017-01, 'CFR Policy Statement on Australian Cash Equity Settlement Services', Council of Financial Regulators, 7 September 2017

'Submission to the Productivity Commission Inquiry into Competition in the Financial System', Submission to the Productivity Commission Inquiry as part of the Bank's overall submission, 15 September 2017

Minimum Conditions for Safe and Effective Competition in Cash Equity Clearing in Australia, Council of Financial Regulators, Canberra, revised September 2017

Minimum Conditions for Safe and Effective Competition in Cash Equity Settlement in Australia, Council of Financial Regulators, Canberra, revised September 2017

Regulatory Expectations for Conduct in Operating Cash and Equity Clearing and Settlement Services in Australia, Council of Financial Regulators, Canberra, revised September 2017

Media Release 2017-24, 'Payments System Board Update: November 2017 Meeting', 17 November 2017

'An eAUD?', Phillip Lowe, Australian Payment Summit 2017, 13 December 2017

'Merchant Payment Costs and Least-cost Routing', Tony Richards, Australian Payment Summit 2017, 13 December 2017

'Recent Developments in the ATM Industry', RBA *Bulletin*, December 2017

'Central Counterparty Margin Frameworks', RBA *Bulletin*, December 2017

2018

Media Release 2018-02, 'Launch of the New Payments Platform', 13 February 2018

Media Release 2018-04, 'Payments System Board Update: February 2018 Meeting', 23 February 2018

Media Release 2018-06, 'Payments System Issues: Exchange Settlement Account Policy', 20 March 2018

'Supplementary Submission to the Productivity Commission Inquiry into Competition in the Financial System', Submission to the Productivity Commission Inquiry as part of the Bank's overall supplementary submission, 20 March 2018

Media Release 2018-12, 'Payments System Board Update: May 2018 Meeting', 18 May 2018

'The Australian OTC Derivatives Market: Insights from New Trade Repository Data', *RBA Bulletin*, June 2018

'Cryptocurrencies and Distributed Ledger Technology', Tony Richards, Australian Business Economists Briefing, 26 June 2018

Abbreviations

ACCC	Australian Competition and Consumer Commission	Chi-X	Chi-X Australia Pty Ltd
AML/CTF	Anti-money laundering/ counter terrorism financing	CLS	CLS Bank International
API	Application programming interface	CMA	Competition and Markets Authority (UK)
APRA	Australian Prudential Regulation Authority	CME	Chicago Mercantile Exchange Inc.
ASIC	Australian Securities and Investments Commission	CNP	Card-not-present
ASX	Australian Securities Exchange	CP	Card present
ASX Clear	ASX Clear Pty Limited	CPMI	Committee on Payments and Market Infrastructure
ASX Clear (Futures)	ASX Clear (Futures) Pty Limited	CPS	Consumer Payments Survey
ASX Settlement	ASX Settlement Pty Limited	CS	Clearing and settlement
ATM	Automated teller machine	DA	Digital Asset Holdings
AUD	Australian Dollar	DCE	Digital currency exchange
AusPayNet	Australian Payment Network	DLT	Distributed ledger technology
AUSTRAC	Australian Transaction Reports and Analysis Centre	DTA	Digital Transformation Agency
BETF	Black Economy Taskforce	EMEAP	Executives' Meeting of East Asia-Pacific Central Banks
BIS	Bank for International Settlements	ePAL	eftpos Payments Australia Limited
BKBM	Bank bill benchmark	ES	Exchange settlement
CBDC	Central bank digital currency	EU	European Union
CCP	Central counterparty	Fintech	Financial technology
CFR	Council of Financial Regulators	FMI	Financial market infrastructure
CHES	Clearing House Electronic Sub-register System	FPS	Faster Payments Service
		FX	Foreign exchange
		ICO	Initial coin offering
		IOSCO	International Organisation of Securities Commissions

IRD	Interest rate derivatives
IRS	Interest rate swaps
LCH Ltd	LCH Limited
LCR	Least-cost routing
MoU	Memorandum of Understanding
NPP	New Payments Platform
NPPA	NPP Australia Limited
NZD	New Zealand Dollar
OTC	Over-the-counter
PEXA	Property Exchange Australia Limited
PFMI	Principles for Financial Market Infrastructure
PPFs	Purchased payment facilities
PPS	Protected Payments System
PSD2	Revised Directive on Payment Services
RBA	Reserve Bank of Australia
RITS	Reserve Bank Information and Transfer System
RTGS	Real-time Gross Settlement
RTS	Regulatory Technical Standard
SCA	Strong customer authentication
SEPA	Single Euro Payments Area
SSF	Securities settlement facility
SST	Supervisory stress test
UK	United Kingdom
US	United States

