2014 Assessment of the Reserve Bank Information and Transfer System

December 2014

Contents

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1. Introduction and Executive Summary

Following the publication of the *Principles for Financial Market Infrastructures* (the PFMIs) by the Committee on Payment and Settlement Systems (CPSS, now the Committee on Payments and Market Infrastructures (CPMI)) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) in April 2012, the Reserve Bank of Australia (the Bank) and the Australian Securities and Investments Commission (ASIC) issued a statement (the Joint Statement) setting out how the PFMIs would be applied across financial market infrastructures (FMIs) in Australia.[1]

For payment systems, the Bank has identified the Reserve Bank Information and Transfer System (RITS) as the only domestic payment system for which assessment against the principles within the PFMIs (the Principles) is currently necessary. This reflects the fact that RITS accounts for the majority of interbank settlements across payment systems in Australia, and that RITS has a central role in settling time-critical payments and payment obligations arising in other FMIs. The Bank committed in the Joint Statement to conducting an Assessment of RITS on an annual basis.

This report presents the second Assessment of RITS against the Principles.[2] This Assessment has been carried out in accordance with the approach and rating system set out in the *Principles for Financial Market Infrastructures: Disclosure Framework and Assessment Methodology* (the Disclosure Framework) produced by CPMI and IOSCO in December 2012.[3]

This Assessment concludes that RITS observed all relevant Principles. In the spirit of continuous improvement, Payments Policy Department have nevertheless recommended a number of actions.

1.1 Background

RITS is owned and operated by the Bank. The Bank seeks to ensure effective oversight of RITS by separating the Bank's operational and oversight functions, as well as by transparent Assessments against international standards. This report has been produced by the Bank's Payments Policy Department, which is the functional area responsible for oversight of the payments system, drawing on information provided by the Bank's Payments Settlements Department, which is the functional area responsible for operating RITS (see Section A.1 for further background on the governance and oversight of RITS). It has been endorsed by the Payments System Board.

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1 The Joint Statement by the RBA and ASIC, *Implementing the CPSS-IOSCO Principles for Financial Market Infrastructures in Australia*, is available at <http://www.rba.gov.au/payments-system/policy-framework/principles-fmi/implementing-principles-australia.html>.

2 The 2013 Assessment is available at <http://www.rba.gov.au/payments-system/rits/self-assessments/2013/index.html>. While the 2013 Assessment was published as a 'self-assessment' it was produced by the Bank's Payments Policy Department, a separate functional area with responsibility for oversight of the payments system, and was endorsed by the Payments System Board. To better reflect the separation between the area responsible for the operation of RITS and the independence of the Payments System Board, from 2014 these Assessments will be published simply as Assessments.

3 CPSS-IOSCO (2012), *Principles for Financial Market Infrastructures: Disclosure Framework and Assessment Methodology*, December, available at <http://www.bis.org/cpmi/publ/d106.htm>.

This Assessment focuses on the critical services provided by RITS; in particular, RITS's role as a real-time gross settlement (RTGS) system. In RTGS systems, individual payments are processed and settled continuously and irrevocably in real time. RITS also has a role in settling interbank payment obligations from net settlement systems, which is discussed where relevant. To the extent that the matters covered by the Principles are managed on a Bank-wide basis, these have also been considered in the Assessment.

1.2 Material Developments

This Assessment was conducted during the 12 months to the end of October 2014 (the Assessment period) and covers developments since the last Assessment of RITS, published in 2013. Most important among these developments are enhancements to operational arrangements, including:

- implementation of the remaining recommendations from reviews of RITS's operational risk procedures and controls carried out in 2013, which will improve the Bank's ability to identify and respond to system problems
- renewal of core elements of the technological infrastructure that makes up RITS, which has enhanced the performance and resilience of RITS and reduced the complexity of system maintenance
- finalisation of enhancements to the Bank's organisation-wide project and change management practices, including the establishment of a new enterprise-wide project management framework and a new functional area to manage projects across the Bank.

There have also been some significant developments in the wider operating environment for RITS. These include:

- *Same-day settlement*. As reported in the previous Assessment, direct entry (DE) payments began to settle on a same-day basis on 25 November 2013. The successful implementation of same-day settlement marks the completion of the first of the initial strategic objectives established by the Payments System Board's 2012 Strategic Review of Innovation in the Payments System.
- *Fast Settlement Service*. The Bank continues its work on the Fast Settlement Service, which will support the industry-led project – the New Payments Platform – designed to meet the Payments System Board's remaining strategic objectives for payments system innovation, including achieving real-time settlement of retail payments.
- *Property settlement*. The Bank has developed functionality in RITS to receive and settle interbank payments originating from a new electronic conveyancing system developed by Property Exchange Australia Ltd (PEXA). Settling the cash leg of property transactions in RITS reduces reliance on less efficient payment methods such as bank cheques.

1.3 Assessment

On the basis of the evidence presented in this report, the Assessment concludes that RITS observed all of the relevant Principles in the Assessment period. The Bank nevertheless continues to work to ensure that the operations of RITS continue to meet international best practice. Consistent with this, Payments Policy Department have made recommendations in a number of areas, including:

- *Legal basis*. The Bank should continue to progress a comprehensive review of the *RITS Regulations* and the *RITS Conditions of Operation* (together the RITS Regulations) to identify areas where the clarity of the RITS Regulations could be improved.[4]
- *Operational risk*.
  - The Bank should keep under continued review its approach to cyber security, and in particular its mechanisms for prevention and detection, and its plans to recover from a cyber-related incident.
  - The Bank should examine the benefits, challenges and costs of implementing a range of measures that could further enhance the resilience of RITS and facilitate timely recovery from an operational incident.
  - The Bank should continue to monitor RITS participants' compliance with the new participant Business Continuity Standards.

The remainder of this report is structured as follows. Section 2 summarises in tabular form the progress towards completing the committed actions in the 2013 Assessment, as well as the conclusions and recommendations arising from the 2014 assessment of RITS against each Principle. Section 3 summarises material developments in relation to RITS and its operating environment since the 2013 Assessment. Where relevant, the implications for RITS's observance of the Principles, and planned enhancements, are noted. Appendix A provides background information on RITS and its operating environment. Finally, the detailed assessment of RITS against the Key Considerations for each relevant Principle is provided in Appendix B.

[4] The *RITS Regulations* are available at <http://www.rba.gov.au/payments-system/rits/user-doc/pdf/regulations.pdf> and the *RITS Conditions of Operation* are available at <http://www.rba.gov.au/payments-system/rits/user-doc/pdf/conditions-operation.pdf>.

2. Summary and Review of Ratings and Recommendations

This Section summarises actions taken by the Bank in 2014 in relation to the commitments identified in the 2013 Assessment, as well as recommendations arising from the 2014 Assessment of RITS against the Principles.

2.1 Progress against 2013 commitments

In the 2013 Assessment RITS was found to have observed all relevant Principles. The Bank nevertheless committed to actions in a number of areas to ensure that RITS's operations continued to meet international best practice. The following table summarises the actions identified in the 2013 Assessment, and progress by the Bank in the Assessment period towards completing these actions.

Table 1: Summary of Progress against 2013 Committed Actions

Committed Action	Principle	Progress
Conducting a comprehensive review of the RITS Regulations with the aim of identifying any areas in which the clarity of the RITS Regulations could usefully be improved.	1. Legal basis	Partly addressed. Will be progressed further during 2015. Over the past year, the Bank has engaged a law firm to conduct the review. Following an extensive information-gathering exercise, this law firm has developed an initial proposal that the Bank is currently reviewing.
Upgrading RITS's core infrastructure as part of the Bank's commitment to continuously improve the resilience of RITS.	17. Operational risk	Fully addressed. The Bank completed the upgrade to the core infrastructure of RITS in June 2014. This upgrade involved a renewal of the back-end technological infrastructure, including the replacement and re-engineering of the critical software and hardware components that underpin the operation of RITS. The renewal has enhanced the performance and resilience of RITS and reduced the complexity of system maintenance.
Implementing further enhancements to network and system monitoring.	17. Operational risk	Fully addressed. The Bank has implemented the remaining recommendations from the 2013 reviews of RITS's operational risk procedures and controls. In particular, further measures to enhance the monitoring of RITS's network and systems were implemented in December 2013, which will improve the Bank's ability to identify and respond to system problems.
Continuing to monitor RITS participants' compliance with the new RITS participant Business Continuity Standards.	17. Operational risk	Partly addressed. Participants are required to be fully compliant with these standards by the end of September 2015. The Bank received participants' second annual self-certifications against the new standards as at the end of 2013, at which point 63 per cent of RITS participants were fully compliant with the standards. Of the participants that are yet to be fully compliant, many have indicated that they expect to be compliant by the end of 2014, or during the first half of 2015.

Committed Action	Principle	Progress
Reviewing RITS's public disclosures once CPSS (now CPMI) and IOSCO finalise supplementary quantitative disclosure requirements for payment systems.	23. Disclosure of rules, key policies and procedures, and market data	Not addressed. No quantitative disclosure requirements for payment systems have been developed and none are planned in the near term.

2.2 2014 ratings and recommendations

The following table summarises the 2014 Assessment of RITS against the Principles.[5] In its Assessment, Payments Policy Department have applied the approach and rating system set out in the Disclosure Framework. Under this rating system, a facility's observance of a standard may be rated as:

Observed – Any identified gaps and shortcomings are not issues of concern and are minor, manageable and of a nature that the facility could consider taking them up in the normal course of its business.

Broadly observed – The assessment has identified one or more issues of concern that the facility should address and follow up on in a defined timeline.

Partly observed – The assessment has identified one or more issues of concern that could become serious if not addressed promptly. The facility should accord a high priority to addressing these issues.

Not observed – The assessment has identified one or more serious issues of concern that warrant immediate action. Therefore, the facility should accord the highest priority to addressing these issues.

Not applicable – The standard does not apply to the type of facility being assessed because of the particular legal, institutional, structural or other characteristics of the facility.

RITS was found to observe all relevant Principles. The Bank nevertheless has governance arrangements in place to motivate and encourage continuous improvement in RITS. Reflecting existing plans and matters identified in the Assessment, Table 1 sets out recommendations in some specific areas. The recommendations in the table are discussed in more detail in Section 3 and in Appendix B.

Table 2: RITS Ratings and Recommendations

Principle	Rating	Actions
1. Legal basis	Observed	The Bank should continue its review of the RITS Regulations, with the aim of identifying any areas where the clarity of the RITS Regulations could be improved.
2. Governance	Observed	
3. Framework for the comprehensive management of risks	Observed	
4. Credit risk	Observed	
5. Collateral	Observed	
6. Margin	Not applicable	

5 The *Principles for Financial Market Infrastructures*, developed jointly by CPMI and IOSCO, are available at <http://www.bis.org/publ/CPMI101a.pdf>.

Principle	Rating	Actions
7. Liquidity risk	Observed	
8. Settlement finality	Observed	
9. Money settlements	Observed	
10. Physical deliveries	Not applicable	
11. Central securities depositories	Not applicable	
12. Exchange-of-value settlements	Not applicable	
13. Participant default rules and procedures	Observed	
14. Segregation and portability	Not applicable	
15. General business risk	Observed	
16. Custody and investment risks	Observed	
17. Operational risk	Observed	The Bank should keep under continued review its approach to cyber security, and in particular its mechanisms for prevention and detection, and its plans to recover from a cyber-related incident. The Bank should examine the benefits, challenges and costs of implementing a range of measures that could further enhance the resilience of RITS and facilitate timely recovery from an operational incident. The Bank should continue to monitor RITS participants' compliance with the new Business Continuity Standards.
18. Access and participation requirements	Observed	
19. Tiered participation arrangements	Observed	
20. FMI links	Not applicable	
21. Efficiency and effectiveness	Observed	
22. Communication procedures and standards	Observed	
23. Disclosure of rules, key policies and procedures, and market data	Observed	
24. Disclosure of market data by trade repositories	Not applicable	

3. Material Developments

This Section draws out the material developments relevant to RITS and its operating environment since the 2013 Assessment. While the Assessment period was the 12 months to the end of October 2014, material developments since then are also described. To the extent that these developments, and planned enhancements, have implications for RITS's observance of the Principles, these are noted. Over the Assessment period, there have been material developments that are relevant to the Principles concerning credit risk and collateral (Principles 5 and 6), legal basis (Principle 1), the comprehensive management of risks (Principle 3) and operational risk (Principle 17). To complement this Section, background information on how RITS operates is set out in Appendix A. A detailed Assessment of how RITS meets the Principles is presented in Appendix B, which has been updated to reflect developments discussed in this Section.

There are a number of other areas in which the application of the Principles will necessarily differ for central bank-owned systems.[6] The Bank has relied on its own judgement regarding how the Principles should be applied to RITS. As a general rule, policies and operational arrangements dealing with matters such as access to central bank accounts, credit provision and collateral eligibility will typically be integrally linked to policies that underpin a central bank's monetary operations and it is therefore accepted that these should not be constrained by the Principles. In addition, it is the Bank's view that expectations around recovery planning and the organisation of operational arrangements to support resolution actions will not typically apply in the case of a central bank-owned system. Similarly, the requirement to hold ring-fenced liquid assets to cover business risk and support a recovery or wind-down plan are not expected to be relevant where a central bank can supply liquidity as required to support its operations.

3.1 Activity in RITS

Consistent with the Bank's judgement that RITS is the only domestic systemically important payment system in Australia, around 70 per cent of the value of non-cash payments in Australia is settled on an RTGS basis in RITS (Table 3). Furthermore, since RITS settles on a real-time basis, it is used to settle time-critical payments, including Australian dollar pay-ins to CLS Bank International (CLS). RITS is also integral to the functioning of other payment systems and FMIs, with the interbank obligations arising from non-cash retail payments, debt and equity securities transactions, and central counterparties' margin-related payments also settled in RITS (see Section A.2 for further background on systems that are linked to RITS).

6 Specifically, paragraph 1.23 of the Principles (p 13) states:
'In general, the principles are applicable to FMIs operated by central banks, as well as those operated by the private sector. Central banks should apply the same standards to their FMIs as those that are applicable to similar private-sector FMIs. However, there are exceptional cases where the principles are applied differently to FMIs operated by central banks due to requirements in relevant law, regulation, or policy. For example, central banks may have separate public policy objectives and responsibilities for monetary and liquidity policies that take precedence. Such exceptional cases are referenced in (a) Principle 2 on governance, (b) Principle 4 on credit risk, (c) Principle 5 on collateral, (d) Principle 15 on general business risk, and (e) Principle 18 on access and participation requirements. In some cases, FMIs operated by central banks may be required by the relevant legislative framework or by a central bank's public policy objectives to exceed the requirements of one or more principles.'

Table 3: Payments in Australia

2013/14, daily average[(a)]

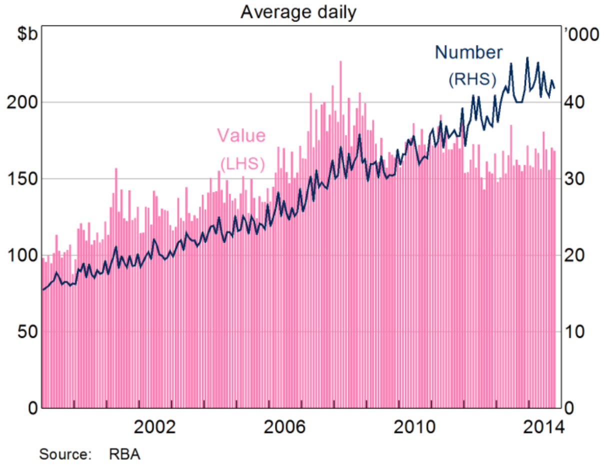
	Number[(b)] '000s	Value[(b)] $ billion	Interbank settlement value in RITS $ billion
RITS	42	162.7	162.7
SWIFT payments (HVCS)	*38.7*	*100.5*	*100.5*
Debt securities (Austraclear)[(c)]	*3.1*	*50.3*	*50.3*
RITS cash transfers	*0.2*	*11.9*	*11.9*
CLS	56.8	246.2	2.2
Retail payments	34 816.3	62.9	2.9
Direct entry[(d)]	*11 912.4*	*56.1*	
Cheques	*715.3*	*4.9*	
Credit/charge cards	*7943.9*	*1.1*	
Debit cards	*14 244.6*	*0.9*	
Equity settlements (CHESS)	718.8	4.0[e]	0.5

(a) Business days
(b) Includes payments between customers of the same financial institution
(c) Excludes intraday repurchase agreements
(d) Includes BPay
(e) Gross value of equity trades
Sources: ASX; CLS; RBA

Since the previous Assessment, the average number and value of transactions settled in RITS have been relatively constant (Graph 1). In the 12 months to October 2014, RITS settled on average around 42 000 RTGS transactions each day, with an aggregate daily value of over $164 billion. On the peak value day in that period, RITS settled around 50 000 RTGS transactions with a total value of $258 billion.

Graph 1

RTGS Transactions



3.2 RITS Feeder Systems

The majority of RITS payments are settled on an RTGS basis. These payments can be entered into RITS directly (these payments are known as RITS cash transfers), or delivered via one of two external feeder systems: the Society for Worldwide Interbank Financial Telecommunications (SWIFT) Payment Delivery System (PDS) and Austraclear.

RITS also facilitates the settlement of net interbank obligations arising from the equity market (through the Clearing House Electronic Sub-register System, CHESS, the equities settlement system operated by ASX Settlement), retail payment systems and a new property settlements system. During the Assessment period there have been changes to the way retail payments settle in RITS, and there are planned enhancements that are expected to further expand the variety of channels for settlement in RITS of interbank obligations arising from retail payment systems.

3.2.1 Same-day settlement of direct entry payments

The DE system is used for the exchange of bulk electronic payment files between authorised deposit-taking institutions (ADIs). Payments occurring through DE include salary, welfare and dividend payments, as well as internet ('pay anyone') banking transfers and direct debits for bill payments. The use of DE payments has grown strongly over the past decade and these account for the majority of retail payments by value. As reported in the previous Assessment, on 25 November 2013, the first of the strategic objectives established by the Payments System Board's Strategic Review of Innovation in the Payments System was achieved when DE payments began to settle on a same-day basis.[7]

Previously, the settlement of all DE obligations took place in a daily multilateral batch at 9.00 am on the business day following the exchange of payment instructions between ADIs.[8] With the introduction of same-day settlement for DE, settlement now takes place in six scheduled batches throughout the day, consisting of the 9.00 am batch (which settles DE payments exchanged at 10.30 pm the previous business day) and five additional batches through the day, each of which settles around 45 minutes after the scheduled exchange of payment instructions.

A benefit of this change is that financial institutions are in a position to make funds available to recipients on a more timely basis without taking on interbank credit risk. The implementation has required significant operational changes to RITS and ADIs' systems, as well as to the Bank's arrangements for the provision of liquidity.[9]

The transition to the new arrangements has proceeded smoothly. In the 11 months to October, on average approximately 99 per cent of the $16.8 billion of interbank DE payments each day settled on a same-day basis, with the remainder settling in the 9.00 am batch on the next business day. The average value settled shows a clear pattern across the five daily settlements (Graph 2). The majority of the value of DE payments, around 58 per cent, is settled in the last two batches, at 7.15 pm and 9.15 pm. This is likely to reflect legacy system constraints and business practices, as well as the behaviour of banks' customers, who often initiate payments late in the day.

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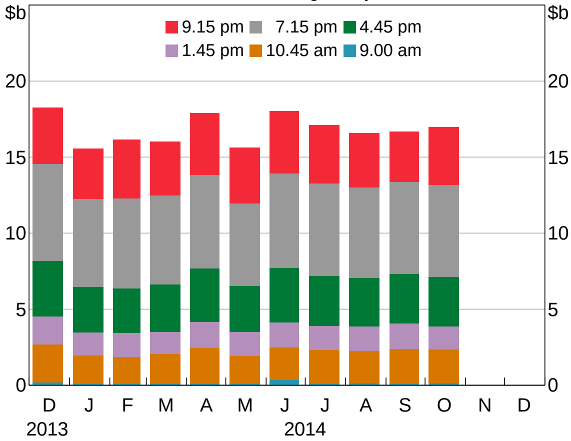
7 RBA (2012), *Strategic Review of Innovation in the Payments System: Conclusions*, June.

8 For further information, see Fraser S and A Gatty (2014), 'The Introduction of Same-day Settlement of Direct Entry Obligations in Australia', *RBA Bulletin*, June, pp 55–64.

9 For more information on the operational changes to RITS, see RBA (2013), 'Box A: Developments in Retail Payments Settlement Arrangements', *2013 Self-assessment of the Reserve Bank Information and Transfer System*, December, p 7.

Graph 2
Direct-entry Payments Settlement*
Gross, average daily

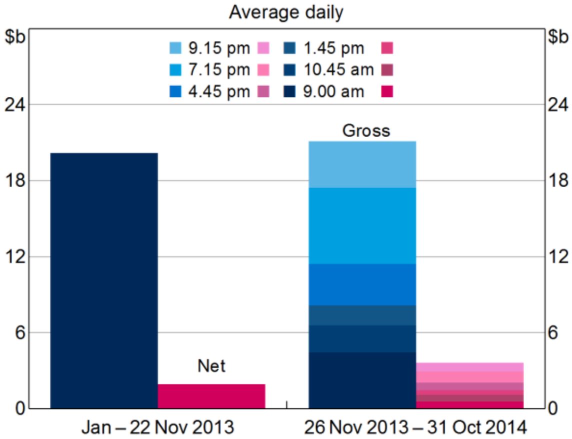


* Payments settled at 9.00 am are cleared at 10.30 pm on the previous business day; all other payments are cleared around 45 minutes before settlement

Source: RBA

Settling payments on a multilateral net basis allows the payers to economise on liquidity. That is, by netting offsetting payments, the total value of funds required to achieve settlement can be reduced. Between the start of 2013 and the implementation of same-day settlement, an average of $20.2 billion in retail payments (comprising DE, cheques, and debit and credit card payments) that required interbank settlement were settled in the 9.00 am batch each business day. On average, these obligations were multilaterally netted so that only $1.9 billion was required to settle them. Due to the introduction of same-day settlement, there has been some un-netting of payment obligations, which has led to a small increase in the liquidity required to achieve settlement. The sum of net settlement obligations (representing the 9.00 am batch and the five new multilateral settlements) has grown to $3.6 billion on average between the start of same-day settlement on 25 November 2013 and the end of October 2014 (Graph 3).

