

# Core Principles for Systemically Important Payment Systems

# Self Assessment of the Reserve Bank Information and Transfer System

August 2005



#### **Preface**

This document was prepared as an input to the IMF Financial Sector Assessment Program (FSAP) assessment of Australia, conducted in 2005/06. As part of the FSAP, the IMF undertook an external assessment of the Reserve Bank Information and Transfer System against the *Core Principles for Systemically Important Payment Systems*. The Reserve Bank's self-assessment, along with extensive supporting material, was provided to the IMF in August 2005, in advance of the main FSAP mission visit in December 2005. Copies of the IMF's assessment can be found on the IMF website (www.imf.org).

The content of this document is unchanged from that provided to the IMF in August 2005. It is the Bank's intention to update the self-assessment periodically.



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#### Introduction

The Core Principles for Systemically Important Payment Systems<sup>1</sup> are designed to assess systems where, if the system were insufficiently protected against risk, disruption within it could trigger or transmit further disruptions amongst participants or systemic disruptions in the financial area more widely.<sup>2</sup> While the Core Principles are applicable to systems that transfer financial assets, such as securities, as well as funds transfers, other principles covering a fuller range of issues applying to securities settlement have subsequently been developed.<sup>3</sup>

There is one systemically important payment system in Australia, the Reserve Bank Information and Transfer System (RITS). RITS is owned and operated by the central bank, the Reserve Bank of Australia (Reserve Bank) — see also section 0.3. Austraclear, a systemically important securities clearing and settlement system, settles any interbank cash payments for debt securities transactions through payment instructions in RITS. Austraclear is subject to assessment against standards for clearing and settlement systems and is not assessed against the Core Principles for Systemically Important Payment Systems.

RITS also accepts payment instructions from other systems specifying real-time gross settlement (RTGS) and interbank payments for settlement of deferred net clearing arrangements. RITS settles a daily average of 23,000 RTGS transactions with a value of \$136 billion.

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<sup>1</sup> Committee on Payment and Settlement Systems, Bank for International Settlements, January 2001.

<sup>2 3.0.2</sup> of the Core Principles.

<sup>3 1.7</sup> of the Core Principles. *Recommendations for Securities Settlement Systems*, Committee on Payment and Settlement Systems, Bank for International Settlements, November 2001.

#### 0. General Background

#### 0.1. Overview

The vast majority (by number) of payments in Australia are for low-value transactions, however, these make up only a small percentage of the value of transactions. By value, around 90 per cent of interbank settlements are through RTGS. The remainder are through deferred net clearing arrangements. See table below.

Average Daily Payment Instructions Settled in RITS				
	Volume (Thousands)	Value (\$billions)		
RTGS⁴	23.1	135.8		
- RITS <sup>5</sup>	0.2	8.1		
- HVCS <sup>6</sup>	20.4	95.0		
- Austraclear <sup>7</sup>	2.5	32.7		
Deferred Net <sup>8</sup>				
9am Batch <sup>9</sup>				
- Paper	2,200	7.1		
- Direct Entry	4,700	24.2		
- ATM/EFTPOS	11,400	1.4		
CHESS <sup>10</sup>	89	3.4		

Interbank payment obligations are settled across Exchange Settlement Accounts (ESAs) at the Reserve Bank. Large-value electronic payments and payment obligations that arise from settlement of Commonwealth Government securities trades and other debt securities are settled on a RTGS basis. Most deferred net payments settle in a single batch at 9:00am each morning (the '9am batch'). However, equities settlements occur daily in a separate net batch.

#### 0.2. Legal and Regulatory Framework

#### 0.2.1. Legal framework

The Reserve Bank Act 1959 establishes the Payments System Board of the Reserve Bank. The Payments System Board is responsible for determining the Reserve Bank's payments system policy in a way that will best contribute to controlling risk in the financial system; promoting the efficiency of the payments system; and promoting competition in the market for payment services, consistent with overall stability of the financial system.

5 Cash transfers related to money market transactions.

<sup>4</sup> Source: Reserve Bank Bulletin Table C6.

The Australian Payments Clearing Association (APCA) High Value Clearing System. APCA is an industry body responsible for the development and maintenance of industry clearing and settlement procedures for the major payments clearing systems. Payments in the HVCS mainly relate to large-value customer payments, including the Australian dollar leg of foreign exchange trades.

<sup>7</sup> A securities clearing and settlement facility owned by Austraclear Limited, an entity owned by the SFE Corporation Limited.

<sup>8</sup> Value and volume refer to payment instructions. Net interbank settlement obligations are lower.

<sup>9</sup> Source: APCA

<sup>10</sup> The Australian Stock Exchange (ASX) Clearing House Electronic Sub-register System (CHESS). Settlement of all ASX equities trades is effected through CHESS. Source: ASX

The *Payment Systems (Regulation) Act 1998* gives the Reserve Bank powers to regulate the payments system. This Act allows the Reserve Bank to obtain information from payment system participants, to designate a payment system, and to set access regimes and determine risk control and efficiency standards for designated payment systems.

The *Payment Systems and Netting Act 1998* allows the Reserve Bank to provide legal certainty (in approved RTGS payment systems) for transactions carried out on the day of appointment of an external administrator. See 'zero-hour rule' in section 1.3.

The *Payment Systems and Netting Act* also gives legal certainty to multilateral netting arrangements which are approved by the Reserve Bank. Other provisions in this Act give certainty to netting in financial markets, such as that undertaken by the Australian Stock Exchange (ASX) and the Sydney Futures Exchange (SFE). They also provide the legal certainty required in multilateral netting schemes aimed at reducing foreign exchange settlement risk.

The *Cheques Act 1986* is the principal piece of legislation dealing with paper payment instruments in Australia. It establishes the framework under which cheques are drawn, accepted and paid. This Act was amended in 1998 to allow non-bank authorised deposit-taking institutions to issue cheques in their own right. This Act also allows for the turnback, or presumed dishonour, of cheques for which a failed drawee institution has not settled.

Provisions in the *Trade Practices Act* 1974 dealing with restrictive trade practices and consumer protection are relevant to the operation of the payments system. The Act prohibits conduct such as price agreements, boycotts and exclusive dealing with the purpose or effect of substantially lessening competition. The Australian Competition and Consumer Commission (ACCC) may, however, authorise such conduct if it judges it to be in the public interest. The regulations and procedures for the five clearing streams operated by the Australian Payments Clearing Association (APCA) have been authorised by the ACCC. There are also provisions in the *Trade Practices Act* giving the Australian Securities and Investments Commission (ASIC) consumer protection powers in relation to the