Graph 3
Value of Retail Payments*
Average daily



* The 9.00 am batch includes settlement obligations arising from direct entry (including the BPAY system), cheque, and card (ATM, eftpos and credit card) payments; all other batches only include the settlement obligations arising from direct entry payments

Source: RBA

As discussed in Section 3.4.1, to help participants manage the increase in liquidity needed to settle DE payments on a same-day basis, participants can now source liquidity through 'open' repurchase agreements (repos).

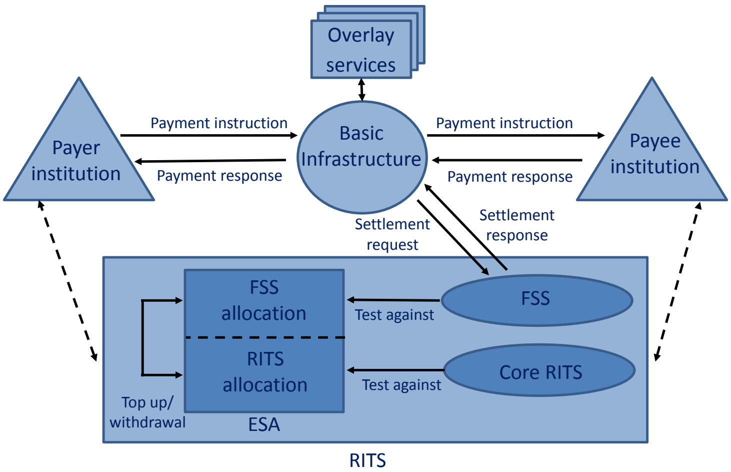
3.2.2 The Fast Settlement Service

The Bank is monitoring industry progress towards meeting the remaining objectives arising from the Payments System Board's Strategic Review of Innovation in the Payments System and will ensure that RITS can support the new arrangements. These objectives include the ability to:

- make real-time retail payments
- make and receive low-value payments outside normal banking hours
- send more complete remittance information with payments
- address payments in a relatively simple way.[10]

The industry-coordinated response is to meet the remaining strategic objectives via a purpose-built payments infrastructure, the New Payments Platform (NPP). Under this proposal, the core of the NPP will be the Basic Infrastructure, including a central switch that will connect participating financial institutions and other approved entities, allowing payment and settlement messages to flow between participants (Figure 1). The Basic Infrastructure will be capable of supporting various 'overlay' services – that is, tailored commercial payment services which participants can choose to make available to their customers.

Figure 1: The New Payments Platform



Source: RBA

The Fast Settlement Service (FSS) is being designed to facilitate the final and irrevocable settlement of each individual payment sent from the Basic Infrastructure in central bank money and is expected to operate 24 hours a day, 7 days a week. The FSS will be a RITS service, owned and operated by the Bank. As a RITS service, it is expected that direct users of the FSS will be RITS participants and as a result be bound by the RITS Regulations.

Since the proposed purpose of the FSS will be to settle retail payments in real time, it will be expected to settle a high volume of low-value payments within seconds of their initiation. Consequently, the FSS is not expected to incorporate the same kind of liquidity-saving mechanisms as those used in the core RITS service (see Section A.3 for a description of RITS liquidity-saving features). Although it is planned that the FSS will use some of the existing RITS infrastructure, the systems are expected to operate on separate platforms so that RITS's core settlement service and the FSS will be able to

[10] For more information, see RBA (2012), *Strategic Review of Innovation in the Payments System: Conclusions*, June.

process and settle payments independently of one another. Each RITS participant would continue to have only one Exchange Settlement Account (ESA); however, ESAs would be divided into an 'FSS allocation' and a 'RITS allocation'. FSS payments would only be tested for settlement against the FSS allocation, and payments sent to RITS's core settlement service would only be tested for settlement against the RITS allocation.

During the operating hours of RITS's core settlement service, participants would have to manage the distribution of their ESA funds between their FSS and RITS allocations (see Section A.5 for details of RITS operating hours). It is expected that tools will be available in RITS to help manage the distribution of funds, including functionality to automatically transfer funds between a participant's RITS allocation and its FSS allocation depending on user-determined thresholds. For example, if a participant's FSS allocation fell below its lower threshold, RITS would automatically initiate a transfer from its RITS allocation to its FSS allocation. Outside the operating hours of RITS's core settlement service, overnight and at weekends for example, it is expected that an ESA holder's entire RITS allocation would be transferred to its FSS allocation. Some of the funds in a participant's FSS allocation would then be returned to its RITS allocation, up to a user-defined 'reset point', when the core RITS settlement service reopened.

As noted, FSS payments will be settled individually on a gross basis. It is expected that payments will be tested for settlement on a settle-or-reject basis. That is, if a participant did not have enough funds in its FSS allocation the payment would be rejected, and the participant would need to resubmit the payment later if it wanted the payment to be settled. As discussed in Section 3.4.1, the introduction of open repos has been in part motivated by the need to ensure participants have sufficient funds to settle FSS payments outside of normal banking hours.

The FSS is being designed to meet standards in relation to availability, capacity and security that are equivalent to those of the core RITS service. As Figure 1 illustrates, even though the FSS will involve separate technological infrastructure, it is a RITS service, and hence will be governed by the RITS Regulations and subject to the same risk management framework as the core settlement service. Consequently, once the FSS is launched it is the Bank's intention that, to the extent that the FSS provided critical services, these would be assessed against the Principles as part of the Assessment of RITS.

3.2.3 Property settlements

Another material operational change has been the implementation of new functionality in RITS to facilitate the financial settlement of property transactions originating from a system operated by PEXA. PEXA is a company owned by the Victorian, New South Wales, Queensland and Western Australian Governments, as well as a number of Australia's largest financial institutions. PEXA has developed a national electronic conveyancing system, which removes the manual processes and paperwork associated with the exchange of property by allowing land registries, financial institutions and other industry participants to prepare and process property transactions on a shared electronic platform. By settling the cash leg of property transactions in RITS, participants can avoid having to rely on less efficient payment methods. This will improve the efficiency of property transactions in general. The RITS functionality to support these settlements was implemented prior to the 10 November launch of the transfer and settlement functionality on the PEXA platform.[11]

[11] The PEXA transfer and settlement functionality is currently only available in New South Wales. However, it is expected to become available in the remaining states and the Northern Territory throughout 2015.

Property settlements tend to involve a number of linked transactions; typically funds from the purchaser's deposit and the drawing down of their mortgage are used to pay off the seller's mortgage, stamp duty and other fees, with the remainder being credited to the seller's account. These linked transactions, which together comprise one property settlement transaction, are submitted by PEXA to RITS as a batch for simultaneous settlement on a multilateral net basis. The settlement of each batch is independent of other property settlement batches, which minimises interdependence between property settlements. However, where there is a chain of property settlements (e.g. an individual is selling one property and using the funds to buy another), PEXA will manage the order and timing of these property settlements to manage this interdependence. PEXA settlements will be processed in RITS during the RITS 'day session' to ensure that RITS participants have certainty regarding their PEXA-related settlement obligations before the interbank cash market closes (see Section A.5 for details of the RITS session times).[12]

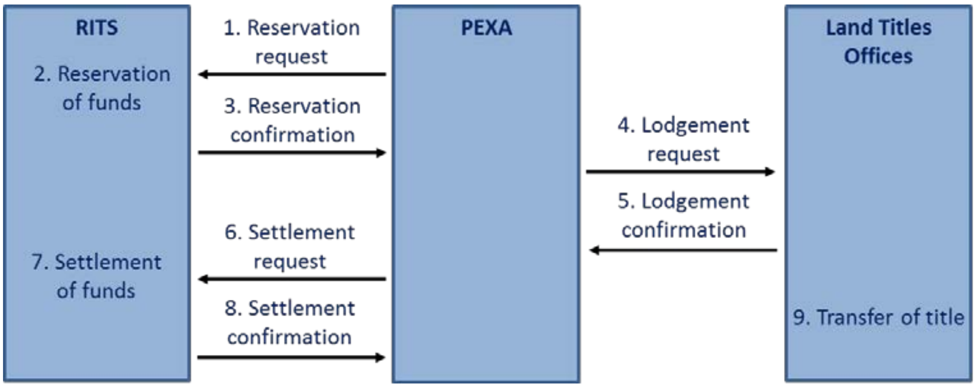
The settlement of a property transaction where title of the property needs to be transferred will generally involve the following steps (Figure 2):

1. PEXA will send a request to RITS to reserve the funds equal to each RITS participants' net obligations in the batch.
2. If all paying RITS participants in the property transaction have sufficient funds in their respective ESAs, RITS will reserve the funds required to settle this batch.[13] Reservation requests are tested against a participant's full ESA balance, less any funds currently reserved for other property settlements. Funds reserved for PEXA transactions are not available to fund any other RITS payment (for further background on reservations in RITS, see Section A.3).
3. Once the funds have been successfully reserved, RITS will advise PEXA.
4. PEXA will then lodge the title transfer with the relevant state or territory land titles office.
5. If lodgement is successful, the relevant land titles office will send PEXA a confirmation.
6. On receipt of this confirmation, PEXA will send a request to RITS to settle the batch.
7. The batch will be submitted to the RITS queue and settled using the reserved funds.
8. RITS will then advise PEXA that settlement is complete.
9. At some point after lodgement, the relevant state or territory land titles office transfers title of the property.

[12] However, where funds have been reserved during the RITS day session but PEXA only sends the settlement request after the end of the day session, the property batch will be settled during the 'evening settlement session', even if one of the participants is not an 'evening agreed' settlement participant.

[13] The reservation request is rejected if one (or more) of the paying RITS participants in a given batch does not have sufficient funds in its ESA.

Figure 2: Property Settlement



Source: RBA

PEXA's ability to reserve funds in RITS helps to ensure that settlement of the cash leg and lodgement of the property leg occur almost simultaneously. Under current arrangements, it still may take up to a few days for land title offices to effect a transfer of title after receiving a lodgement request.

While the settlement of property transactions in RITS requires reservation of ESA funds, which inherently reduces the availability of liquidity for other RITS settlements, the value of property settlements is expected to be small relative to the total value of RITS settlements. Further, the period over which funds will be reserved is expected to be short. Accordingly, the recycling of liquidity in RITS is not likely to be materially affected.

3.3 Participation

Since settlement in RITS occurs using central bank money, only an institution with an ESA at the Bank can be a settlement participant in RITS. Furthermore, since RITS is the only means of access to ESAs, all ESA holders must be participants of RITS, meeting all of its operating conditions. The eligibility criteria to hold an ESA with the Bank therefore effectively represent the eligibility criteria for settlement participants in RITS. The criteria have been designed to be fair and open and promote competition in the provision of payment services by allowing access to all providers of third-party payment services, irrespective of their institutional status (for background information, see Section A.4).

The profile of participation in RITS is set out in Table 4. Since the previous Assessment there have been five new participants, including one new central counterparty (CCP), LCH.Clearnet Ltd, which joined RITS in November 2014. In addition, two institutions ceased to be participants during the Assessment period. Participation in RITS remains highly concentrated among the major domestic banks and large foreign banks, both in terms of number and value of RTGS payments. The value of outgoing RTGS payments settled by RITS participants using an agent remains very low at below 1 per cent of total RTGS payments.

Table 4: RITS Participation[(a)]

	Number of ESAs As at end October 2014	Number[(b)] Per cent, year to end October 2014	Value[(b)] Per cent, year to end October 2014
Major domestic banks	4	63.0	56.4
Foreign banks	35	31.3	35.1
Other domestic institutions	15	2.6	3.0
CS facilities and the Bank	4[(c)]	3.1	5.5
Dormant accounts[(d)]	28	–	–
Total	86	100.0	100.0

(a) Excludes non-transactional RITS participants as they do not hold an ESA
(b) Outgoing payments
(c) Excludes LCH.Clearnet Ltd, which joined RITS in November 2014
(d) Indirect RITS participants that maintain an ESA for contingency purposes
Source: RBA

3.3.1 LCH.Clearnet Ltd's ESA

LCH.Clearnet Ltd (LCH.C Ltd) is a CCP incorporated in England and licensed to offer a defined set of services in Australia. In accordance with the Bank's *Financial Stability Standards for Central Counterparties* (CCP Standards), since LCH.C Ltd is deemed to be systemically important in Australia, it has been required to open an ESA and to use its ESA to settle its Australian dollar obligations (e.g. settlement of Australian dollar margin between LCH.C Ltd and its clearing participants).[14] LCH.C Ltd was granted an ESA in November 2014.

LCH.C Ltd's 'Protected Payments System' (PPS) is used to effect settlement of payments between it and its participants. Currently, LCH.C Ltd uses a commercial bank for the final stage of its Australian dollar settlements; in this stage, Australian dollar payments from clearing participants are 'concentrated' at a single LCH.C Ltd account at that commercial bank. Payments to the 'concentration' bank are made by settlement banks (known as PPS banks) on behalf of the clearing participants. Now that it has an ESA, LCH.C Ltd intends to replace the commercial bank account with its ESA to concentrate its Australian dollar settlements, which will mean that it no longer has an exposure to a commercial bank as part of the settlement of Australian dollar obligations.[15]

3.3.2 New batch administrators

While only institutions with an ESA can be settlement participants in RITS, the RITS Regulations do allow for institutions to join RITS, and be bound by the RITS Regulations, even if they do not settle payments on their own behalf in RITS. One reason for an institution to join RITS without an ESA is to

[14] See Standard 9.1 of the CCP Standards, available at <http://www.rba.gov.au/payments-system/clearing-settlement/standards/central-counterparties/2012/index.html>.

[15] As a participant's obligation to LCH.C Ltd is only deemed to be met once funds have been transferred from the PPS bank to LCH.C Ltd's concentration bank for that currency, and any time permitted by the relevant payment system for the recall of any such payment has expired, LCH.C Ltd only has an exposure to its concentration banks and is not exposed to its PPS banks.

become a 'batch administrator'; that is, to be able to submit a batch of payment obligations between RITS participants to RITS to be settled on a net basis.[16]

To become a batch administrator, an institution has to meet certain risk-based requirements. These requirements include that it has:

- the operational capacity to administer the batch process
- appropriate operational and contingency procedures to ensure the efficient functioning of its batch
- business rules and other legal arrangements to support the batch arrangement.

In 2014, two new batch administrators joined RITS: PEXA and MasterCard. The PEXA settlement arrangements have been described above in Section 3.2.3, while the MasterCard settlement arrangements are set out below.

MasterCard provides a platform for the processing, clearing and settlement of payments made using MasterCard brand debit and credit cards. In September 2014, MasterCard modified the arrangements for settling the interbank obligations arising from the payments that it processes. Since 10 September, these interbank obligations have been settled in a stand-alone multilateral net batch during the Morning Settlement Session on the next business day after the underlying payments were initiated (see Section A.5 for background on RITS Settlement Sessions). Previously, the obligations were settled on a multilateral net basis in the 9.00 am batch two business days after the payment was initiated. MasterCard used a large commercial bank as a settlement agent, which acted as the counterparty to all banks' MasterCard-related settlement obligations in the 9.00 am batch. The value of MasterCard interbank obligations is very small compared with both the total value settled in RITS and the value of interbank obligations arising from other retail payment systems.

3.4 Liquidity and Settlement Performance

As an RTGS system, RITS prevents the build-up of large interbank exposures, which would otherwise occur if high-value payments were settled on a deferred net basis. However, RTGS systems require participants to hold substantial liquidity in order to settle payments individually. Accordingly, the Bank seeks to facilitate effective liquidity risk management by participants in two main ways: the provision of liquidity to settle payment obligations at low cost; and liquidity-saving features within the design of RITS.

3.4.1 Liquidity provision

Liquidity can been sourced from participants' opening ESA balances and additional funds made available to participants by the Bank via its liquidity facilities. The aggregate of opening ESA balances is determined by the Bank's open market operations and outstanding open repos. Open market operations, which are aimed at maintaining the overnight cash rate at its target, involve a combination of term repos and some outright transactions. Under a repo, outright title to eligible securities is transferred to the Bank (upon purchase of securities) in return for a credit to the participant's ESA, with an agreement to reverse the transaction at some point in the future. Open repos do not specify the date on which the transaction will be reversed, whereas term repos specify a future date on which the repo is to be unwound.

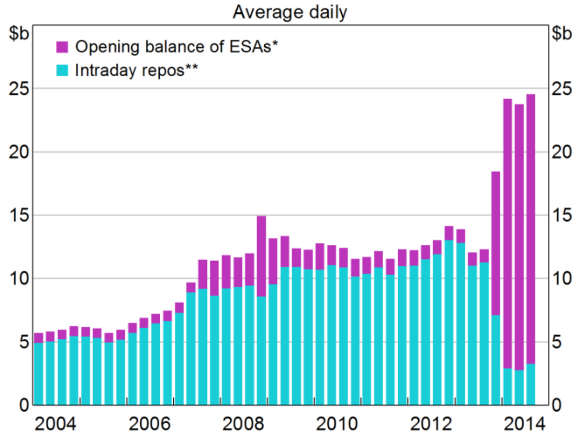
[16] A batch administrator may also be a settlement participant if it is a counterparty to the batch. For example, ASX Settlement is a settlement participant and batch administrator for the CHESS batch.

Open repos are one of the ways holders of ESAs can access the Bank's liquidity facilities for settlement purposes. Open repos were introduced in November 2013 to facilitate the settlement of DE payment obligations and future obligations arising via the FSS (see Sections 3.3.1 and 3.3.2). These settlement obligations are unknown prior to the close of the interbank cash market and Austraclear. Open repos help participants meet these settlement obligations without having to actively manage their liquidity outside of normal banking hours, which would require a fundamental change to their existing practices.[17] The Bank also offers intraday repos, where the transaction must be reversed before the settlement of SWIFT and Austraclear transactions ceases in RITS.[18]

To preserve the incentive for RITS participants to remain active in the interbank cash market while it is open, the Bank has put in place new arrangements for the remuneration of balances held in ESAs overnight. Open repos are contracted at the cash rate target and a capped at a predetermined amount for each RITS participant.[19] To the extent that ESA holders retain matching funds against their open repo position, those ESA balances are compensated at the cash rate target. However, surplus ESA funds earn a rate 25 basis points below the cash rate target, while any shortfall in funds below the ESA holder's open repo position incurs a 25 basis point penalty (subject to an allowance for variations in ESA balances arising from DE settlements that occur outside of normal banking hours).

The introduction of open repos has resulted in a significant increase in the average amount of liquidity available in RITS, from $13 billion during the 12 months to October 2013 to $24 billion over the same period in 2014 (Graph 4). Around 86 per cent of liquidity is now accounted for by opening ESA balances.

Graph 4
Liquidity in RITS
Average daily



* Includes open repos
** Average value of intraday repos during the daily settlement session
Source: RBA

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[17] Open repos will also be used to provide liquidity to banks under the Committed Liquidity Facility. For more information, refer to 'The Implementation of the Basel III Liquidity Standards', available at <http://www.rba.gov.au/mkt-operations/dom-mkt-oper.html>.

[18] In the exceptional case that a participant is unable to reverse an intraday repo with the Bank by the end of the day, the transaction can be converted to an overnight repo. Interest would then be charged at 25 basis points above the cash rate target.

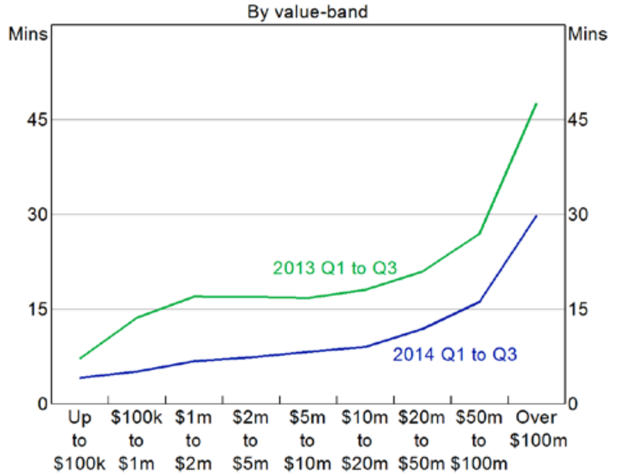
[19] The cap is determined as a multiple of a participant's expected DE obligations. To limit the need for ESA holders to contract intraday repos on a regular basis, the Bank may agree to contract an amount of open repos (at the cash rate target) over and above the stipulated minimum position for an account holder. This includes ESA holders that do not participate directly in the settlement of DE obligations in RITS. These maximum permitted positions in open repos are reviewed at least annually.

As well as facilitating the settlement of late DE payments, the additional liquidity has resulted in earlier settlement of payment instructions submitted to RITS. In the 12 months to October 2013, on average it took until around 1.00 pm for 50 per cent of the day's payments, by value, to settle. Over the same period in 2014, this occurred on average at around 12.40 pm. Also, since the introduction of the new arrangements, the average length of time a payment instruction has been held on the queue awaiting settlement has also declined; comparing the first three quarters of 2014 with the same period in 2013, there has been a decline in the time taken to settle from 48 minutes to 30 minutes for payments of over $100 million (Graph 5).

Graph 5

RITS Payments Time to Settle*

By value-band



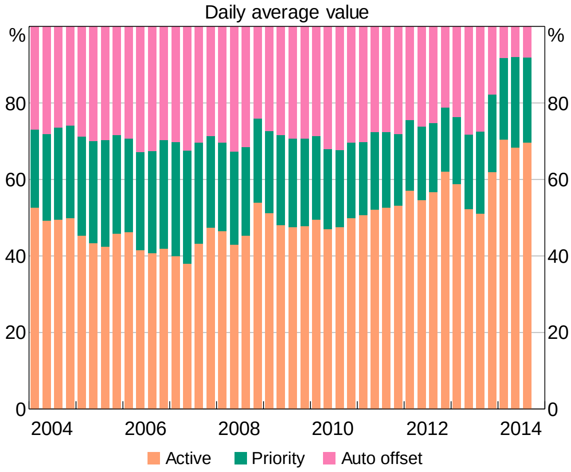
* Average time payments eligible for settlement spend on the queue; does not include interbank settlements arising from retail payment systems or the equity market

Source: RBA

3.4.2 Design features

The design of RITS features a central queue, with both a 'next-down looping' and an 'auto-offset' algorithm (see Section A.3 for further details). Since the introduction of open repos, the daily average value of transactions settled using the auto-offset feature has declined substantially as a proportion of the total value settled in RITS. In the three quarters to September 2014, the proportion of payments settled by auto-offset has been roughly a third of the value settled over the same period in 2013 (Graph 6). The value of priority payments has stayed relatively constant, which is likely to be a reflection of participants' liquidity management strategies.

Graph 6
Use of Liquidity Saving Features in RITS*
Daily average value



* Interbank payments settled
Source: RBA

3.5 Credit Risk and Collateral

RITS is an RTGS system; that is, payments are settled individually and irrevocably in real time. RITS provides no guarantee that queued payments will settle, with any payments remaining on the queue at the end of the day removed from the queue. As an RTGS system, RITS participants are not exposed to unintended credit risk: since customer accounts are not updated before interbank settlement is completed (with finality), exposures between participants do not arise.[20]

3.5.1 Asset-backed securities

The Bank is not exposed to any financial risks in the RITS's settlement process. The Bank does, however, incur credit risk through the provision of liquidity to participants in support of settlement activity, which it manages by taking collateral under repo. By lending on a collateralised basis, the Bank would only face a loss if a RITS participant failed to repurchase securities sold under repo and the market value of the securities fell to less than the agreed repurchase amount. To manage the latter risk, the Bank only accepts selected highly rated debt securities denominated in Australian dollars as collateral. These securities are conservatively valued, and subject to haircuts and daily margin calls.

In light of the relative scarcity of Australian dollar government, semi-government and bank-issued debt securities, the Bank has permitted the use of certain related-party assets issued by bankruptcy remote vehicles, such as self-securitised residential mortgage-backed securities (RMBS), as collateral in open repos for participants involved in the DE payments exchange. These securities are subject to an additional haircut and additional reporting requirements. As discussed in Section 3.4.1, open repo has led to a significant increase in the average liquidity available in RITS and now accounts for the majority of this liquidity. As a result, the Bank's exposure to related-party assets has increased. As at 30 June 2014, around 90 per cent of the outstanding amount of open repos was backed by these self-securitised assets.

[20] By contrast, unintended interbank exposures can arise during the settlement process in systems that settle on a deferred net basis, since banks may update customer accounts when payment messages are exchanged, rather than awaiting the completion of interbank settlement.

To enhance its risk management of these securities, as well as asset-backed securities more broadly, from 30 June 2015 the Bank will introduce new criteria to require issuers of asset-backed securities (or third parties) to provide more detailed information in order for these securities to be eligible for use in the Bank's operations.[21] This is a decision that the Bank has taken when considering its own risk appetite and monetary policy objectives. As noted in the introduction to Section 3, the Bank's view is that nothing in the Principles is intended to constrain central bank policies on credit provision or eligible collateral.

3.5.2 ASX Collateral

In April 2013 the Bank became a Foundation Customer of ASX Collateral, a collateral management service developed in partnership with Clearstream, a Luxembourg-based FMI provider.[22] As agent for the Bank's repos, ASX Collateral is responsible for ensuring that securities delivered to the Bank's Austraclear account are appropriately valued and meet the Bank's eligibility requirements. Since February 2014, RITS participants have had the option to use ASX Collateral services for certain types of repos in a subset of eligible securities.[23] To date, the use of ASX Collateral for repos with the Bank has been limited. As a result, only around 8 per cent of the outstanding amount of collateral securities held by the Bank under term repos is held via ASX Collateral. However, participants' use of ASX Collateral may increase in the future.

Securities provided to the Bank under repo through ASX Collateral are held in special purpose 'collateral accounts' in Austraclear. Securities in these accounts can only be transferred based on instructions from ASX Collateral. For this reason, the Bank relies on the availability of ASX Collateral to be able to promptly access the securities held in its collateral accounts and, in the case of a default, liquidate those securities in a timely manner.

While ASX Collateral is not itself subject to direct regulation as an FMI, the Bank's *Financial Stability Standards for Securities Settlement Facilities* (SSF Standards) set requirements for critical interdependent systems.[24] Accordingly, in light of the interdependence between ASX Collateral and Austraclear, in its assessment of Austraclear against the SSF Standards, the Bank has sought to establish that the standards for operational resilience at ASX Collateral (including the link with Clearstream) are consistent with those that apply to Austraclear. The Bank also monitors these interdependencies in the context of Austraclear as a key feeder system to RITS, to gain assurance that these would have no adverse implications for the operation of RITS.[25]

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21 The additional information, which will have to be kept up to date, covers both transaction-related data as well as information on the underlying assets. The data will help the Bank price self-securitised RMBS, for which there are no market prices, as well as refine the price of certain other asset-backed securities. Another objective of the enhanced reporting requirements is to promote broader transparency in the securitisation market. To this end, the Bank has made it a requirement that certain information be made publicly available if securities are to be eligible for the Bank's open market operations. For more information, see Aylmer C (2013), 'Developments in Secured Issuance and RBA Reporting Initiatives', Address to the Australian Securitisation Forum, Sydney, 11 November.

22 For more information on ASX Collateral, see RBA (2013), 'Box B: ASX Collateral', *2013 Self-assessment of the Reserve Bank Information and Transfer System*, December, p 12.

23 The subset of eligible securities comprises: Commonwealth Government Securities; semi-government securities; eligible securities issued by supranational agencies; eligible securities issued and/or guaranteed by foreign governments; and eligible bank-accepted bills and certificates of deposit with less than 12 months to maturity.

24 See Standard 14.9 of the SSF Standards, available at <http://www.rba.gov.au/payments-system/clearing-settlement/standards/securities-settlement-facilities/2012/index.html>.

25 For more information on ASX Collateral and its implications for Austraclear, refer to the *2013/14 Assessment of ASX Clearing and Settlement Facilities*, available at <http://www.rba.gov.au/payments-system/clearing-settlement/assessments/2013-2014/index.html>.

3.6 Legal Basis

The Bank seeks external legal advice on material amendments to the RITS Regulations and associated contractual agreements, including on the interaction of such amendments, where relevant, with Australian laws and regulations. While the RITS Regulations are comprehensive, changes in functionality and activity since the launch of RITS have added to their complexity. As discussed in the 2013 Assessment, the Bank has commenced a review of the RITS Regulations with the aim of identifying any areas where the clarity of the RITS Regulations could be improved.

Over the past year, the Bank has engaged a law firm to conduct the review. Following an extensive information-gathering exercise, this law firm has developed an initial proposal that the Bank is currently reviewing.

> **Recommendation.** The Bank should continue its review of the RITS Regulations with the aim of identifying any areas where the clarity of the RITS Regulations could be improved.

3.7 Risk Management Framework

The Bank has a well-established organisation-wide risk management framework which facilitates the identification, assessment and treatment of all non-policy risks – including those arising from its operation of RITS – at both an enterprise ('top-down') and business ('bottom-up') level. To enhance this framework, the Bank has recently published a *Risk Appetite Statement* (the Statement), which provides an outline of the Bank's approach to managing its most significant risks.[26]

In particular, the Statement sets out the Bank's approach towards its key strategic, financial, people and culture, and operational risks. Of specific relevance to the Principles, the Statement covers:

- *Credit risk*. The Bank has a very low appetite for credit risk. The Bank manages this risk carefully by applying a strict set of criteria to investments, confining its dealings to institutions of high creditworthiness and ensuring exposures to counterparties are appropriately collateralised with high-quality assets and conservative haircuts.
- *Operational risk*. The Bank generally has a low appetite for operational risk, and makes resources available to control operational risks to acceptable levels. In particular, the Statement notes that the Bank has a very low appetite for:
  - risks to the availability of systems which support its critical business functions related to interbank settlements
  - threats to Bank assets arising from external malicious cyber attacks
  - IT system-related incidents which are generated by poor change management practices.

All Heads of Department are responsible for the implementation of, and compliance with, the Statement. The Statement is reviewed annually, or whenever there is a significant change to the Bank's operating environment. Proposed changes to the Statement must be endorsed by the Executive Committee following review by the Risk Management Committee.

The Bank has also established a new Technology Committee that, in collaboration with the Risk Management Committee and the relevant business areas, facilitates the assessment, monitoring and

[26] The *Risk Appetite Statement* is available at <http://www.rba.gov.au/about-rba/risk-appetite-statement.html>.

management of IT risks, and ensures any IT-related initiatives are consistent with the Bank's overall technology strategy.

3.8 Operational Risk Management

3.8.1 Identifying and managing operational risk

The key operational target is for RITS to be available to its participants in excess of 99.95 per cent of the time. Availability is measured relative to the total number of hours that the system is open for settlement and reporting. In the nine months to the end of September 2014, RITS was available 99.98 per cent of the time (Table 5). During that period there was only one incident that affected the availability of RITS. This incident involved a disruption to the connection to SWIFT for 17 minutes. During the incident, RITS was still available through Austraclear and via the internet, and it continued to settle transactions (for further background on how RITS manages external feeder systems and other dependencies, see Section 3.8.3). A subsequent incident in early October delayed the start of the Morning Settlement Session for 36 minutes. Any incident that affects the normal operation of RITS is investigated thoroughly and actions are taken to prevent a recurrence or to mitigate any potential future impact.

Table 5: RITS Availability

Per cent

	Bank-operated systems	External Feeder systems
2014[(a)]	99.980	99.974
2013	99.989	99.914
2012	99.948	99.818
2011	99.997	99.981
2010	99.993	99.844

(a) 1 January to 30 September 2014
Source: RBA

RITS also has capacity targets. These include: a processing throughput target, which aims to ensure that RITS is able to process the peak day's transactions in less than two hours (assuming no liquidity constraints); and a projected capacity target, which specifies that RITS should be able to accommodate projected volumes 18 months in advance with 20 per cent headroom. RITS is regularly tested against these targets and continues to meet them.

Network and system monitoring

In 2012, RITS availability was slightly below the target – for the first time since 2007 – largely due to a single RITS operational incident.[27] As described in the 2013 Assessment, the Bank commissioned internal and external reviews with the aim of identifying both the root cause of the incident and actions to improve the efficiency and effectiveness of service restoration after a disruption. During the 2013 Assessment period, the Bank implemented a number of enhancements to RITS's operational risk procedures and controls that were recommended in the reviews, specifically:

27 For more information on the incident, see RBA (2013), 'Box D: September 2012 RITS Incident', *2013 Self-assessment of the Reserve Bank Information and Transfer System*, p 25.

- improvements to its network and systems monitoring, which enhance the ability to identify the source of disruptions and thus improve times for service restoration
- improvements to internal communications procedures during an incident
- enhancement of the functionality that automates retrieval of SWIFT messages.

Consistent with its commitments in the 2013 Assessment, the Bank has completed the remaining recommendations from these reviews. In particular, further measures to enhance the monitoring of RITS's network and systems were implemented in December 2013. These will improve the Bank's ability to identify and respond to system problems. These enhancements comprise new tools that automate the testing of the availability of RITS components. If any issues are detected by the tools, an email alert is automatically sent to the relevant Bank staff.

RITS core infrastructure renewal

In line with its commitment in the 2013 Assessment, the Bank completed the upgrade to the core infrastructure of RITS in June 2014. This upgrade was part of the Bank's commitment to continuously improve the resilience of RITS, and involved a renewal of the back-end technological infrastructure. This included the replacement and re-engineering of the critical software and hardware components that underpin the operation of RITS. The renewal has increased the performance and resilience of RITS, reduced the complexity of system maintenance, and will facilitate the implementation of the Fast Settlement Service (see Section 3.2.2). The new technology also features enhanced vendor monitoring and technical support, including real-time alerts and remote deployment of critical patches, should they be necessary. To ensure these additional features are delivered in a manner that meets the Bank's requirements, the Bank has executed a service level agreement with the vendor that sets out response times and the level of support expected.

The project was governed as part of an ongoing program of work to support and enhance RITS and was overseen by a Steering Committee comprised of senior specialist Bank officers, as well as senior representatives from the Bank's Risk and Compliance and Audit Departments. The Bank used a number of controls to ensure that the renewal did not affect business-as-usual RITS settlement services. The upgrade of the technology occurred outside of RITS operating hours, and was subject to extensive testing, including connectivity, capacity and failover testing, prior to go-live. The Bank also reviewed and updated its operational procedures and controls to reflect the changes arising from the renewal. In addition, the new technology was made available to RITS participants in a pre-production environment prior to its implementation. The renewal was also the first project delivered under the Bank's new project management framework (see below).

Project and change management

During the Assessment Period, the Bank finalised enhancements to its organisation-wide project and change management practices.

The enhancements to the Bank's project management practices include the formalisation of a new enterprise-wide project management framework. The new framework, which is consistent with international best practice, is expected to be fully implemented by mid 2015. In addition, the Bank has created a new functional area, the Enterprise Project Management Office, to oversee major initiatives. This will improve the governance of these initiatives, and will also increase their visibility to the senior executives.

The Bank also finalised a new IT change management policy during the Assessment period, which promotes strong control of risks associated with changes to the Bank's IT services and systems. The policy is aligned to standards that are considered best practice in the information and technology and finance industries, including:

- Information Technology Infrastructure Library, Version 3
- ISO Standard 20000: IT Service Management.

In addition to enhancing the Bank's change management processes and procedures, the policy will improve the governance of change management. These improvements include greater clarity in the risk assessment process and better representation of business and technical stakeholders on the governance bodies that oversee change management.

Cyber security

As the role of technology in the provision of financial services continues to expand, cyber-related issues are emerging as a growing systemic threat. This has been acknowledged both in Australia and overseas. The *Financial System Inquiry Interim Report* highlighted the increasing prevalence of cyber attacks and the potential for such attacks to be a source of systemic risk.[28] Internationally, a working group of the CPMI has been analysing the implications of cyber-related issues for FMIs, as well as FMIs' current practices in this area (see Box A). FMI overseers in other jurisdictions are also increasingly focusing on cyber security as a key priority. For instance, the Bank of England has identified cyber-related issues as a supervisory priority for all the FMIs it supervises.[29]

Box A: CPMI Report on Cyber Security

On 11 November the CPMI published a report that describes the potential threat of cyber attacks to FMIs and FMIs' evolving practices in relation to cyber resilience.[1] The report reflects insights from liaison by members of the group (including from the Bank) with FMIs in a number of CPMI jurisdictions, which took place in the first half of 2014.

The report notes that FMIs have generally established comprehensive frameworks to mitigate the risk of a cyber attack. These frameworks typically have three characteristics:

- they address a number of potential scenarios resulting from a cyber attack, including a loss of confidential data, an FMI's systems being unavailable and corruption of an FMI's data or systems
- their scope is broader than just measures to protect IT infrastructure; they also cover people, governance, processes and communication
- they include a wide variety of controls to ensure that cyber attacks are prevented from occurring, that successful attacks are detected, and that services can be recovered after an attack.

1 CPMI (2014), Cyber Resilience in Financial Market Infrastructures, November, available at <http://www.bis.org/cpmi/publ/d122.htm>.

28 Financial System Inquiry (2014), *Financial System Inquiry Interim Report* (D Murray, Chair), July, available at <http://fsi.gov.au/publications/interim-report/>.

29 Bank of England (2014), *The Bank of England's Supervision of Financial Market Infrastructures – Annual Report*, March, available at <http://www.bankofengland.co.uk/publications/Documents/fmi/fmiap1403.pdf>.

While there are no measures that would guarantee the protection of an FMI's IT infrastructure from cyber attacks, the report highlights a number of existing and emerging preventive and detective controls used by FMIs, as well as measures to recover from a cyber attack. Notably, liaison suggests that in the past FMIs have focused their resources on prevention; however, they are now increasingly working to diversify their strategies to include more sophisticated mechanisms for detection and recovery as well.

The report analyses expectations related to cyber resilience in the Principles, including around FMIs' governance arrangements and operational risk management frameworks. It also considers the extent to which FMIs' business continuity plans target a two hour recovery time and completion of processing by the end of the relevant business day in the event of a cyber attack. Many of the FMIs interviewed noted that recovering their operations within two hours of an extreme cyber event would currently be challenging. Nevertheless, the report encourages further investment to move the industry towards achieving faster target recovery times.

At the Bank, cyber resilience – in relation to both RITS and the Bank's operations more broadly – is overseen by the Risk Management Committee as part of the Bank's enterprise-wide risk management framework. To support its cyber security framework, the Bank has a dedicated team of cyber security specialists. Its cyber security practices are informed and supported by domestic and international best practice, including strategies for mitigating cyber intrusions developed by the Australian Signals Directorate. The Bank recognises that both the nature of cyber-related issues and industry best practice are rapidly evolving and will continue to monitor developments in industry best practice over the coming Assessment period.

Recommendation. The Bank should keep under continued review its approach to cyber security, and in particular its mechanisms for prevention and detection, and its plans to recover from a cyber-related incident.

3.8.2 Business continuity arrangements

Business continuity arrangements in RITS include detailed contingency plans, which are updated at least annually and are tested regularly. Recovery time is targeted at equal to or less than 40 minutes, depending on the nature of the operational disruption. Core business data are protected through synchronous mirroring to a geographically remote second site. This is achieved through the use of specialised database technology, which has automated failover capabilities so that, in the event of a site outage, no data would be lost when switching to the second site. This technology is also designed to be resilient to the failure of individual system components and allows for patching to occur with no downtime. Full redundancy exists at both sites, ensuring that there is no single point of failure at either site. Both sites are permanently staffed and, since late 2009, live operations have been rotated between the two sites on a regular basis. Staff rotations and cross-training ensures that critical functions are not dependent on particular individuals. The Bank also has succession planning processes in place for key positions.

Redundancy in the design of RITS provides a valuable contingency in the event of a physical disruption, such as a hardware failure or isolated communications issue. However, the two sites operate on similar technology and are potentially equally vulnerable to a software issue and certain data corruptions. In such extreme scenarios, if RITS was unable to recover for an extended period of time, transactions from the SWIFT PDS and Austraclear feeder systems, which account for the majority of value and volume of payments settled in RITS, could be settled using 'fallback arrangements'. These arrangements would involve the multilateral netting and settlement of transactions arising from those systems.

Recently, some central banks have implemented, or plan to implement, 'non-similar facilities' (NSFs) to enhance their contingency arrangements for data or software disruptions. The most prominent example of an NSF is the Market Infrastructure Resiliency Service (MIRS), developed by SWIFT in conjunction with a number of central banks. The Bank of England introduced MIRS in February 2014 for its RTGS system, CHAPS. The Hong Kong Monetary Authority and Bank of Norway have also recently announced that they intend to use MIRS for their RTGS systems. NSFs have also recently been highlighted in the CPMI report on cyber security as a potential option to assist in recovering from a cyber attack (see 'Box A: CPMI Report on Cyber Security').

An NSF replicates certain functionality of a systemically important payment system (or other FMI), but uses different technology from that used by the primary system. An NSF could potentially enhance an FMI's resilience by:

- adding diversity in the technological infrastructure, such that it would be resilient to a software or cyber-related disruption experienced by the primary facility
- maintaining an independent record of transactions and positions, which could be used to identify corrupted transactions
- providing additional geographical diversity in an FMI's operational sites
- continuing to settle on an RTGS basis, mitigating the credit risk inherent in fallback arrangements that rely on deferred net settlement.

However, NSFs are costly and implementing an NSF could increase the complexity of an FMI's operations. Moreover, implementing an NSF may not be the only way to achieve some of these enhancements. For instance, the maintenance of an independent record of transactions and positions could potentially be achieved by storing data outside the primary system without requiring the full functionality of an NSF. Similarly, an additional operational site would increase geographical diversity even if it was not used to operate an NSF.

The Bank is committed to enhancing the resilience of RITS on an ongoing basis. Given recent international developments, it is recommended that the Bank examine the benefits, challenges and costs of implementing a range of measures that could further enhance the resilience of RITS and facilitate timely recovery.

Recommendation. The Bank should examine the benefits, challenges and costs of implementing a range of measures that could further enhance the resilience of RITS and facilitate timely recovery from an operational incident.

3.8.3 External systems and other dependencies

External feeder systems to RITS consist of Austraclear and SWIFT. Over the Assessment period, availability of the Austraclear system and SWIFT services exceeded the minimum availability target for RITS of 99.95 per cent (see Table 5, above). The Bank has entered into agreements with these service providers. The agreements set out the expected response times and level of support should an issue arise. The close link between Austraclear and ASX Collateral (which is discussed in Section 3.5.2) could also have implications for the operation of RITS.

RITS also has critical dependencies on utility providers. To manage these dependencies, each site is connected to two separate electricity grids. All external communications links to data centres are via dual, geographically separated links. Each operational site also has uninterruptable power supply.

In recognition that efficient operation of RITS is also dependent on the operational reliability and resilience of its participants, in May 2013 the Bank published its Business Continuity Standards for RITS participants. These standards aim to promote 'high availability' in RITS payments processing operations, requiring both resilience of system components and rapid recovery if failover to alternative systems is required.[30,31] The Business Continuity Standards take into account the relevant requirements of Australian Payments Clearing Association (APCA) and the Australian Prudential Regulation Authority (APRA) and are intended to complement those requirements.

To allow time for participants to meet the Business Continuity Standards, the Bank has set a deadline of 30 September 2015 for participants to become fully compliant. Consistent with its commitments in the last Assessment, the Bank continues to monitor RITS participants' compliance with the new standards. The Bank received participants' second annual self-certifications against the new standards as at the end of 2013, at which point 63 per cent of RITS participants were fully compliant with the standards. Of the participants that are yet to be fully compliant, many have indicated that they expect to be compliant by the end of 2014, or during the first half of 2015.

Recommendation. The Bank should continue to monitor RITS participants' compliance with the new Business Continuity Standards.

[30] For more information on the participant Business Continuity Standards, see RBA (2013), 'Box E: Participant Business Continuity Standards', *2013 Self-assessment of the Reserve Bank Information and Transfer System*, p 27.

[31] Since the 2013 Assessment, a minor change that modifies the requirement that participants maintain multiple methods of communication has been made to Business Continuity Standards. In addition, the Bank has issued additional guidance notes to participants.

Appendix A: Background Information

RITS is Australia's RTGS system. It is operated by the Bank and settles transactions across ESAs held at the Bank. In RTGS systems, individual payments are processed and settled continuously and irrevocably in real time. RTGS was introduced in Australia in June 1998 to eliminate the settlement risk associated with deferred net settlement of high-value interbank payments and to promote the overall efficiency of Australia's wholesale payments system. This background section presents an overview of the operational arrangements and key design features of RITS. Material changes to RITS since the 2013 Assessment are discussed in Section 3.

A.1 Governance and Oversight

RITS is owned and operated by the Bank. Since it is not operated as a separate legal entity, the management and operation of RITS fall under the governance structure of the Bank, and are therefore subject to its normal oversight, decision-making and audit processes. The Bank articulates its specific objectives in relation to its operation of RITS on its website.[32] These are consistent with the high-level objectives of the Bank, which emphasise the stability of the broader financial system and the welfare of the Australian people. The Bank accordingly aims to provide infrastructure through which settlement obligations arising from the exchange of high-value payments and debt securities settlements can be completed in a safe and efficient manner.

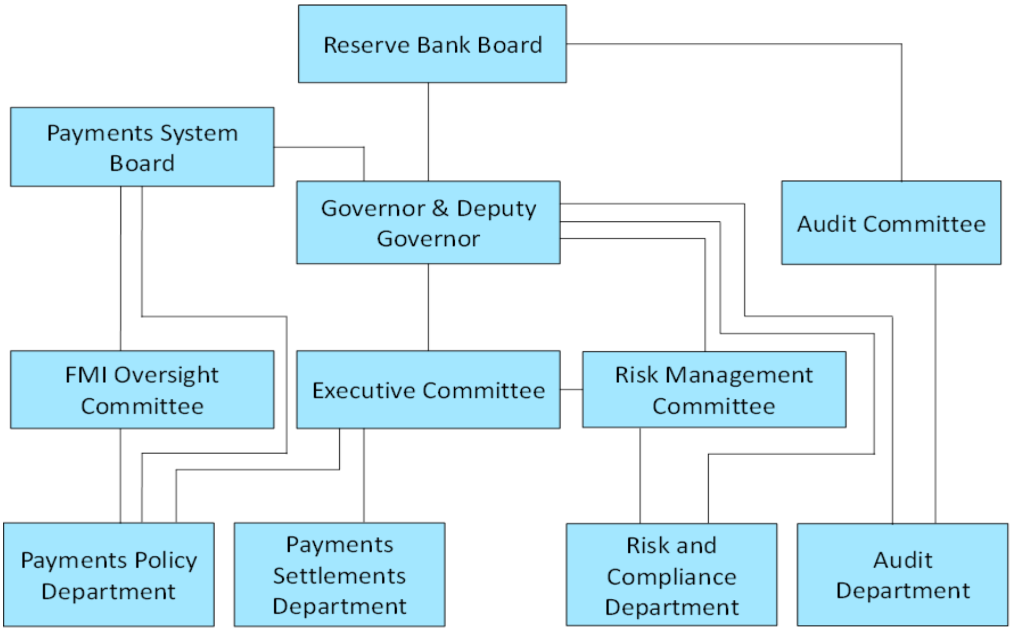
The governance structure as it applies to RITS is shown in Figure A.1, below. In accordance with the *Reserve Bank Act 1959*, the Governor is responsible for the management of the Bank, and is therefore ultimately responsible for the operation of RITS. The Governor is assisted and supported in this responsibility by the Executive Committee, which is composed of the Bank's most senior executives. Day-to-day operations, liaison with participants, and the ongoing development of RITS are delegated to the Bank's Payments Settlements Department.

RITS is also subject to oversight by the Bank's Payments Policy Department, within the policy framework for which the Payments System Board has ultimate responsibility.[33] In 2014 the Executive Committee established an internal FMI Oversight Committee to govern day-to-day oversight activities within this framework. The Committee is chaired by the Assistant Governor (Financial System) and includes a further five senior members of Bank staff with relevant experience.

[32] Available at <http://www.rba.gov.au/payments-system/rits/index.html>.

[33] Payments Policy Department and Payments Settlements Department are separate departments in the Bank's organisational structure, with separate reporting lines up to and including the level of Assistant Governor.

Figure A.1: Reserve Bank Governance Structure for Payments System Issues



Source: RBA

A.2 Systems Linked to RITS

Payment instructions can be submitted to RITS directly (these payments are known as RITS cash transfers), or through a number of linked systems. The table below provides an overview of each of these linked systems. Other FMIs with ESAs (i.e. CLS, the ASX CCPs and LCH.C Ltd) can use these linked systems to submit obligations arising from the system they operate for settlement in RITS.

Table A.1: List of Systems Linked to RITS

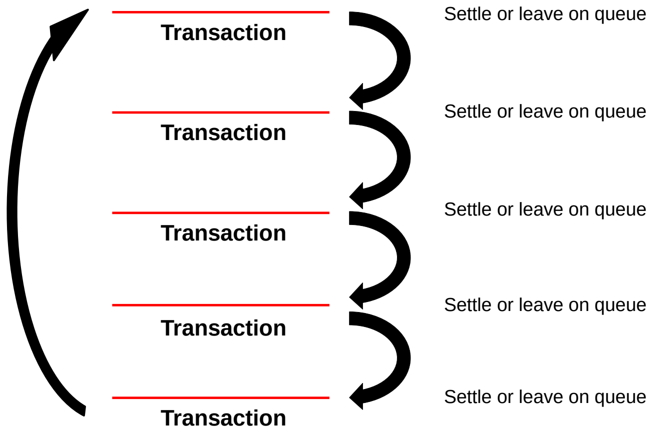
Linked system	Settlement in RITS	Transaction types	Governance and ownership
SWIFT PDS	RTGS	Primarily customer and bank-to-bank payments, including the funding of the Australian dollar leg of foreign exchange transactions that settle in CLS.	The SWIFT PDS is a closed user group governed by APCA, an industry body that sets rules and procedures for clearing and settling payments in Australia, under APCA's High Value Clearing System. SWIFT is a member-owned cooperative company registered in Belgium that provides a communications platform for, among other things, payment messages. SWIFT is primarily overseen by the SWIFT Oversight Group, comprising the G10 central banks and chaired by the National Bank of Belgium. A broader group of central banks, including the Reserve Bank of Australia, are represented on the SWIFT Oversight Forum.
Austraclear	RTGS	Primarily debt security transactions, although payment instructions that are not associated with the settlement of securities transactions may also be sent via the Austraclear system.	Austraclear is owned by the ASX Group, which is listed on the ASX. Austraclear is licensed as a clearing and settlement (CS) facility and subject to the Bank's SSF Standards.

Linked system	Settlement in RITS	Transaction types	Governance and ownership
CHESS Batch	Multilateral net batch	Primarily equity security transactions.	The CHESS batch is operated by ASX Settlement, which owned by ASX Group. ASX Settlement is licensed as a CS facility and subject to the Bank's SSF Standards.
Low Value Settlement Service	Multilateral net batch	Cheque, DE (including the BPAY system) and card (ATM, eftpos and credit card).	Each retail payment system has its own rules and procedures. These rules and procedures are determined by the system operator (e.g. APCA), in consultation with its members.
MasterCard Batch	Multilateral net batch	MasterCard brand credit and debit card payments.	MasterCard is a privately owned company incorporated in the US and listed on the New York Stock Exchange
PEXA Batches	Multilateral net batch	Property transactions.	PEXA is owned by the Victorian, New South Wales, Queensland and Western Australian Governments, as well as a number of Australia's largest financial institutions.

A.3 Design Features

RITS is designed to enhance efficiency in the use of liquidity within the system. It incorporates a central queue and a 'next-down looping' algorithm that continuously retests unsettled payments in order of submission (Figure A.2). If the transaction being tested for settlement cannot be settled individually, the auto-offset algorithm searches for up to 10 offsetting transactions (based on the order of submission) between a pair of participants and attempts to settle these simultaneously.[34] Participants can also nominate specific offsetting payments to be settled simultaneously to assist in managing client credit constraints; this functionality is known as 'targeted bilateral offset'.

Figure A.2: RITS Queue



Source: RBA

RITS participants have access to a range of information to enable them to manage their liquidity risk effectively. These tools provide participants with real-time information to manage their liquidity efficiently. In particular, RITS participants have access to information on their current ESA balances, settled payments and receipts, queued inward and outward transactions, the value of first- and second-leg intraday repos, and their projected end-of-day ESA balances.

34 Payments are only tested for 'auto-offset' if they have been on the queue for at least one minute.

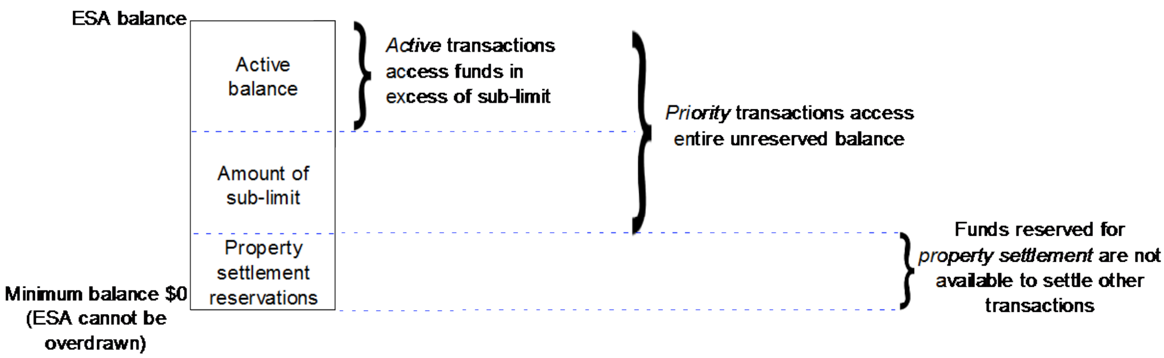
RITS also has features that allow participants to efficiently manage and conserve liquidity. As discussed in Section 3.2.3, from November 2014, upon receipt of a reservation request from PEXA, RITS reserves sufficient funds to cover participants' net obligations for a given property transaction prior to the settlement of the cash leg (which occurs after advice from PEXA that the relevant land titles office has confirmed to PEXA that the title transfer documents have been lodged).

More generally, participants can use 'sub-limits', which they can change at any time during the settlement day, to reserve liquidity for priority payments (Figure A.3). There are three payment statuses available to participants, which determine how individual transactions draw on liquidity:

- Payments with a *deferred* status are not tested for settlement until their status is amended.
- *Active* payment instructions are settled as long as the paying institution has sufficient funds in their ESA above the sum of the participant's specified sub-limit and any property settlement reservations.
- *Priority* payments are tested against the ESA balance less any property settlement reservations.

This functionality can be accessed through either the RITS User Interface or via SWIFT messages. Participants can choose to set the payment status of each payment individually, or they can choose to automatically set the status of all payments below a certain specified threshold value to priority in order to minimise the number of payments on the queue.[35]

Figure A.3: Reserving Liquidity in RITS



Source: RBA

A.4 ESA Policy

Policy on ESA eligibility is set by the Bank's Payments Policy Department, under the governance of the Payments System Board, and is available on the Bank's website.[36] The policy has been designed to be fair and open and promote competition in the provision of payment services by allowing access to all providers of third-party payment services, irrespective of their institutional status. ADIs are eligible by default, because these institutions are assumed to provide third-party payment services as part of their business. Similarly, Australian-licensed CCPs and securities settlement facilities (SSFs) with payment arrangements that require Australian dollar settlement are also eligible to hold an ESA.[37]

[35] This functionality can also be used to set the status of all payments above a threshold value to priority.

[36] The *Exchange Settlement Account Policy* is available at <http://www.rba.gov.au/payments-system/esa/index.html>.

[37] Under the Bank's *Financial Stability Standards for Central Counterparties* a CCP that the Bank determines to be systemically important in Australia and has Australian dollar obligations is required to settle its Australian dollar obligations across its own ESA or that of a related body corporate acceptable to the Bank.

The ESA policy sets a number of risk-based participation requirements, including around operational capacity and access to liquidity, which are designed to reduce the likelihood that an individual participant experiences an operational or financial shock that disrupts the system more broadly. The application of participation requirements aims to be proportional to a prospective participant's expected payments business in RITS. To reduce the operational burden on smaller RITS participants, any ESA holder (other than a systemically important CCP) with aggregate outgoing RTGS transactions of less than 0.25 per cent of the total value of RTGS transactions, may use an agent to settle its RITS transactions, rather than settling directly across its own ESA.

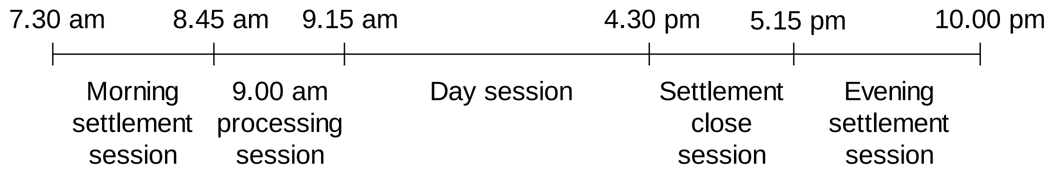
The Bank's ESA policy limits the scope for material risks to arise from tiered participation arrangements. Since only ADIs individually accounting for less than 0.25 per cent of the total value of RTGS transactions may settle through an agent, no individual indirect participant would be expected to pose material risk to either its agent or the system more broadly. Further, to reduce dependence on its agent, a bank that participates indirectly is required to maintain an ESA for contingency purposes. To ensure that RITS has sufficient information about indirect participation, ESA holders that participate indirectly are required to report the value and volume of their outgoing RTGS payments to the Bank on a quarterly basis. This information is in part used to monitor compliance with the 0.25 per cent threshold.

A.5 Operating Hours

Standard settlement hours in RITS, as established by the RITS Conditions of Operation, are 7.30 am to 10.00 pm. These hours have been extended to facilitate same-day settlement of DE payments submitted to RITS after the close of the interbank cash market.[38] Prior to November 2013, RITS closed at 6.30 pm Australian Eastern Standard Time and 8.30 pm during Australian Eastern Daylight Time (the first Sunday in October to the first Sunday in April); these remain the times when settlement of SWIFT and Austraclear transactions ceases.

Prior to 9.15 am, settlement is limited to RITS cash transfers, interbank Austraclear transactions, the deferred net obligations settled in the 9.00 am batch process (during the '9.00 am processing session') (Figure A.4), and, prior to the 9.00 am batch process, settlement of obligations for the Mastercard batch and DE government clearings. Other payment instructions can be submitted to RITS during this time, but they are not tested for settlement until the 'day session' commences.

Figure A.4: The RITS Day



Source: RBA

[38] The Australian Eastern Standard Time, the 7.15 pm and 9.15 pm DE settlements occur after the close of the interbank cash market. However, during Australian Eastern Daylight Time, Austraclear and SWIFT transactions are settled until 8.30 pm, so only the last DE settlement occurs outside normal banking hours.

There are also restrictions on the types of payments that can settle in the evening settlement session. Only evening agreed settlement participants, as defined in the RITS Regulations, can participate fully in the evening settlement session from 5.15 pm onwards.[39] Consequently, to allow the settlement of remaining queued transactions at the end of the day session, there is a 45 minute settlement close session. At the end of the 'settlement close session', any remaining queued payments involving non-evening agreed participants are removed from the queue.

[39] RITS participants do not have to be evening agreed if they only participate in DE and property settlements after 5.15 pm.

Appendix B: Detailed Assessment of the Reserve Bank Information and Transfer System

Introduction

This Appendix sets out the 2014 Assessment of how well RITS observes the Principles developed by CPMI and IOSCO.[40] This Assessment was produced by the Bank's Payments Policy Department, which is the functional area responsible for oversight of the payments system, drawing on information provided by the Bank's Payments Settlements Department, which is the functional area responsible for operating RITS. The conclusions have been endorsed by the Payments System Board. In its assessment, Payments Policy Department have applied the rating system used in the CPMI-IOSCO Disclosure Framework. Under this framework, observance of each of the applicable Principles is rated according to the following scale:

- **Observed** – Any identified gaps and shortcomings are not issues of concern and are minor, manageable and of a nature that the facility could consider taking them up in the normal course of its business.
- **Broadly observed** – The assessment has identified one or more issues of concern that the facility should address and follow up on in a defined time line.
- **Partly observed** – The assessment has identified one or more issues of concern that could become serious if not addressed promptly. The facility should accord a high priority to addressing these issues.
- **Not observed** – The assessment has identified one or more serious issues of concern that warrant immediate action. Therefore, the facility should accord the highest priority to addressing these issues.
- **Not applicable** – The standard does not apply to the type of facility being assessed because of the particular legal, institutional, structural or other characteristics of the facility.

The ratings of RITS against the relevant Principles are supplemented by detailed information under each Key Consideration that is relevant to the Assessment. In assessing RITS, Payments Policy Department have relied on their own judgement regarding how the Principles should be applied to RITS as a central bank-owned system.

Note: Principle 6 (Margin), 10 (Physical deliveries), 11 (Central securities depositories), 14 (Segregation and portability), 20 (FMI links) and 24 (Disclosure of market data by trade repositories) are not applicable to systemically important payment systems and have therefore been omitted.

40 The Principles are available at <http://www.bis.org/cpmi/publ/d101a.pdf>.

1. Legal basis

A payment system should have a well-founded, clear, transparent and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

Rating: Observed

RITS is owned and operated by the Bank. The RITS Regulations form the legal basis for all material aspects of RITS. The Bank seeks external legal advice on material amendments to the RITS Regulations and associated contractual agreements, including, where relevant, on the interaction of such amendments with Australian and New South Wales laws and regulations. While the RITS Regulations are comprehensive, changes in functionality and activity since its launch have added to their complexity.

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 1 during the 2014 Assessment period. Nonetheless, the Bank has commenced a review of the RITS Regulations with the aim of identifying any areas where the clarity of the RITS Regulations could be improved. To ensure that RITS continues to meet international best practice, it is recommended that the Bank continue this review.

The legal basis of RITS is described in further detail under the following Key Considerations.

1.1 The legal basis should provide a high degree of certainty for each material aspect of a payment system's activities in all relevant jurisdictions.

The legal basis of RITS is set out in the RITS Regulations, which cover the operation of RITS, and the rights and obligations of participants and the Bank. Standard agreements are executed to bind each participant to the RITS Regulations. In addition to the RITS Regulations, the following key aspects of RITS activities are supported by Australian legislation and additional contractual arrangements.

RTGS feeder systems

RITS accepts settlement instructions from approved feeder systems. Admission as a feeder system is by specific reference in the RITS Regulations. The RTGS feeder systems are the SWIFT PDS, Austraclear and CHESS RTGS.[41] The SWIFT PDS is administered by APCA under its High Value Clearing System (HVCS). The Bank and APCA each have contractual arrangements with SWIFT covering the SWIFT PDS. The Austraclear and CHESS RTGS feeder systems are operated by Austraclear and ASX Settlement, respectively. Both entities are wholly owned subsidiaries of ASX. The Bank has separate contractual arrangements with Austraclear and ASX Settlement, respectively, covering these feeder systems.

Settlement finality

The RITS Regulations state that settlement is final when the ESAs of the paying and receiving participants in RITS are simultaneously debited and credited, respectively. The irrevocability of payments settled in RITS is protected by RITS's approval as an RTGS system under Part 2 of the *Payment Systems and Netting Act 1998*. With this approval, a payment executed in RITS at any time on the day on which a RITS participant enters external administration has the same standing as if the participant had gone into external administration on the next day.

[41] The CHESS RTGS feeder system provides for the delivery-versus-payment Model 1 settlement of equities transactions executed on ASX. This system is currently not actively used.

Accordingly, in the event of insolvency all transactions settled on the day of the insolvency are irrevocable and cannot be unwound.

Similarly, the irrevocability of settled transactions originating from the Austraclear and CHESS RTGS feeder systems is supported by their respective approvals as RTGS systems under Part 2 of the Payment Systems and Netting Act.

Netting arrangements

In the unlikely event that RITS is unavailable for a significant period of time, payments arising from Austraclear and the SWIFT PDS can be settled using 'fallback arrangements'. These arrangements involve the multilateral netting and settlement of transactions arising from those systems. The irrevocability of settlement under these fallback arrangements is supported by the approval of Austraclear and HVCS as netting arrangements under Part 3 of the Payment Systems and Netting Act. The approval of HVCS establishes the legal basis for the netting of SWIFT PDS payments.

While RITS is primarily an RTGS system, it also provides for the final settlement of net obligations arising in other payment and settlement systems. This is either through the Low Value Settlement Service (LVSS) or the batch feeder functionality.[42] RITS's approval under Part 2 of the Payment Systems and Netting Act does not ensure the legal certainty of the netting of the underlying obligations. Nevertheless, the majority of the value of obligations settled in these multilaterally netted batches originates from the APCA clearing streams and transactions settled in the CHESS batch, which are approved netting arrangements under Part 3 of the Payment Systems and Netting Act.

Enforceability of repurchase agreements

The enforceability of repos in the event of a default also requires a high degree of legal certainty. Repos with the Bank are governed by an international standard agreement – The Bond Market Association (TBMA)/International Securities Market Association (ISMA) Global Master Repurchase Agreement (2000 version) – as amended by exhibits under the RITS Regulations.[43] This agreement sets out, among other things, what constitutes default and the consequential rights and obligations of the parties. In the event of a default, the agreement allows the non-defaulting party to terminate the agreement, calculating the net obligation based on the prevailing market value at the time the contract is closed out. Close-out netting provisions included in repo contracts with participants provide for the immediate liquidation of collateral in the event of default. This right is supported by Part 4 of the Payment Systems and Netting Act.

1.2 A payment system should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.

To facilitate a clear understanding of RITS rules and procedures, the RITS Regulations are supplemented by information papers and user guides that explain RITS requirements and functions. This material facilitates existing and prospective participants' understanding of the RITS Regulations and the risks they face by participating in RITS. Notwithstanding the above, changes in functionality and activity since RITS's launch have added to the complexity of the

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42 A small number of obligations sent through LVSS are settled on a gross basis.

43 The TBMA/ISMA Global Master Repurchase Agreement (2000 version) is available at <http://www.sifma.org/Services/Standard-Forms-and-Documentation/MRA,-GMRA,-MSLA-and-MSFTAs/GMRA_Global-Master-Repurchase-Agreement-(2000-Version)/>.

RITS Regulations. Payments Policy Department will continue to monitor the Bank's progress in conducting a comprehensive review of the RITS Regulations to identify areas in which the clarity of the RITS Regulations could usefully be improved.

The Bank also seeks external legal advice on material amendments to the RITS Regulations and associated contractual agreements, including, where relevant, on the interaction of such amendments with Australian and New South Wales laws and regulations.

1.3 A payment system should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.

At a high level, the legal basis for RITS is articulated in a clear and understandable manner on the Bank's website and the RITS Information Facility.[44] The information paper on the RITS Regulations provides further detail on RITS's legal basis.[45]

1.4 A payment system should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the payment system under such rules and procedures will not be voided, reversed, or subject to stays.

To ensure that the RITS Regulations and associated contractual agreements are enforceable, the Bank seeks external legal advice on material amendments to these documents.

There have been no court cases that have tested the RITS legal framework.

1.5 A payment system conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.

The RITS Regulations are governed by New South Wales law and require that all participants submit to the non-exclusive jurisdiction of the courts of New South Wales. Since 2011, the Bank has required foreign RITS applicants to provide a legal opinion affirming that the RITS membership legal documents constitute valid, legally binding and enforceable obligations.[46] This opinion must cover whether the courts in the home jurisdiction of the applicant will give effect to the choice of New South Wales law as the governing law and whether the judgement of an Australian court would be enforceable in the home jurisdiction without retrial or re-examination.

2. Governance

A payment system should have governance arrangements that are clear and transparent, promote the safety and efficiency of the payment system, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

Rating: Observed

RITS is owned and operated by the Bank. Since it is not operated as a separate entity, the management and operation of RITS fall under the governance structure of the Bank, and are subject to the Bank's normal oversight, decision-making and audit processes. The Bank has clear and

[44] The relevant webpages are available at <http://www.rba.gov.au/payments-system/rits/legal-framework.html>.
[45] See *Information Paper: RITS Regulations and Conditions of Operation*, available at <http://www.rba.gov.au/payments-system/rits/user-doc/pdf/regulations-conditions.pdf>.
[46] For further details on the scope of the legal opinion, see <http://www.rba.gov.au/rits/info/pdf/Signing_Instructions.pdf>.

transparent governance arrangements, which are publicly available on the Bank's website. The specific objectives in relation to the Bank's operation of RITS are also published on its website. These are consistent with the high-level objectives of the Bank, which emphasise the stability of the broader financial system and the welfare of the Australian people. Accordingly, the Bank aims to provide infrastructure through which settlement obligations arising from the exchange of high-value payments and debt securities settlements can be extinguished in a safe and efficient manner. To ensure that the interests of relevant stakeholders are taken into account, the Bank engages in routine liaison with participants and consults on material changes to operational arrangements. Oversight of RITS is carried out by the Payments Policy Department, within the policy framework for which the Payments System Board has ultimate responsibility.

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 2 during the 2014 Assessment period. Details of the governance arrangements for RITS are described under the following Key Considerations.

Note: Paragraph 3.2.7 of the Principles states that '[c]entral bank-operated systems may need to tailor the application of [the governance] principle in light of the central bank's own governance requirements and specific policy mandates'. The Bank's view is that since RITS is owned and operated by the Bank as an internal function, rather than a separate legal entity, Key Considerations 2.3 and 2.4 should not constrain the composition of the Bank's governing body or that body's roles and responsibilities.

2.1 A payment system should have objectives that place a high priority on the safety and efficiency of the payment system and explicitly support financial stability and other relevant public interest considerations.

The high-level objectives of the Bank are set out in the Reserve Bank Act. The Bank's duty is to contribute to the stability of the currency, maintenance of full employment, and the economic prosperity and welfare of the Australian people. Stability of the financial system is also a longstanding responsibility of the Bank – a mandate reconfirmed by the Australian Government when it introduced significant changes to Australia's financial regulatory structure in July 1998.[47]

The Bank's website states its specific objectives in relation to its operation of RITS. In particular, the Bank's objective in developing and operating RITS is to provide the infrastructure through which settlement obligations arising from the exchange of high-value payments and debt securities transactions can be extinguished in a safe and efficient manner. The design of RITS ensures that there is no build-up of settlement exposures associated with high-value transactions, which in turn promotes the stability of Australia's financial system. Reflecting the critical importance of RITS to the Australian financial system, the Bank aims to operate RITS at an extremely high standard of availability and resilience, and to ensure that its settlement services continue to evolve to meet the changing needs of the broader payments system.

Decisions concerning the operation of RITS and ESAs are required to be consistent with the policy environment determined by Payments Policy Department, under the governance of the Payments System Board. The broad mandate of the Payments System Board, which is set out in

[47] Information on the Bank's financial stability mandate is available at <http://www.rba.gov.au/fin-stability/rba.html>.

the Reserve Bank Act, places a high priority on the safety and the efficiency of the wider Australian payments system.[48]

2.2 A payment system should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, relevant authorities, participants, and, at a more general level, the public.

Information on the Bank's governance arrangements for RITS is documented on the Bank's website and described in Section A.1.[49]

The Bank's governance arrangements reflect relevant provisions of the Reserve Bank Act. In accordance with this Act, the Governor is responsible for the management of the Bank and is therefore ultimately responsible for the operation of RITS. The Governor is assisted and supported in this responsibility by the Executive Committee, which is comprised of the Bank's most senior executives. The Executive Committee is the key decision-making committee of the Bank for matters of an administrative and management nature that have strategic, Bank-wide or external significance. Accordingly, major decisions related to RITS are considered by the Executive Committee.

Decisions affecting the day-to-day operations, customer relations and development of RITS have been delegated to the Bank's Payments Settlements Department. Payments Settlements Department is part of the Bank's Banking and Payments Group, which is headed by an Assistant Governor who reports to the Deputy Governor. Clear internal procedures are in place to elevate day-to-day operational matters within Payments Settlements Department and other areas of the Bank, as appropriate.

Oversight of RITS is carried out by the Bank's Payments Policy Department, within the policy framework for which the Payments System Board has ultimate responsibility. Payments Policy Department is separate from Payments Settlements Department in the Bank's organisational structure, with separate reporting lines up to and including the level of Assistant Governor. The two departments nevertheless meet regularly to discuss policy issues and operational developments, and the Payments System Board is periodically updated on relevant developments.

As an independent central bank and statutory body, the Bank is ultimately accountable to the Parliament of Australia. Since 1996, the Governor and senior officers of the Bank have appeared twice yearly before the House of Representatives Standing Committee on Economics to report on matters under the responsibility of the Bank. The Reserve Bank Act also requires that the Bank inform the Australian Government of its policies 'from time to time'. In addition, to fulfil its obligations under the *Public Governance, Performance and Accountability Act 2013*, the Bank prepares an annual report, for presentation to the Treasurer and tabling in Parliament.[50] The Payments System Board produces a separate annual report, which is also

48 For more information on the Payments System Board refer to: <http://www.rba.gov.au/about-rba/boards/psb-board.html>.

49 A summary of the governance arrangements of the Bank is available at <http://www.rba.gov.au/about-rba/governance.html>.

50 The 2014 *Reserve Bank of Australia Annual Report* is available at <http://www.rba.gov.au/publications/annual-reports/rba/index.html>.

presented to the Treasurer and tabled in Parliament, although this is not a legislative requirement.[51]

2.3 The roles and responsibilities of a payment system's board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address, and manage member conflicts of interest. The board should review both its overall performance and the performance of its individual board members regularly.

As described in Key Consideration 2.2, the Governor, with assistance from the Executive Committee, is ultimately responsible for the management of the Bank, including the operation of RITS. The roles and responsibilities of the Governor are set out it in the Reserve Bank Act. The roles and responsibilities of members of the Executive Committee are set out in internal position descriptions.

In recognition of the Governor's responsibility for maintaining a reputation for integrity and propriety on the part of the Bank, the Governor and other members of the Executive Committee are subject to the *Code of Conduct for Reserve Bank Staff*, which places a high priority on integrity and has provisions that address conflicts of interest. Specific Bank policies deal with potential conflicts of interest arising from the Bank's roles as the principal regulator of the payments system and as provider of banking services to the Australian Government.[52]

2.4 The board should contain suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board member(s).

Under the terms of the Reserve Bank Act, the Governor is appointed by the Treasurer. Since RITS is owned by the Bank, and is not operated as a separate legal entity, the skills and qualifications of the Governor are determined in accordance with the Bank's broader responsibilities. The Bank has human resources policies in place to help ensure that senior staff, including members of the Executive Committee, have the appropriate skills and incentives. These policies are described in Key Consideration 2.5.

2.5 The roles and responsibilities of management should be clearly specified. A payment system's management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the payment system.

The roles and responsibilities of the management responsible for the day-to-day operation of RITS are clearly documented in position descriptions.

The Bank has human resources policies in place to help ensure that management positions are filled with employees with the appropriate skills, incentives, experience and integrity to perform their duties. The Bank has a formal performance management program, which helps to clarify the expectations of supervisors and employees, and ensure that timely feedback is provided. Recruitment and selection at the Bank is based on the suitability of an applicant to carry out the specific requirements of the position to be filled, having regard to the applicant's: ability to perform the duties; relevant experience; relevant training and qualifications; and

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[51] The 2014 *Payments System Board Annual Report* is available at <http://www.rba.gov.au/publications/annual-reports/psb/index.html>.

[52] These are set out in the document: *Managing Potential Conflicts of Interest Arising from the Bank's Commercial Activities*, available at <http://www.rba.gov.au/payments-system/policy-framework/conflict-of-interest.html>.

willingness to meet any particular requirement specified in the job description. Bank staff are subject to the Code of Conduct for Reserve Bank Staff (see Key Consideration 2.3).

The Bank also aims to offer remuneration packages that attract employees able to perform their duties to a high standard. To this end, independent consultants are engaged from time to time to ensure that remuneration policies are consistent with market practice. The Remuneration Committee of the Reserve Bank Board is also kept informed of the remuneration arrangements for Bank staff.

2.6 The board should establish a clear, documented, risk-management framework that includes the payment system's risk tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision making in crises and emergencies. Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources, and access to the board.

The Bank has a well-established risk management framework that facilitates the identification, assessment and treatment of all non-policy risks – including those arising from its operation of RITS – at both an enterprise ('top-down') and business ('bottom-up') level. Risk management is seen as an integral part of the management function within the Bank. Line managers have the responsibility to evaluate their risk environment, put in place appropriate controls, and monitor the effectiveness of these controls. Management is supported in this role through the development and maintenance of a culture that acknowledges the need for careful analysis and management of risk in all business processes. The Bank's risk management framework is set out at a high level in the Bank's Risk Management Policy.[53] This policy is complemented by a Risk Appetite Statement, which provides an outline of the Bank's appetite for and approach to managing its most significant risks, including strategic, financial, people and operational risks.

The risk management framework, including the Risk Management Policy and Risk Appetite Statement, is governed by the Risk Management Committee, in accordance with the Risk Management Committee Charter. Structurally, this Committee consists of members of the executive team who are responsible for the Bank's operational areas or key support functions. It is chaired by the Deputy Governor and comprises: the Assistant Governors for Banking and Payments, Corporate Services, Currency and Financial Markets; the Chief Financial Officer; the Chief Information Officer; the Heads of Audit Department, Human Resources Department and Risk and Compliance Department; the General Counsel; and the Deputy Secretary.[54] The Risk Management Committee meets six times a year, or more frequently if required, and reports on its activities both to the Executive Committee and the Reserve Bank Board Audit Committee.

The Risk Management Committee is assisted in its responsibilities by Risk and Compliance Department, the main role of which is to assist individual business areas to manage their risk environment within a broadly consistent framework. Risk and Compliance Department also monitors risk and reports on portfolio risks and compliance with respect to the Bank's operations in financial markets, and provides support to business areas in the implementation of fraud control, business continuity and compliance management. The Head of Risk and Compliance Department reports directly to the Deputy Governor.

The Audit Department also supports the framework for managing risk, complementing but remaining separate from the work of Risk and Compliance Department. In addition to providing

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53 This policy is available at <http://www.rba.gov.au/about-rba/structure/risk-mgmt-policy.html>.

54 Prior to November 2013, Risk and Compliance Department was called Risk Management Unit.

assurance that the Bank's risk management policies are effective, Audit Department has a separate, independent brief to test the adequacy of procedures and controls at all levels of the Bank. The Head of Audit Department reports to the Deputy Governor and the Reserve Bank Board Audit Committee.

Crisis and emergencies

In circumstances including a significant disruption to the Bank's operations that affects several business areas, the Governor may delegate responsibility for coordination of the Bank's response, either to the Bank's Crisis Management Group or an individual. The Crisis Management Group's membership would vary with the nature of the disruption and would typically comprise executives from a number of areas of the Bank.

Payments Settlements Department also maintains plans that address decision-making in crises and emergencies. These plans cover operational disruptions (see Principle 17) and the default of a RITS participant (see Principle 13). The plans are required to set out how Payments Settlements Department would communicate with the Crisis Management Group during a disruption.

2.7 The board should ensure that the payment system design, rules, overall strategy, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.

The Bank's governance arrangements ensure accountability and transparency to RITS participants and other relevant parties. To ensure the interests of relevant stakeholders are taken into account, the Bank engages in routine liaison with participants and consults on all material changes to operational arrangements (see Principle 21). All decisions affecting the operation of RITS are advised to participants. Policy decisions that affect RITS are also communicated to the public through media releases. Major decisions and the reasons for them are explained in the Reserve Bank Annual Report and, if relevant, the Payments System Board Annual Report.

3. Framework for the comprehensive management of risks

A payment system should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

Rating: Observed

The Bank has a well-established risk management framework which facilitates the identification, assessment and treatment of all non-policy risks – including those arising from its operation of RITS – at both an enterprise ('top-down') and business ('bottom-up') level. Under the Bank's Risk Management Policy, Payments Settlements Department aims to identify in a single Risk Register all risks that might impact its ability to operate RITS in a safe and efficient manner. This includes risks arising from interdependencies with other participants, other FMIs or service providers. The Risk Register is updated at least annually, or when material changes to operations or the business environment occur. Payments Settlements Department also designs and applies appropriate controls to mitigate identified risks. This high-level framework is supported by more detailed policies (see Principles 4, 5, 7 and 17) and a governance structure to oversee the Bank's risk management activities (see Key Consideration 2.6).

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 3 during the 2014 Assessment period. The framework for the comprehensive management of risks in RITS is described in further detail under the following Key Considerations.

Note: It is the Bank's view that expectations around recovery planning and the organisation of operational arrangements to support resolution actions will not typically apply in the case of a central bank-owned system. Accordingly, the Bank has not assessed RITS against Key Consideration 3.4.

3.1 A payment system should have risk-management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the payment system. Risk-management frameworks should be subject to periodic review.

The Bank's risk management framework is set out under Key Consideration 2.6. Under this framework, Payments Settlements Department is required to identify all of the risks that might impact its ability to operate RITS in a safe and efficient manner in a single Risk Register. Risks are categorised at a high level into strategic, credit, liquidity and operational risks, and further sub-categorised into more detailed risk groups (e.g. legal and information technology risks are sub-categories of operational risk). For each risk that has been identified, Payments Settlements Department sets out the potential impact and probability of the risk occurring, and also identifies existing controls and mitigation strategies (including contingency plans) to reduce the likelihood and/or impact of the risk crystallising. Where a risk is co-managed by another business area – for example, some RITS operational controls are implemented by the Bank's Information Technology Department – this must be acknowledged by the other business area.

The Bank's Risk Management Policy requires that Payments Settlements Department reviews and updates its register of risks annually, and after any major change to the Department's risk environment, to reflect any changes in risks and controls that have occurred. As part of this process, any residual risks identified in the Risk Register that are outside of the Department's risk appetite or agreed tolerance levels must be appropriately escalated. The Department's risk appetite must be consistent with the Bank's Risk Appetite Statement.

3.2 A payment system should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the payment system.

Given the design of RITS, participants do not pose liquidity or credit risks to the Bank as operator of RITS (see Principle 4 and 7). RITS participation requirements aim to reduce the likelihood that an individual participant would disrupt the operation of RITS. If a participant does not meet these participation requirements, the Bank may apply sanctions to or impose additional requirements on that participant (see Principle 18).

3.3 A payment system should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, and service providers) as a result of interdependencies and develop appropriate risk-management tools to address these risks.

The Bank, in operating RITS, reviews the material risks that it bears from and poses to other entities. This is done in the context of its ongoing review of risks (such as the annual update of its Risk Register), and its processes for identifying risks associated with major changes to its risk environment, such as new activities or system changes. This is also part of the Bank's change management framework (see Key Consideration 17.1). The tools used to manage risks from other entities include service level agreements, customer support packages and documented operational and contingency procedures (see Key Consideration 17.7).

4. Credit risk

A payment system should effectively measure, monitor, and manage its credit exposures to participants and those arising from its payment, clearing, and settlement processes. A payment system should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence.

Rating: Observed

The Bank is not exposed to credit risk from the settlement of payments between participants in RITS. These payments are settled using funds in participants' ESAs, which cannot be overdrawn, and the Bank does not guarantee any transaction submitted for settlement in RITS. In the event of a default, the Bank would not be exposed to a loss in its role as operator of RITS. Accordingly, RITS does not maintain financial resources to cover the default of a participant. In addition, the RTGS mode of settlement in RITS is designed to ensure that unintended credit risk does not arise between participants during the settlement process; payment messages are exchanged between participants simultaneously with the transfer of funds across ESAs.

The Bank does, however, incur credit risk through the provision of liquidity to participants in support of payments activity. This risk is managed by taking high-quality collateral under repo, applying a conservative haircut to the securities, and collecting mark-to-market margin (see Principle 5).

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 4 during the 2014 Assessment period. Credit risk in RITS is described in further detail under the following Key Considerations.

Note: Key Considerations 4.4, 4.5 and 4.6 do not apply to RITS as it is not a CCP. Consistent with footnote 45 of the Principles, which notes that a central bank often avoids putting limits on the credit it extends to a participant because of its role as a monetary authority and liquidity provider, the Bank's view is that this Principle should not constrain central bank policies on the provision of credit, or the terms or limits of such provision.

4.1 A payment system should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing, and settlement processes. Credit exposure may arise from current exposures, potential future exposures, or both.

The Bank is not exposed to credit risk in its role as operator of RITS. Payments in RITS are settled using funds in participants' ESAs, which cannot be overdrawn, and the Bank does not guarantee any transaction submitted for settlement in RITS. Accordingly, in the event of a participant default the Bank would not be exposed to a loss in its role as operator of RITS.

The Bank does, however, incur credit risk through the provision of liquidity to participants to support payments activity. This risk is primarily managed by taking collateral under repo, in accordance with the Bank's risk management framework. Under this framework, responsibility for approving and reviewing collateral policy is the responsibility of Domestic Markets Department, with oversight from the Risk Management Committee. The policies, procedures and controls implemented to mitigate credit risk are subject to audit by Audit Department. The

Bank's risk management framework is reviewed annually (see Key Consideration 2.6 for further detail on the Bank's risk management framework.)

The RTGS mode of settlement in RITS is also designed to ensure that unintended credit risks do not accumulate between participants during the settlement process; payment messages are exchanged between participants simultaneously with the transfer of funds across ESAs.

4.2 A payment system should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.

Under the Bank's risk management framework, Domestic Markets Department has responsibility for identifying and managing the credit risks that arise from its activities. For each credit risk identified, the Department sets out the potential impact and probability of the credit risk crystallising, and, where possible, the existing controls and mitigation strategies. These controls are reviewed and signed off by management annually, or when there are material changes to the Bank's risk environment.

The Bank incurs credit risk through the provision of liquidity to RITS participants through repos. This credit risk is mitigated by accepting only high-quality collateral, applying an appropriate haircut to the collateral, and collecting mark-to-market margin daily (see Principle 5). Participation requirements in RITS also help to reduce the probability of a participant default (see Principle 18). The Bank monitors the liquidity it extends to RITS participants and the composition of collateral that it holds on a daily basis. This information is readily available in the Bank's collateral management system (see Key Consideration 5.6).

4.3 A payment system should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a deferred net settlement payment system in which there is no settlement guarantee but where its participants face credit exposures arising from its payment, clearing, and settlement processes, such a payment system should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.

The credit risk assumed by the Bank in providing liquidity to RITS participants is mitigated by accepting high-quality collateral under repo, which could be closed out immediately after a participant default. The Bank also faces a potential future loss, which would crystallise in the event that a participant defaulted and the market value of collateral securities fell below the amount of credit provided under repo. This risk is mitigated by applying a haircut to the collateral, calibrated to cover the maximum expected decline in the market price of the collateral, over a conservative liquidation horizon, at a high level of confidence. The Bank also collects mark-to-market margin daily to cover past changes in the value of its collateral (see Principle 5 for further detail on collateral eligibility, haircuts and mark-to-market margin).

RITS is not a deferred net settlement payment system and accordingly the requirement to maintain sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system does not apply.

4.7 **A payment system should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the payment system. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds a payment system may borrow from liquidity providers. These rules and procedures should also indicate the payment system's process to replenish any financial resources that the payment system may employ during a stress event, so that the payment system can continue to operate in a safe and sound manner.**

As explained under Key Consideration 4.1, in the event of a participant default the Bank would not be exposed to a loss in its role as operator of RITS. Nevertheless, the Bank maintains internal procedures that set out the course of action it would take after a participant default (see Principle 13).

5. Collateral

A payment system that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. A payment system should also set and enforce appropriately conservative haircuts and concentration limits.

Rating: Observed

The effective implementation of monetary policy is the primary driver of the Bank's collateral policy. Nonetheless, the Bank's collateral eligibility policies as provider of liquidity to RITS participants are broadly consistent with this Principle. The Bank only accepts highly rated debt securities denominated in Australian dollars as collateral for liquidity in ESAs. Collateral is conservatively valued, and subject to haircuts and daily mark-to-market margin calls.

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 5 during the 2014 Assessment period. The Bank's collateral policies are described in further detail under the following Key Considerations.

Note: Paragraph 1.23 of the Principles acknowledges that 'central banks may have separate public policy objectives and responsibilities for monetary and liquidity policies that take precedence'. Accordingly, it is the Bank's view that nothing in this Principle should constrain the Bank's policies on collateral eligibility criteria for its lending operations.

5.1 **A payment system should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.**

The Bank provides liquidity in participants' ESAs through repos. Under these repos, outright title to collateral is exchanged in return for credit of funds to the participant's ESA, with an agreement to reverse the transaction at some point in the future (see Section 3.4.1 for more information on repos and liquidity provision in RITS).

The Bank only accepts highly rated debt securities denominated in Australian dollars as collateral for repo. This policy covers all of the Bank's repo activity, including both intraday repos and open repos (which are aimed at providing liquidity in RITS), as well as term repos (which are primarily for open market operations). This policy is publicly available on the Bank's website.[55] Eligible collateral is generally restricted to highly liquid securities issued by entities

[55] The policy is available at <http://www.rba.gov.au/mkt-operations/resources/tech-notes/eligible-securities.html>.

with high credit quality, including those issued by: the Australian Government; the central borrowing authorities of the state and territory governments (semi-government securities); certain supranational organisations, foreign governments and government agencies with an explicit government guarantee; and ADIs.

In addition, any security accepted must meet the following criteria:

- The security must be denominated in Australian dollars.
- The security must be lodged and active in Austraclear, which is the central securities depository for debt securities in Australia.
- Securities accepted as collateral must generally meet a minimum credit rating.[56]
- Asset-backed securities must be tradeable in the secondary market and must be based on a true sale of assets into a bankruptcy remote special purpose vehicle.
- Securities sold to the Bank under a repo must not enter the 'closed period to maturity' during the term of the repo.

The Bank also does not accept what it deems to be highly structured securities, such as collateralised debt obligations backed by other asset-backed securities.

If the above conditions are met, Australian Government and semi-government securities are automatically eligible collateral. All other securities are subject to an approval process. The Bank will not accept such securities as collateral until the approval process is complete and the securities appear on the Bank's list of eligible collateral.[57]

In order to assess the eligibility of the security, the minimum credit rating assigned to a security or its issuer by any of the major rating agencies will be used (except certain credit-enhanced securities such as covered bonds). For ADI-issued securities with a residual maturity greater than one year, at least two major credit rating agencies must rate the security or the issuer. For covered bonds issued by ADIs, where two or more security ratings are available, only the ratings on the security will be considered. If two security ratings are not available for ADI-issued covered bonds, the minimum issuer rating will also be considered.

The Bank routinely monitors events such as credit downgrades to ensure that its list of eligible collateral remains current. If a particular collateral security is no longer eligible, counterparties with outstanding repos in that security with the Bank will be required, on a same-day basis, to substitute eligible collateral.

To enhance its risk management of asset-backed securities, starting on 30 June 2015, the Bank will require the issuers of these securities (or third-parties) to provide more detailed information in order for these securities to be eligible collateral.[58] The new criteria are being introduced primarily because of the Bank's potential exposure to asset-backed securities. This exposure has increased significantly due to the implementation of open repo (see Section 3.5.1). The additional information, which will have to be kept up to date, covers both transaction-related data as well as information on the underlying assets.

56 This requirement does not apply to Commonwealth Government securities, semi government securities, securities with an Australian Government guarantee or securities issued and/or guaranteed by the New Zealand government.

57 The current list of eligible securities is available at <http://www.rba.gov.au/mkt-operations/xls/eligible-securities.xls>.

58 More information on this initiative is available at <http://www.rba.gov.au/securitisations/>.

Wrong-way risk

To avoid wrong-way risk, the Bank will not accept collateral from a RITS participant if it deems that participant to be materially related to the credit quality of the security. Where applicable, the Bank's list of eligible collateral denotes those RITS participants considered to be related to specific securities. The Bank considers a material relationship to exist when the entities are members of the same corporate group, or where one entity has an ownership stake in another entity that exceeds 15 per cent.

The Bank accepts certain related party asset-backed securities, but these securities are subject to an additional haircut and additional reporting requirements. The Bank considers each of the following parties to be related to an asset-backed security: the sponsor of the issuing trust; the loan originators; servicers; swap counterparties; liquidity providers; and guaranteed investment contract providers to the issuing trust. The magnitude of any additional haircut will depend on the nature of the relationship between the participant and the asset-backed security.

In the event of insolvency, the close-out netting provisions included in the repo agreements allow the Bank to close out or terminate the second leg of the repo immediately. This right is protected by Part 4 of the Payment Systems and Netting Act. Where a participant provides securities issued by a third party as collateral, both the participant and the issuer would have to fail for the Bank to experience a total loss. Where a participant provides asset-backed securities, the Bank would have access to the assets behind the security if the participant were to fail.

5.2 A payment system should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.

Valuation

The Bank values securities accepted as collateral using available market prices. When a timely market price is not available or reliable, the Bank uses conservative valuation formulas that are reviewed regularly.

Haircuts and mark-to-market margin

The Bank applies haircuts to all securities bought under a repo.[59] For operational simplicity, uniform haircut rates are set for broad groups of securities rather than for individual securities, with an additional adjustment for related-party asset-backed securities depending on the degree of credit support provided to the transaction by the sponsor. Haircut rates are set to cover the maximum expected decline in the market price of the collateral, over a conservative liquidation horizon, at a confidence level of at least 95 per cent. The key inputs to this calculation are market prices, the maturity of the securities in the relevant asset classes and the credit ratings of the securities. The uniform haircut rates are publicly available on the Bank's website.[60]

The Bank also collects mark-to-market margin to cover changes in the value of its collateral.[61] To do this, the Bank revalues all securities held as collateral using the aforementioned valuation practices at the start of each business day. Where the Bank's net exposure to a

59 The Bank uses the terminology 'margins' instead of 'haircuts' in its publicly available documents.

60 A list of the haircuts used by the Bank is available at <http://www.rba.gov.au/mkt-operations/resources/tech-notes/margins.html>.

61 Intraday repos do not require mark-to-market margin collection, as they are reversed by the end of the business day.

counterparty is greater than $1 million and represents more than 1 per cent of the net repurchase amounts agreed with that party, the Bank will call for mark-to-market margin equal to its net exposure.[62] Similarly, the Bank will meet requests for mark-to-market margin from counterparties to which the Bank has a net exposure greater than $1 million and where that net exposure represents more than 1 per cent of the net repurchase amounts agreed with that party.

5.3 In order to reduce the need for procyclical adjustments, a payment system should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.

The Bank generally applies haircuts that are calibrated to include periods of stressed market conditions. Indeed, in February 2012, haircuts were modified to capture the stressed market conditions following the default of Lehman Brothers in late 2008. This reduces the need for procyclical haircut adjustments during periods of stress.

5.4 A payment system should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.

The Bank routinely monitors transaction and collateral summary reports to ensure that the Bank is not exposed to large collateral concentration and liquidation risks. The key factor considered by the Bank is the depth of the market for each security when compared with the Bank's holdings of that security. This mitigates the risk of a price impact from liquidation of a large collateral holding.

5.5 A payment system that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.

The Bank mitigates the risks associated with cross-border collateral by imposing additional restrictions. The only cross-border collateral that the Bank currently accepts is very highly rated Australian dollar denominated securities issued or guaranteed by a foreign government or issued by a supranational. These securities must be issued under and governed by Australian law. In addition, because certain cross-border securities may be less liquid than domestic securities, the Bank applies higher haircuts to these securities. There is no operational risk associated with differences in time zones since all collateral must be lodged in Austraclear. The Austraclear system and RITS have similar operating hours.

62 The repurchase amount for a repo is the value of the repo purchase price adjusted for accrued interest.

5.6 A payment system should use a collateral management system that is well-designed and operationally flexible.

The Bank relies on a well-designed and operationally flexible system to manage its collateral. This system is a widely used integrated trading, middle-office and back-office system, which has been customised for the Bank. Transactions involving the exchange of collateral are recorded and tracked in this system.[63] In addition, the system facilitates the calculation and execution of haircuts and margin calls. Using this system, the Bank has the capacity to produce a wide variety of reports and can easily transfer its collateral in a timely manner. The Bank ensures that there are sufficient resources to maintain its collateral management system to a high standard.

Since February 2014, RITS participants have had the option to use ASX Collateral services to deliver a subset of eligible securities under certain types of repos.[64] ASX Collateral is a collateral management service that acts as an agent to automate the allocation and optimisation of collateral in respect of securities held in Austraclear.[65] As agent, ASX Collateral is responsible for ensuring that securities delivered to the Bank's Austraclear account using its service are appropriately valued and meet the Bank's eligibility requirements. ASX Collateral also offers extensive reporting functionality, including reports on collateral transactions and securities held.

The Bank does not re-use collateral it receives under repo.

7. Liquidity risk

A payment system should effectively measure, monitor, and manage its liquidity risk. A payment system should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the payment system in extreme but plausible market conditions.

Rating: Observed

RITS conducts its settlements on an RTGS basis and does not guarantee settlement. The Bank, as operator of RITS, does not therefore assume liquidity risk through these operations. Accordingly, many of the requirements under this Principle – including those around liquidity stress testing, monitoring, and the maintenance of a pool of liquid assets – do not apply.

However, settling payments on an RTGS basis does place liquidity demands on participants. RITS assists participants in the management of their liquidity requirements through its liquidity-efficient design, the provision of liquidity under repo, and the provision of real-time information on transactions and ESA balances. The Bank's operational staff also continuously monitor settlement activity and participant balances in RITS for evidence of any disruption to the flow of liquidity, which

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63 Intraday repos involving Commonwealth Government Securities or semi-government securities are recorded outside of this system unless they are extended to become overnight repos.

64 For more information on the types of repos and securities eligible to be settled via ASX Collateral see <http://www.rba.gov.au/mkt-operations/resources/tech-notes/settlement-procedures.html>.

65 For more information see RBA (2013), 'Box B: ASX Collateral', Self-assessment of the Reserve Bank Information and Transfer System, p 12, available at <http://www.rba.gov.au/payments-system/rits/self-assessments/2013/index.html>.

could occur if a participant experienced an operational or financial problem. RITS's participation requirements aim to reduce the probability that such problems arise.

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 7 during the 2014 Assessment period. Liquidity risk in RITS is described in further detail under the following Key Considerations.

Note: Key Consideration 7.4 does not apply to RITS as it does not operate a CCP.

7.1 A payment system should have a robust framework to manage its liquidity risks from its participants, settlement banks, nostro agents, custodian banks, liquidity providers, and other entities.

RITS conducts its settlements on an RTGS basis and does not guarantee settlement. The Bank, as operator of RITS, does not therefore assume liquidity risk in its operations. Since participants face liquidity risks, however, RITS assists participants in their liquidity management through its liquidity-efficient design, the provision of liquidity under repo, the provision of real-time information on transactions and ESA balances and tools to manage their payments and liquidity (see Section A.3). Furthermore, RITS's participation requirements aim to reduce the probability that a participant experiences an operational or financial problem that could disrupt the flow of liquidity in the system (see Principle 18).

7.2 A payment system should have effective operational and analytical tools to identify, measure, and monitor its funding flows on an ongoing and timely basis, including its use of intraday liquidity.

Since RITS does not assume liquidity risk, there are no relevant funding flows for RITS to measure and monitor. In managing operational risk the Bank's operational staff continuously monitor the flow of liquidity and payments at both a system and participant level for evidence of any disruption to the flow of liquidity, which could occur if a participant experienced an operational or financial problem (see Principle 17). If such a disruption were observed, the Bank would liaise with participants to mitigate the impact. To further mitigate possible disruption under such a scenario, participants are required to inform the Bank in the event of any operational problem, and the RITS Regulations also set out actions that the Bank may take in response to a participant default (see Principle 13).

7.3 A payment system, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate intraday or multiday settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.

Since the Bank does not assume liquidity risk as operator of RITS, the requirement to maintain liquid resources to cover payment obligations in stressed scenarios does not apply.

7.5 For the purpose of meeting its minimum liquid resource requirement, a payment system's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If a

payment system has access to routine credit at the central bank of issue, the payment system may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.

Since the Bank does not assume liquidity risk as operator of RITS, the minimum liquid resource requirement does not apply.

7.6 A payment system may supplement its qualifying liquid resources with other forms of liquid resources. If the payment system does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if a payment system does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. A payment system should not assume the availability of emergency central bank credit as a part of its liquidity plan.

Since the Bank does not assume liquidity risk as operator of RITS, the need to supplement its qualifying liquid resources is not relevant.

7.7 A payment system should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the payment system or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. A payment system should regularly test its procedures for accessing its liquid resources at a liquidity provider.

Since the Bank does not assume liquidity risk as operator of RITS, the requirement to maintain liquid resources to cover payment obligations in stressed scenarios does not apply.

7.8 A payment system with access to central bank accounts, payment services, or securities services should use these services, where practical, to enhance its management of liquidity risk.

Since the Bank does not assume liquidity risk as operator of RITS, the requirement to use central bank accounts, payment services or securities services, where practical, does not apply.

7.9 A payment system should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. A payment system should have clear procedures to report the results of its stress tests to appropriate decision makers at the payment system and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. In conducting stress testing, a payment system should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the payment system, include all entities that might pose material liquidity risks to the payment system (such as settlement banks, nostro agents, custodian banks, liquidity

providers, and linked FMIs), and where appropriate, cover a multiday period. In all cases, a payment system should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.

Since the Bank does not assume liquidity risk as operator of RITS, the requirement to test the sufficiency of its liquid resources does not apply.

7.10 A payment system should establish explicit rules and procedures that enable the payment system to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the payment system's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

The RITS Regulations include rules and procedures that govern the management of a participant default (see Principle 13). Since the Bank does not assume liquidity risk as operator of RITS, the requirement to establish rules and procedures to address unforeseen and potentially uncovered liquidity shortfalls and replenish any liquid resources do not apply.

8. Settlement finality

A payment system should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, a payment system should provide final settlement intraday or in real time.

Rating: Observed

RTGS payments in RITS are settled individually in real time. The RITS Regulations specify that settlement is final when the ESAs of the paying and receiving RITS participants are simultaneously debited and credited, respectively. The irrevocability of payments settled in RITS is further protected by RITS's approval as an RTGS system under Part 2 of the Payment Systems and Netting Act.

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 8 during the 2014 Assessment period. RITS's arrangements for ensuring finality of settlements are described in further detail under the following Key Considerations.

8.1 A payment system's rules and procedures should clearly define the point at which settlement is final.

The settlement of a payment in RITS is final and irrevocable when the ESAs of the paying and receiving RITS participants are simultaneously debited and credited, respectively.[66] The point of settlement is clearly defined in Regulation 1 of the RITS Regulations. As explained under Key Consideration 1.1, this is further protected by RITS's approval as an RTGS system under Part 2 of the Payment Systems and Netting Act.

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66 Payments settled using the 'auto offset' functionality are settled in full across relevant ESAs simultaneously. These payments are posted in full to the ESAs and are not subject to bilateral netting.

8.2 A payment system should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. A large-value payment system should consider adopting RTGS or multiple-batch processing during the settlement day.

RTGS payments in RITS are settled individually in real time. Although settlements occur in real time, a payment submitted to the RITS queue may remain there if the payer chooses not to settle the transaction (e.g. if the payer has set the status of the transaction to 'deferred') or has insufficient funds. Any payments that are not settled at the end of the last session during which the transaction was eligible for settlement are automatically removed from RITS and must therefore be resubmitted for settlement when the system reopens (for more information on RITS session times refer to Section A.5).

8.3 An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.

Under Regulation 8 of the RITS Regulations, a participant can unilaterally revoke its outgoing RTGS payments at any time prior to settlement. RITS cash transfers can be revoked via the RITS User Interface, while payments sent via a feeder system must be revoked via that feeder system.

9. Money settlements

A payment system should conduct its money settlements in central bank money where practical and available. If central bank money is not used, a payment system should minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

Rating: Observed

RITS conducts its money settlements in central bank money across participants' ESAs at the Bank.

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 9 during the 2014 Assessment period. Money settlements in RITS are described in further detail under the following Key Considerations.

9.1 A payment system should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.

Money settlements in RITS are conducted in central bank money. Payment obligations in RITS are settled on an RTGS basis across ESAs at the Bank.

9.2 If central bank money is not used, a payment system should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.

Money settlements in RITS are conducted using central bank money.

9.3 If a payment system settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, a payment system should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. A payment system should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.

Money settlements in RITS are conducted using central bank money.

9.4 If a payment system conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks.

Money settlements in RITS are conducted using central bank money across the books of the Bank. The Bank's credit and liquidity risks from the operation and provision of liquidity in RITS are strictly controlled, as described in Principles 4 and 7.

9.5 A payment system's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the payment system and its participants to manage credit and liquidity risks.

The Bank does not use commercial bank money settlement agents in the operation of RITS.

12. Exchange-of-value settlement systems

If a payment system settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

Rating: Not applicable

RITS is not an exchange-of value settlement system. It does not perform the settlement of foreign exchange transactions or securities transactions. RITS does, however, facilitate the settlement of linked securities, foreign exchange and property transactions in other systems, assisting to eliminate principal risk in those systems. In particular, RITS settles the interbank obligations arising from the cash leg of delivery-versus-payment debt and equity security transactions in Austraclear and ASX Settlement, respectively.[67] RITS is also used to fund the Australian dollar leg of foreign exchange transactions settled on a payment-versus-payment basis in CLS's settlement system. As of November 2014, RITS also facilitates the financial settlement of property transactions originating from a system operated by PEXA such that the cash leg and lodgement of the title transfer occur almost simultaneously (see Section 3.2.3).

13. Participant-default rules and procedures

A payment system should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the payment system can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

Rating: Observed

The RITS Regulations define what constitutes an insolvency event, as well as the rights and responsibilities of participants and the Bank in an insolvency scenario, and the actions the Bank may take to manage the situation. The Bank may suspend an insolvent participant, at which point the Bank will remove any queued payments to and from the participant, and prevent the input of any new payments involving the suspended participant. By permitting swift and decisive action in this way, the

[67] For more information, see Standard 10 in Appendix B2.1 and B2.2 of the *2012/13 Assessment of ASX Clearing and Settlement Facilities*, available at <http://www.rba.gov.au/payments-system/clearing-settlement/assessments/2012-2013/index.html>.

RITS Regulations allow the Bank to minimise the potential for a participant default to disrupt settlement in the system more widely.

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 13 during the 2014 Assessment period. RITS's default management arrangements are discussed in further detail under the following Key Considerations.

Note: Paragraph 1.23 of the Principles acknowledges that 'central banks may have separate public policy objectives and responsibilities for monetary and liquidity policies that take precedence'. As the Bank also has a public policy objective and responsibility for maintaining financial stability, it has taken the view that this Principle should not constrain how it responds to a participant default.

13.1 A payment system should have default rules and procedures that enable the payment system to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default.

The RITS Regulations include rules and procedures to govern the management of a participant default. A participant that becomes aware of an insolvency event – either its own insolvency, or the suspected insolvency of another participant – must notify the Bank immediately. The Bank may then suspend the relevant participant, at which point the Bank will remove any queued payments to and from the participant, and prevent the input of any new payments involving the suspended participant. The Bank may also suspend a participant that is unable to meet its settlement obligations. By permitting swift and decisive action in this way, the RITS Regulations allow the Bank to minimise the potential for a participant default to disrupt settlement in the system more widely.

As explained under Principle 4, in the event of a participant default the Bank would not be exposed to a loss in its role as operator of RITS. Accordingly, the RITS Regulations do not cover replenishment of financial resources following a participant default.

13.2 A payment system should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.

The Bank has internal default management procedures that document the steps it would take in response to an insolvency event. These procedures outline the roles and responsibilities of management for each decision that must be taken after such an event, which persons should be consulted when taking each decision, and which persons should be advised of a decision. The procedures also set out which other Australian industry bodies and other FMIs should be contacted if a participant is suspended from RITS, and the methods available for communication with these parties. The procedures are updated on a periodic basis.

The Bank tests most aspects of the default procedures semiannually. Testing of the procedures to effect the suspension of a RITS participant is undertaken annually. Test results are reviewed by Payments Settlements Department senior management and the Assistant Governor, Banking and Payments.

13.3 A payment system should publicly disclose key aspects of its default rules and procedures.

The key aspects of the default management rules and procedures are set out in the RITS Regulations, which are publicly available on the Bank's website.

13.4 A payment system should involve its participants and other stakeholders in the testing and review of the payment system's default procedures, including any close-out procedures. Such testing and review should be conducted at least annually or following material changes to the rules and procedures to ensure that they are practical and effective.

Since RITS default management procedures do not require participants to perform any actions, participants are not involved in the testing or review of these procedures.

15. General business risk

A payment system should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

Rating: Observed

The Bank manages the general business risk arising from RITS within the context of its organisation-wide risk management framework (see Principle 3). This process covers the full spectrum of financial, market, credit, operational and other risks. This is supported by the Bank's budgeting and accounting processes, which allow it to monitor, manage and control its operating expenses. New projects are subject to strong governance arrangements, both prior to initiation and through the implementation process. As a central bank-owned FMI, RITS does not hold ring-fenced liquid net assets to cover general business risk. Nevertheless, should a general business risk crystallise, the Bank has access to sufficient liquid funds to meet its current and projected operating expenses.

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 15 during the 2014 Assessment period. The Bank's arrangements for managing general business risk are discussed in further detail under the following Key Considerations.

Note: Since RITS is a central bank-owned system, it has not been assessed against the requirement to hold ring-fenced liquid net assets funded by equity to cover business risk and support a recovery or wind-down plan (Key Considerations 15.2–15.4). This recognises central banks' inherent ability to supply liquidity to support continuity of operations, should liquidity be required for this purpose. Similarly, RITS has not been assessed against the requirement to maintain a plan to raise additional equity (Key Consideration 15.5).

15.1 A payment system should have robust management and control systems to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses.

As set out under Key Consideration 2.6, the Bank takes a coordinated approach to identifying, assessing and managing risk at both an enterprise and business level. A key component of the Bank's framework for managing general business risk is its budgeting and accounting processes, which allow it to monitor, manage and control its operating expenses, including those arising from the operation of RITS. The Bank's financial accounts are also subject to audit by both the Audit Department and external auditors. Audit reports are reviewed by the Audit Committee.

The Bank's financial target with respect to RITS is to recover its operating costs. It regularly reviews its pricing and in July 2012 implemented a revised pricing structure to provide a more representative distribution of costs among RITS participants.[68] The Bank's policy is that it will absorb investment costs, including capital and development costs, associated with major improvements to RITS's functionality and resilience. However, any new significant projects must be approved by the Executive Committee and relevant financial analysis must be included as part of the Bank's budget process.

In addition, the Bank has an ongoing program to evaluate fraud risks and review its fraud control framework (see Key Consideration 17.1).

16. Custody and investment risks

A payment system should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. A systemically important payment system's investments should be in instruments with minimal credit, market, and liquidity risks.

Rating: Observed

Securities provided to the Bank as collateral under repo (both for payment system purposes and open market operations) must be lodged in Austraclear, which is a CS facility overseen by the ASIC and the Bank and subject to the Financial Stability Standards for Securities Settlement Facilities (SSF Standards). Close-out netting provisions included in repo contracts with participants provide for the immediate liquidation of collateral in the event of default. This right is supported by Part 4 of the Payment Systems and Netting Act. In addition, the Austraclear system is subject to high operational resilience standards and operates in the same time zone as RITS, with highly overlapping operating hours. The Bank would therefore expect to have prompt access to the securities it holds as collateral.

The Bank does not hold the collateral it receives in providing liquidity to RITS participants with custodian banks, or with entities in other time zones or legal jurisdictions. The Bank accepts only securities collateral under repo and does not re-use collateral received. The Bank therefore does not face investment risks.

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 16 during the 2014 Assessment period. Custody and investment risks in RITS are described in further detail under the following Key Considerations.

Note: Paragraph 1.23 of the Principles acknowledges that 'central banks may have separate public policy objectives and responsibilities for monetary and liquidity policies that take precedence'. Accordingly, it is the Bank's view that nothing in this Principle should constrain the Bank's investment strategy (including that for reserve management) or impose requirements regarding the disclosure of that strategy.

16.1 A payment system should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.

Securities held by the Bank under repo must be lodged in Austraclear (see Principle 5). Austraclear is a licensed CS facility and is therefore overseen by ASIC and the Bank. In accordance with the licensing regime, Austraclear must meet the Bank's SSF Standards, which are aligned with the Principles. The SSF Standards require that Austraclear maintain robust

[68] For further details see 'Box C: RITS Pricing' in RBA (2013), *Self-assessment of the Reserve Bank Information and Transfer System*, p 23.

accounting practices, safekeeping procedures and internal controls that fully protect the assets for which it acts as a central securities depository.

The Bank does not use custodian banks to hold the collateral it receives in providing liquidity to RITS participants, or hold collateral with entities in other time zones or legal jurisdictions.

16.2 A payment system should have prompt access to its assets and the assets provided by participants, when required.

The close-out netting provisions included in the Bank's repo agreements with counterparties provide for the Bank to close out or terminate the second leg of a repo immediately. This right is protected by Part 4 of the Payment Systems and Netting Act (see Principle 1).

The Austraclear system is subject to high operational resilience standards and operates in the same time zone as RITS, with highly overlapping operating hours. The Bank would therefore expect to have prompt access to the securities it holds as collateral. In particular, the Bank has a service agreement with ASX – the owner of Austraclear – that imposes strict operational requirements on the Austraclear system, including a requirement to provide a minimum 99.9 per cent availability during business hours. The Austraclear system must also adhere to similar high standards of security and operational reliability set out in the SSF Standards.

Since February 2014, RITS participants have had the option to use ASX Collateral services to deliver a subset of eligible securities under certain types of repo (see Principle 5). Securities provided to the Bank under repo through ASX Collateral are held in special-purpose 'collateral accounts' in Austraclear. Securities in these accounts can only be transferred based on instructions from ASX Collateral. For this reason, the Bank relies on the availability of ASX Collateral to be able to promptly access the securities held in the Bank's collateral accounts and, in the case of a default, liquidate those securities in a timely manner. The operational resilience of ASX Collateral is addressed in Key Consideration 17.7.

16.3 A payment system should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.

The Bank does not use custodian banks to hold the collateral it receives in providing liquidity to RITS participants.

16.4 A payment system's investment strategy should be consistent with its overall risk-management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect.

The Bank accepts only securities collateral under repo and does not re-use collateral received. The Bank therefore does not face investment risks.

17. Operational risk

A payment system should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the payment system's obligations, including in the event of a wide-scale or major disruption.

Rating: Observed

RITS is designed to achieve a very high standard of operational reliability, with comprehensive policies and controls in place to: ensure reliability of IT infrastructure, monitor performance in real time and address potential problems promptly; maintain sufficient capacity; and manage change effectively. The Bank manages the operational risks arising from RITS within the Bank's organisation-wide risk management framework (see Key Consideration 2.6).

The Bank sets clear operational reliability and capacity objectives and implements policies, procedures and controls to achieve those targets. The key operational targets for RITS are 99.95 per cent availability and minimum capacity to accommodate projected volumes 18 months in advance with 20 per cent headroom. The Bank has sufficient resources, including well-trained and competent personnel, to operate RITS. There is also an effective change management framework to ensure that system changes do not affect the operation of RITS. This framework was enhanced in August 2014. To ensure RITS will continue to meet resilience and performance targets in the future, a program of continuous improvement is in place. As part of this program, during the Assessment period an upgrade of RITS's core infrastructure was completed and further enhancements to network and system monitoring were implemented.

Access to RITS is tightly controlled using a range of security controls. To gain access to the RITS User Interface, each user requires a RITS token with a valid and unique digital certificate; these are issued to users via a secure process. This system was updated in 2013. Access rights are controlled via unique logons for each user, creating an audit trail for each action within the system. All traffic across the various networks that are used to access RITS is encrypted. The RITS application and supporting infrastructure is segmented using firewalls approved by the Australian Signals Directorate. Vulnerability assessments and penetration testing are undertaken periodically by external consultants.

RITS's business continuity arrangements include detailed contingency plans, which are updated at least annually and are tested regularly, with recovery time targets up to 40 minutes, depending on the nature of the operational disruption. The primary control to reduce the impact of a disruption is a high degree of redundancy in RITS's architecture. RITS is synchronously mirrored at a geographically remote second site, which is permanently staffed. Full redundancy exists at both sites, ensuring that there is no single point of failure at either site. Since late 2009, live operations have been rotated between the two sites on a regular basis. Staff rotation and cross-training ensure that critical functions are not dependent on particular individuals. The Bank also has succession planning processes in place for key positions.

The Bank monitors the operational performance of its participants. In addition, in 2013, the Bank introduced Business Continuity Standards for RITS participants, which must be met by 30 September 2015. Going forward, the Bank will continue to monitor RITS participants' compliance with the Business Continuity Standards. The Bank has also established controls to limit the risk from critical service providers, utilities and other FMIs. The Bank has a service level agreement with Austraclear and has a premium support package from SWIFT; both entities are key service providers to RITS. These arrangements set out the response times and the minimum level of support expected from each service provider. The Bank has also recently executed a service level agreement with a key technology vendor that provides enhanced monitoring and technical support. RITS's use of critical service providers and utilities is subject to ongoing monitoring and testing.

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 17 during the 2014 Assessment period. Nonetheless, to ensure that the operations of RITS continue to meet international best practice, Payments Policy Department recommended that the Bank:

- keep under continued review its approach to cyber security, and in particular its mechanisms for prevention and detection, and its plans to recover from a cyber-related incident
- examine the benefits, challenges and costs of implementing a range of measures that could further enhance the resilience of RITS and facilitate timely recovery from an operational incident
- continue to monitor RITS participants' compliance with the new Business Continuity Standards.

Details of RITS's operational risk management arrangements are described under the following Key Considerations.

17.1 A payment system should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.

The Bank has established a robust operational risk management framework, with systems, policies and procedures to identify, monitor and manage operational risk. Under the risk management framework, Payments Settlements Department is required to identify the range of risks that might impact its ability to operate RITS in a safe and efficient manner. To identify operational risks, the Bank applies both a historical approach, drawing lessons from issues that have occurred in the past, and a theoretical approach whereby experienced staff members seek to identify possible additional sources of risk. For each operational risk identified, the Payments Settlements Department assesses the probability of the operational risk crystallising and its potential impact. Controls and mitigation strategies are also considered. Operational controls are documented in procedures manuals, administration guides and daily checklists. These controls and contingency plans are reviewed and signed off by management annually, or when system changes or upgrades are planned.

The RITS operational risk management framework is benchmarked against relevant domestic and international standards, including:

- Business Continuity – Managing Disruption-related Risk (AS/NZS 5050-2010)
- Fraud and Corruption Control (AS 8001-2008)
- Whistleblower Protection Program for Entities (AS 8004-2003).

Change and project management

The Bank has detailed change management processes and procedures in place to safeguard the integrity and reliability of RITS. Any material change typically would require the responsible business area to prepare a change implementation plan, which would identify possible risks arising from the change and controls in place to mitigate those risks. These controls would include plans to 'back out' any change that had been implemented, should this be necessary. Changes assessed as high- or medium-risk are presented for approval to the Change Advisory Board, which comprises senior management from operational and information technology areas in the Bank.

To ensure that changes do not disrupt the operation of RITS, major or high-risk changes are implemented outside operating hours. This allows time for testing before RITS opens. Backups of data and system configurations are made prior to the implementation of any major changes. Any system changes are subject to extensive testing in separate test environments before approval for live implementation. This includes connectivity, functional, capacity and failover testing. RITS participants are given the opportunity to trial new functionality in a test environment prior to live implementation.

During the Assessment period the Bank finalised enhancements to its organisation wide project and change management practices. The enhancements to the Bank's project management practices include the formalisation of a new enterprise-wide project management framework. The new framework, which is consistent with international best practice, is expected to be fully implemented by mid-2015. In addition, the Bank has created a new functional area, the Enterprise Project Management Office, to oversee major initiatives. This will improve the governance of these initiatives, as well as increase their visibility to the senior executives.

The Bank has also finalised a new IT change management policy during the Assessment period, which promotes strong control of risks associated with changes to the Bank's IT services and systems. The policy is aligned to standards that are considered best practice in the information and technology and finance industries, including:

- Information Technology Infrastructure Library, Version 3
- ISO Standard 20000: IT Service Management

In addition to enhancing the Bank's change-management processes and procedures, the policy will improve the governance of change management. These improvements include greater clarity in the risk assessment process and better representation of business and technical stakeholders on the governance bodies that oversee change management.

Access to resources

The resourcing of the areas in Payments Settlements Department involved in the operation of RITS is the responsibility of the senior management in those areas. Recruitment and promotions at the Bank are merit-based and subject to a formal selection process. New staff are required to undergo training in a range of areas, including anti-money laundering, information security, workplace health and safety, acceptable use of technology, fraud awareness and the Bank's Code of Conduct. Staff rotations and cross-training in critical areas ensure that critical functions are not dependent on particular individuals. The Bank also has succession planning processes in place for key staff.

Payments Settlements Department relies on the Bank's Information Technology Department to provide technical support for RITS. To ensure that there is a common understanding, the level of service expected from Information Technology Department with regard to the support of RITS is set out in internal documents. The resourcing policies set out above also apply to Information Technology Department.

Fraud control

The Bank has an ongoing program to evaluate fraud risks and review its fraud control framework. This is documented in the Fraud Control Policy. The primary preventative fraud controls include audit logs, dual input checks, separation of duties, management sign-off and processing checklists. These controls are supported by reconciliations and review by management. Regular staff training in fraud awareness is also conducted and monitored to ensure that all staff are actively engaged in fraud prevention. The Bank operates a hot line, through which suspicious behaviour can also be reported anonymously. Audit Department investigates the potential for fraud and fraud controls as part of its regular audits.

17.2 A payment system's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the payment system's operational risk-management framework. Systems, operational policies, procedures, and controls should be reviewed, audited, and tested periodically and after significant changes.

The Bank manages the operational risks arising from RITS within its risk management framework, the governance of which is set out under Key Consideration 2.6. Under this framework, operational risk policies are developed and approved by the senior management of Payments Settlements Department, with oversight from the Risk Management Committee. In some circumstances, policies would need to be approved by the Assistant Governor, Banking and Payments. RITS's operational policies, procedures and controls are subject to audit by the Audit Department, with assistance from external consultants. Audit reports are reviewed by the Audit Committee, with copies provided to the Risk Management Committee.

The systems, policies, procedures and controls in the operational risk policy are tested periodically (see Key Considerations 17.4–17.7 for further details).

17.3 A payment system should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.

RITS availability targets are clearly defined and documented. RITS's target availability is 99.95 per cent for Bank-controlled components. Availability is measured relative to the total number of hours that the system is open for settlement and reporting. This target is set out in internal documents, and is assessed on a quarterly basis. Assessments are available to senior management in Payments Settlements Department and Payments Policy Department.

The Bank has established arrangements to ensure that RITS meets target availability, including a detailed business continuity policy (see Key Consideration 17.6) and change management framework (see Key Consideration 17.1). In addition, RITS applies a number of controls to prevent or manage disruptions, including operating procedure manuals, dual input checks and the use of checklists.

The Bank also monitors RITS's components to ensure that issues are detected in a timely manner. The monitoring aims to detect system problems within 15 minutes of their inception. In some cases, automated tools are used, which verify the operation of system components at intraday intervals as short as one minute. System liquidity, and the value and volume of queued and settled payments relative to historical averages, are also monitored on a near real-time basis. In 2012, monitoring of the RITS system after business hours was introduced, to improve monitoring of overnight processing and to facilitate the submission and settlement of retail payments.[69]

In response to an operational incident in September 2012, the Bank implemented enhanced monitoring of RITS's components. This involves the use of a third-party system to test connectivity by logging in from outside of the Bank's internal communications network. The third-party system delivers data on the performance of RITS's components back to Bank staff in real time, providing an additional source of data to identify potential system problems. In December 2013, additional tools were implemented that automate testing of the availability of RITS components, and automatically generate email alerts to relevant Bank staff if any issues are detected by the tools.

17.4 A payment system should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.

The Bank has processes and controls in place to ensure that RITS has sufficient capacity. RITS capacity targets include:

- a processing throughput target – that is, that RITS should be able to process peak-day transactions in less than two hours (assuming no liquidity constraints)
- a projected capacity target – that is, RITS should be able to accommodate projected volumes 18 months in advance with 20 per cent headroom.

Targets are also set for the system's maximum response time to a participant command.

RITS is tested regularly to ensure that it meets these targets. Processing throughput testing is performed quarterly and complemented by daily monitoring of actual processing throughput. Capacity testing is performed prior to each new RITS software release and at regular intervals. Test outcomes are reviewed by management in Payments Settlements Department. In the event of a problem, the Bank would investigate options to either improve processing throughput or increase capacity. The renewal of core elements of the technological infrastructure that makes up RITS completed in June 2014 has enhanced the performance and resilience of RITS and reduced the complexity of system maintenance (see Section 3.8.1).

Testing is complemented by an alert system, which is designed to automatically advise operational staff if operational capacity for various RITS components is approached. The alert system also has an escalation feature, which would alert senior management if action was not taken within a defined time.

17.5 A payment system should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.

Information security

At the Bank, cyber resilience – in relation to both RITS and the Bank's operations more broadly – is overseen by the Risk Management Committee as part of the Bank's enterprise-wide risk management framework. As noted in the Bank's recently published Risk Appetite Statement, the Bank has a very low appetite for threats to Bank assets arising from external malicious

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[69] For more information on changes to these clearing and settlement arrangements see RBA (2013), 'Box A: Developments in Retail Payments Settlement Arrangements', *Self-assessment of the Reserve Bank Information and Transfer System*, pp 7–8.

cyber attacks. To address this risk, the Bank aims for strong internal control processes and the development of robust technology solutions.

Information Technology Department is responsible for the review and implementation of the information security policies applicable to RITS. To support the Bank's information security, there is a dedicated team within the Information Technology Department headed by the Bank's Chief Information Security Officer. RITS information security policies are aligned to the Australian Government's Protective Security Policy Framework.[70] Its cyber security practices are also informed and supported by domestic and international best practice, including strategies for mitigating cyber intrusions developed by the Australian Signals Directorate. The security policies are reviewed annually and in the event of changes to either the nature of the risk or the assets being protected. Security reviews by external consultants are also routinely commissioned for new RITS components and in response to significant changes to the RITS system.

Access to RITS is tightly controlled using a range of security controls, which vary with the method of access. To gain access to the RITS User Interface, each user requires a RITS token with a valid and unique digital certificate; these are issued to users via a secure process. This system was updated in 2013. Access rights are controlled via unique logons for each user, creating an audit trail for each action within the system. RITS also provides functionality to participants to enable dual entry checks at all stages of the payment process.

Security administrators can review event logs and follow up on unusual activity. All transactions can be traced end-to-end, and are signed using a private key that allows for enhanced non-repudiation of the transaction.

All traffic across the various networks that are used to access RITS is secure. Access via the internet and the Austraclear National Network Infrastructure is encrypted. The RITS application and supporting infrastructure is segmented using firewalls approved by the Australian Signals Directorate (the agency responsible for evaluating information security products and services used by the Australian Government), so that only authorised traffic can reach it. Vulnerability assessments and penetration testing are undertaken by external consultants periodically.

While the Bank's current information security policies presently address all potential vulnerabilities and threats, the Bank recognises that both the nature of cyber-related issues and industry best practice are rapidly evolving. Accordingly, Payments Policy Department have recommended that the Bank keep under continued review its approach to cyber security, and in particular its mechanisms for prevention and detection, and its plans to recover from a cyber-related incident.

Physical security

Facilities Management Department administers the Bank's physical security policy, which complies with the Protective Security Policy Framework set by the Australian Government. Under the policy, security risks are identified and controls implemented to mitigate these risks. The Bank maintains a number of controls to limit physical access to sensitive areas. Access to both the primary and business recovery sites are restricted to staff and authorised visitors. Access to sensitive areas, such as data centres, is further restricted to those staff who require access for their duties. The Bank maintains audit trails of access to all sensitive areas. Both

[70] This framework is available at <http://www.protectivesecurity.gov.au/pspf/Pages/default.aspx>.

operational sites are also designed in such a way to provide physical protection to the buildings.

17.6 A payment system should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology systems can resume operations within two hours following disruptive events. The plan should be designed to enable the payment system to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The payment system should regularly test these arrangements.

The Bank maintains detailed business continuity plans. These set out the operational response to events that could disrupt RITS's operations. These plans cover lines of authority, means of communications and failover procedures, and are updated annually or when there are major changes to RITS.

A primary control to reduce the impact of a contingency is a high degree of redundancy in RITS's systems. RITS is synchronously mirrored at two geographically remote sites, which are permanently staffed. Full redundancy of equipment exists at both these sites, ensuring there is no single point of failure at either site. RITS can be operated from either site indefinitely. Live operations alternate between both sites on a regular basis. Critical staff are also able to work from home through remote logon using a Virtual Private Network. The recovery time target is up to 40 minutes, depending on the nature of the operational disruption.

A high degree of redundancy is complemented by internal plans to deal with a wide variety of potential disruptions. These include the failure of individual RITS components and wide-scale external disruptions, such as floods and pandemics. For each scenario, target recovery times are documented. Contingency procedures are reviewed at regular intervals, after major system changes and after testing.

Contingency plans include arrangements for the provision of timely information to stakeholders, including RITS participants and operators of interdependent systems. The plans include predefined notification lists of both internal and external parties, and assign responsibility for regular updates. A web-based crisis communication facility for RITS enables the Bank to disseminate information via email and SMS to a large number of stakeholders within minutes. This facility can also be operated from remote locations and does not rely on the availability of either operational site. Conference call facilities are also available to enable timely discussion between key stakeholders. To ensure that staff are familiar with the crisis communications facility, it is used regularly.

Plans for all key contingencies are tested at least annually to ensure that the contingency procedures are robust and remain effective. To ensure staff are fully aware of the contingency plans, procedures are also tested in regular 'at-desk' contingency drills. In addition, Payments Settlements Department staff that are based at the Bank's head office are required to work at the Bank's geographically remote second site during a designated week each year to ensure that they are familiar with the facility.

In the extremely low-probability event that both sites were rendered inoperable and RTGS processing was abandoned for the day, fallback arrangements for Austraclear and the SWIFT PDS could be invoked. These arrangements provide for interbank settlement on a deferred net basis the following day.

The Bank is committed to enhancing the resilience of RITS on an ongoing basis. Given the recent international developments described in Section 3.8.2, Payments Policy Department have recommended that Bank should examine the benefits, challenges and costs of implementing a range of measures that could further enhance the resilience of RITS and facilitate timely recovery from an operational incident.

17.7 A payment system should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. In addition, a payment system should identify, monitor, and manage the risks its operations might pose to other FMIs.

Participants

Recognising that the efficient operation of RITS is also dependent on the operational reliability and resilience of its participants, any technical problem affecting a participant's transaction activity must be notified to the Bank immediately. The Bank also monitors participants' payment flows in real time. If a potential problem is detected, the Bank will contact that participant for further information. After a disruption, a participant is required to provide the Bank with a detailed report on the causes and remedial actions of the disruption.[71]

From 30 September 2015, the Bank will also require participants to meet RITS participant Business Continuity Standards.[72] While participants are not yet required to meet these standards, Payments Policy Department have recommended that the Bank continues to monitor RITS participants' compliance ahead of this deadline. The Business Continuity Standards aim to promote 'high availability' in RITS payments processing, requiring both resilience of system components and rapid recovery if failover to alternate systems is required. The standards complement the relevant requirements of APCA and APRA.

Procedures are also in place to reduce the impact of a participant disruption, should this arise. If a participant is unable to submit payments due to a disruption, the Bank can manually enter some payments into RITS on that participant's behalf.

Service and utility providers

SWIFT has been identified as a critical service provider to RITS, as the failure of SWIFT would severely impair the ability of participants to effect third-party payments, as well as the management of Austraclear settlements via the RITS Automated Information Facility (which uses SWIFT messages). The Bank has a premium support package from SWIFT. The terms of this package set out the response times and level of support expected from SWIFT should an issue arise. The Bank also liaises regularly with SWIFT and participates in a coordinated global outage test, which simulates an operational disruption at SWIFT. The resilience and reliability of SWIFT is supported by regulation and oversight by the SWIFT Oversight Group, comprising the G10 central banks and chaired by the National Bank of Belgium.[73] To support its oversight activities, the Oversight Group has set proprietary minimum standards – the High Level Expectations – against which SWIFT is assessed.

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71 The RITS incident reporting arrangements are available at <http://www.rba.gov.au/payments-system/rits/user-doc/pdf/incident-reporting-arrangements.pdf>. Under these arrangements, participants are also required to report the details of any operational incidents related to their retail payment systems.

72 For further details see 'Box E: Participant Business Continuity Standards' in RBA (2013), *Self-assessment of the Reserve Bank Information and Transfer System*, p 27.

73 In 2012, the Oversight Group set up the SWIFT Oversight Forum to include 12 additional central banks, including the Bank, in the oversight process. Through its membership of the Oversight Forum, the Bank is able to access information relevant to SWIFT oversight.

To address the risks to RITS from critical dependencies on utility providers, the Bank has put in place a number of controls:

- both operational sites are each connected to two different electricity grids
- each operational site has an uninterruptable power supply and backup power generators
- all external communications links to the two operational sites are via dual geographically separated links, and where possible with different telecommunications providers
- the Bank performs regular testing of backup arrangements.

Other FMIs

Austraclear has been identified as an FMI that is of critical importance to the operation of RITS. The service level agreement with ASX – the owner of Austraclear – imposes strict service operational requirements on the Austraclear system, including requiring the Austraclear system to provide a minimum 99.9 per cent availability during business hours. The agreement also requires the Austraclear system to conduct connectivity testing with RITS annually.

As discussed in Section 3.5.2, the Bank also monitors the interdependencies between Austraclear and ASX Collateral. While ASX Collateral is not itself subject to direct regulation as an FMI, the Bank's SSF Standards set requirements for critical interdependent systems.[74] Accordingly, in its assessment of Austraclear against the SSF Standards, the Bank has sought to establish that the standards for operational resilience at ASX Collateral (including the link with Clearstream) are consistent with those that apply to Austraclear.[75] The availability of ASX Collateral is also relevant to the Bank's ability to promptly access securities held through ASX Collateral (see Key Consideration 16.2).

Austraclear and CLS rely on RITS to settle Australian dollar-denominated payments, and their operations would be disrupted if RITS was not available. This risk is mitigated by ensuring the operational reliability and resilience of RITS. The Bank also conducts joint contingency testing with ASX (the operator of Austraclear), CLS and SWIFT. In addition, ASX has prepared business plans that contemplate Austraclear continuing to operate independently of RITS.

18. Access and participation requirements

A payment system should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.

Rating: Observed

Since settlement in RITS occurs using central bank money, only an institution with an ESA at the Bank can be a settlement participant in RITS. Furthermore, since RITS is the only means of access to ESAs, all ESA holders must be participants of RITS and meet all of its operating conditions. The eligibility criteria for ESA holders therefore effectively represent the eligibility criteria for settlement participants in RITS.

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74 See Standard 14.9 of the SSF Standards, available at <http://www.rba.gov.au/payments-system/clearing-settlement/standards/securities-settlement-facilities/2012/index.html>.

75 For more information on ASX Collateral and its implications for Austraclear, refer to the *2013/14 Assessment of ASX Clearing and Settlement Facilities*, available at <http://www.rba.gov.au/payments-system/clearing-settlement/assessments/2013-2014/index.html>.

Policy around ESA eligibility is set by the Bank's Payments Policy Department, under the governance of the Payments System Board, and is available on the Bank's website. The policy has been designed to be fair and open and promote competition in the provision of payment services by allowing access to all providers of third-party payment services, irrespective of their institutional status. ADIs are eligible by default, because these institutions are assumed to provide third-party payment services as part of their business. Similarly, Australian-licensed CCPs and SSFs with payment arrangements that require Australian dollar settlement are also eligible to hold an ESA. The ESA policy sets a number of risk-based participation requirements, including around operational capacity and access to liquidity, which are designed to reduce the likelihood that an individual participant experiences an operational or financial shock that disrupts the system more broadly. These requirements are generally proportional to participants' expected payments in RITS.

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 18 during the 2014 Assessment period. RITS access and participation requirements are described in further detail under the following Key Considerations.

Note: In applying this Principle to RITS, the Bank notes that footnote 144 of the Principles states that central banks 'may exclude certain categories of financial institutions (such as non-deposit-taking institutions) from the FMIs that they operate, such as [large value payment systems], because of legislative constraints or broader policy objectives'.

18.1 A payment system should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements.

The ESA eligibility policy has been designed to be fair and open and enhance competition in the provision of payment services by allowing providers of third-party payment services access, irrespective of their institutional status. ADIs are eligible by default, because these institutions are assumed to provide third-party payment services as part of their business. Similarly, Australian-licensed CCPs and SSFs (or a related body corporate acceptable to the Bank) with payment arrangements that require Australian dollar settlement are also eligible to hold an ESA.

An ESA applicant must also demonstrate that it meets certain risk-related participation requirements at the time of application, including that:

- it has the operational capacity to operate and manage its ESA
- it has access to sufficient ESA liquidity to meet its anticipated routine and 'peak' period settlement obligations
- access to adequate intraday ESA liquidity to allow it to conduct its customers' business in a way that does not unreasonably impinge on other participants or reduce the efficiency of the system
- any collateral or guarantees it relies upon, especially in times of unpredictable stress, are adequate to meet its obligations.

To ensure that the institution is always able to authorise, execute and settle RTGS transactions in an efficient and timely manner, the Bank requires that, for institutions settling transactions using their own ESA, responsibility for the ESA must rest with management located in Australia. ESA holders must also meet the Business Continuity Standards set by the Bank (see Key Consideration 17.7).

The Bank reserves the right to impose additional operational or other requirements on ESA holders at its discretion. In particular, an institution that is not supervised by APRA (i.e. not an ADI) or that has limited access to liquid assets, and that has deferred net settlement or time critical payment obligations, may need to meet additional liquidity requirements on an ongoing basis.

18.2 A payment system's participation requirements should be justified in terms of the safety and efficiency of the payment system and the markets it serves, be tailored to and commensurate with the payment system's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, a payment system should endeavour to set requirements that have the least-restrictive impact on access that circumstances permit.

RITS participation requirements are designed to reduce the likelihood that an individual participant experiences an operational or financial shock that disrupts the system more broadly, for instance by defaulting, becoming a liquidity sink or excessively delaying payments. The requirements are generally proportional to participants' expected payments in RITS. For example, the Business Continuity Standards are proportional to the nature and size of a prospective participant's payments business.

To reduce the operational burden on smaller RITS participants, any ESA holder that is not a CCP, with aggregate outgoing RTGS transactions of less than 0.25 per cent of the total value of RTGS transactions, may use an agent to settle its RTGS transactions, rather than settling directly across its own ESA (see Principle 19).

Indirect participation in RITS is not available more broadly because of the concern that it might lead to a high degree of concentration of payments through a few direct participants, and give rise to an unacceptable concentration of liquidity and operational risks in these participants (see Principle 19). Indirect participation also introduces credit risk for participants because settlement between an indirect participant and its settlement agent occurs in commercial bank money. Although some smaller institutions are therefore required to participate in RITS directly, the cost of technical access to RITS was reduced significantly by the introduction of the internet browser-based user interface in 2006.

18.3 A payment system should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.

The Bank closely monitors participants' activity in RITS, to ensure that participants are demonstrating that they have the operational capacity and sufficient liquidity to manage their payments activity on an ongoing basis (see Key Consideration 17.7). RITS participants are also required to self-certify their compliance with the Business Continuity Standards annually. In addition, the majority of RITS participants – ADIs, CCPs and SSFs – are subject to ongoing regulation, supervision and oversight by either APRA, or ASIC and the Bank, including with respect to operational and liquidity requirements. Where RITS participants, as ESA holders, are subject to additional operational or other requirements, evidence of their compliance with these requirements must be provided periodically to the Bank.

The RITS Regulations clearly set out the conditions under which the Bank can suspend a participant or revoke its ESA. Accompanying procedures are designed to facilitate an orderly exit. The Bank may at any time terminate or vary the terms of the membership of any institution, or impose particular conditions on an institution's membership of RITS. In addition to these rights, the Bank may suspend, for such a period as it considers appropriate, any participant: who fails to comply with any provision of the RITS Regulations; who is guilty of any conduct regarded by the Bank to be contrary to the interests of the participants of the system; or who has become insolvent. To facilitate an orderly exit, unsettled payments to or from a suspended participant would be removed from the RITS queue, and the input of any new payments involving the suspended participant would be prevented (see Principle 13).

19. Tiered participation arrangements

A payment system should identify, monitor and manage the material risks to the payment system arising from tiered participation arrangements.

Rating: Observed

The Bank's ESA policy limits the scope for material risks to arise from tiered participation arrangements. Under the policy, ADIs that settle over 0.25 per cent of the total value of RTGS transactions and systemically important CCPs are required to settle their Australian dollar obligations in RITS using their own ESAs. ESA holders with a share of transactions of less than 0.25 per cent of the total value of RTGS transactions are permitted to use an agent to settle their transactions. The Bank monitors ESA holders' compliance with this policy on an ongoing basis.

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 19 during the 2014 Assessment period. Tiered participation arrangements in RITS are described in further detail under the following Key Considerations.

19.1 A payment system should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the payment system arising from such tiered participation arrangements.

The Bank's ESA policy limits the scope for material risks to arise from tiered participation arrangements (see Principle 18). In particular, the Bank's ESA policy limits indirect participation by ADIs, which are the primary providers of payment services in Australia, to those with aggregate outgoing RTGS transactions of less than 0.25 per cent of the total value of RTGS transactions. Further, to reduce dependence on its agent, a bank that participates indirectly is required to maintain an ESA for contingency purposes.

To ensure RITS has sufficient information about indirect participation, ESA holders that participate indirectly are required to report the value and volume of their outgoing RTGS payments to the Bank on a quarterly basis, and also notify the Bank if they change the agent bank through which they settle. These reporting requirements are set out in the Supplementary Membership Agreement that such ESA holders sign with the Bank. This information is used to monitor compliance with the 0.25 per cent threshold. If the value of an ESA holder's outgoing payments consistently exceeded the 0.25 per cent threshold, the Bank would consider revoking approval for the agency arrangement. If revoked, the ESA holder would be required to settle payments using its own ESA.

As noted under Principle 18, the ESA Policy also minimises the scope for risks arising from indirect participation by CCPs and SSFs:

- The Bank requires any Australian-licensed CCP that the Bank has determined to be systemically important in Australia to settle Australian dollar margin-related receipts or payments, and the CCP's Australian dollar securities- or derivatives-related obligations, across an ESA held in its own name, or that of a related body corporate acceptable to the Bank.
- Australian-licensed SSFs with payment arrangements that require Australian dollar settlement are eligible to hold ESAs. The Bank's SSF Standards also require that an SSF conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks. Together, these requirements mean that Australian-licensed SSFs with payment arrangements that require Australian dollar settlement settle such obligations as direct participants in RITS.

19.2 A payment system should identify material dependencies between direct and indirect participants that might affect the payment system.

Taken in combination, the requirements described in Key Consideration 19.1 mitigate the risk of material dependencies developing between direct and indirect participants. The Bank considers it unlikely that there are material dependencies between indirect participants that are not required to hold ESAs – that is, non-banks – and direct RITS participants that could affect RITS. For this reason it only collects information on indirect payment flows from ESA holders that use an agent.

19.3 A payment system should identify indirect participants responsible for a significant proportion of transactions processed by the payment system and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the payment system in order to manage the risks arising from these transactions.

Given that the value of an indirect participant's RTGS payments must be less than 0.25 per cent of total RTGS payments, it is unlikely that such a participant would be larger than the direct participant it uses as an agent. In addition, to evaluate the potential impact of an ADI's agency arrangement, APRA requires the arrangement to be compliant with the ADI Prudential Standard on Outsourcing (CPS 231). Under this standard, an ESA holder using an agent would have to describe to APRA the key risks involved in using the agent and the mitigation strategies used to address these risks. APRA also assesses whether the agency arrangement introduces unacceptable risks to the direct participant.

The design of RITS also encourages direct participation by reducing the liquidity required for direct participation through liquidity-saving features, which are described in Section A.3.

19.4 A payment system should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.

The Bank monitors compliance with its ESA policy, which mitigates the potential for risks to arise from tiered participation arrangements, on an ongoing basis. Notwithstanding this, the Bank also reviews the risks that arise from tiering in RITS on an *ad hoc* basis.

21. Efficiency and effectiveness

A payment system should be efficient and effective in meeting the requirements of its participants and the markets it serves.

Rating: Observed

The Bank ensures that RITS meets the needs of its participants by consulting with RITS participants on a regular basis. In addition to holding RITS User Group forums in Melbourne and Sydney every six months, the Bank liaises closely with industry through APCA and Australian Financial Markets Association (AFMA) and consults directly with RITS participants on proposed changes to RITS. Such consultation is key to setting and communicating RITS's business priorities. To ensure efficiency and effectiveness in RITS's operations, the Bank sets goals relating to minimum service levels and risk management, and monitors its performance against these goals (see Principle 17 for further details on minimum service levels).

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 21 during the 2014 Assessment period. The efficiency and effectiveness of RITS are described in further detail under the following Key Considerations.

21.1 A payment system should be designed to meet the needs of its participants and the markets it serves, in particular, with regard to choice of a clearing and settlement arrangement; operating structure; scope of products cleared, settled, or recorded; and use of technology and procedures.

To ensure that the needs of its participants and the markets its serves are met, the Bank consults widely on any proposed changes to RITS. The Bank also holds RITS User Group forums in Melbourne and Sydney every six months. These forums provide an opportunity both for participants to suggest improvements and for the Bank to consult on planned upgrades. The Bank also liaises closely with the industry through APCA and AFMA, and directly with RITS participants on proposed changes to RITS.

21.2 A payment system should have clearly defined goals and objectives that are measurable and achievable, such as in the areas of minimum service levels, risk-management expectations, and business priorities.

The Bank's objectives in developing and operating RITS are clearly defined (see Key Consideration 2.1). The Bank sets goals relating to minimum service levels and risk management (see Key Consideration 17.3). A key business priority for RITS is to meet the changing needs of participants in the payments system. RITS communicates its business priorities through public consultation, the RITS User Group forum, other direct consultations with RITS participants, and liaison with industry through APCA and AFMA.

21.3 A payment system should have established mechanisms for the regular review of its efficiency and effectiveness.

The Bank has processes in place to ensure that RITS is operated in an efficient manner. These include regular audits of the functional areas involved in the operation of RITS, which are presented to the Audit Committee, and performance evaluations of Payments Settlements Department management against their position descriptions. A key metric for the review of the effectiveness of Payments Settlements Department is its operational performance. This is reviewed on a quarterly basis. Feedback from periodic liaison with stakeholders at RITS User

Group forums and industry liaison through APCA and AFMA are also key inputs into reviews of the effectiveness of RITS.

22. Communication procedures and standards

A payment system should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.

Rating: Observed

RTGS payment instructions can be submitted to RITS via two linked external feeder systems – SWIFT PDS and Austraclear – or entered into RITS directly. Messages sent to RITS via the SWIFT PDS feeder system – which accounts for the majority of volumes and value settled in RITS – are sent using internationally accepted communication procedures and message standards set by SWIFT, and are transmitted over the SWIFT communications network. The procedures and standards for participants to send payments via the Austraclear feeder systems are determined by ASX, the owner of Austraclear. Some payments are manually entered directly into RITS using the RITS User Interface.

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 22 during the 2014 Assessment period. RITS's communication procedures and standards are described in further detail under the following Key Considerations.

22.1 A payment system should use, or at a minimum accommodate, internationally accepted communication procedures and standards.

Messages sent to RITS via the SWIFT PDS use communication procedures and message standards set by SWIFT and are sent over the SWIFT network, in accordance with APCA's *HVCS Regulations* and *Procedures*.[76] The majority of RTGS payments by value and volume submitted to RITS are entered via the SWIFT PDS feeder system. The Automated Information Facility, which participants can use to access information on their payments, receipts and liquidity in real time, and receive end-of-day ESA statements, also uses message standards set by SWIFT and is accessed via the SWIFT network.

The procedures and standards used to submit payments messages via the Austraclear feeder system are determined by ASX.[77] Notwithstanding this, participants can use the RITS User Interface or the Automated Information Facility to control the status of payments sent via the feeder systems.

Payments can be manually entered directly into RITS using the RITS User Interface. The RITS User Interface is a browser-based interface that can be accessed over the internet.

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[76] The *HVCS Regulations and Procedures* are available at <http://apca.com.au/payment-systems/high-value>.

[77] ASX also controls the procedures and standards for payment messages through a third RTGS feeder system, CHESS RTGS, which is currently not used.

23. Disclosure of rules, key procedures, and market data

A payment system should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the payment system. All relevant rules and key procedures should be publicly disclosed.

Rating: Observed

The RITS Regulations and associated contractual arrangements, which are available on the Bank's website, are supplemented by information papers and user guides that explain RITS requirements and functions. In addition, publication of this Assessment satisfies the requirement to provide information on operations in accordance with the Disclosure Framework developed by CPMI and IOSCO. The RITS fee schedule is also publicly available on the Bank's website. The Bank publishes on its website monthly data on the number and value of RITS payments, as well as a list of RITS participants. Finally, to further enhance participant understanding of RITS's operations, the Bank provides training to RITS participants, and also monitors participants' activity and operations to confirm that RITS rules, procedures and features are well understood and to identify any potential issues.

Based on this information, Payments Policy Department's assessment is that RITS has observed the requirements of Principle 23 during the 2014 Assessment period. The disclosure of rules, key procedures and market data relating to RITS is described in further detail under the following Key Considerations.

23.1 A payment system should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.

The RITS Regulations are comprehensive, and are available to the public on the Bank's website. As discussed under Key Consideration 1.2, the Bank continues to progress a comprehensive review of the RITS Regulations to identify areas in which the clarity of the RITS Regulations could usefully be improved. The RITS Regulations are supplemented by information papers and user guides that explain RITS requirements and functions.

23.2 A payment system should disclose clear descriptions of the system's design and operations, as well as the payment system's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the payment system.

The RITS Regulations are accompanied by an information paper that provides further information on participant's rights and obligations. This paper is available on the Bank's website. The Bank also provides participants with detailed descriptions of RITS's features and instruction manuals on how to use them, and information notes on material changes to RITS.

23.3 A payment system should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the payment system's rules and procedures and the risks they face from participating in the payment system.

The Bank provides participant training and monitors participants' operations to ensure RITS rules, procedures and features are well understood. Training is provided to all new participants, and is offered to all participants when new functionality is introduced. Refresher training is available upon request. Training consists of presentations by the Bank on the key features of RITS, as well as the opportunity to be guided through transaction input and management in a test environment. Participants also have access to a RITS test environment on an ongoing basis to help them gain familiarity with RITS. The Bank has established the RITS Help Desk to provide ongoing operational assistance to RITS participants. The Help Desk is open during RITS business hours.

23.4 A payment system should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The payment system should provide clear descriptions of priced services for comparability purposes.

The RITS fees schedule is publicly available on the Bank's website.[78] This schedule provides fees at the level of individual services and provides clear descriptions of priced services. There are no discounts on RITS fees. Under the RITS Regulations, all changes to fees must be announced to participants at least one month before they take effect.

23.5 A payment system should complete regularly and disclose publicly responses to the CPMI-IOSCO Disclosure framework for financial market infrastructures. A payment system also should, at a minimum, disclose basic data on transaction volumes and values.

The Assessment of RITS against the Principles is published on the Bank's website. This report addresses all of the matters identified in the Disclosure Framework. The Bank also publishes on its website monthly data the number and value of RITS payments, as well as a list of RITS participants. In addition, these data are made available in the *Statistics on Payment, Clearing and Settlement Systems in the CPMI Countries*.[79]

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78 For further details see 'Box C: RITS Pricing' in RBA (2013), *Self-assessment of the Reserve Bank Information and Transfer System*, p 23.

79 These data are available at < http://www.bis.org/cpmi/publ/d120.htm>.

Abbreviations

ADI	Authorised deposit-taking institution
AFMA	Australian Financial Markets Association
APCA	Australian Payments Clearing Association
APRA	Australian Prudential Regulation Authority
ASIC	Australian Securities and Investments Commission
CCP	Central counterparty
CHESS	Clearing House Electronic Sub-register System
CLS	CLS Bank International
CPMI	Committee on Payment and Market Infrastructures (formerly CPSS)
CPSS	Committee on Payment and Settlement Systems (now CPMI)
CS	Clearing and settlement
DE	Direct entry
ESA	Exchange Settlement Account
FMI	Financial market infrastructure
FSS	Fast Settlement Service
HVCS	High Value Clearing System
IOSCO	International Organization of Securities Commissions
ISMA	International Securities Market Association
LVSS	Low Value Settlement Service
MIRS	Market Infrastructure Resiliency Service
NPP	New Payments Platform
NSF	Non-similar facility
PDS	Payment Delivery System
PEXA	Property Exchange Australia Ltd
PFMIs	Principles for Financial Market Infrastructures
RITS	Reserve Bank Information and Transfer System
RTGS	Real-time gross settlement
SSF	Securities settlement facility
SWIFT	Society for Worldwide Interbank Financial Telecommunication
TBMA	The Bond Market Association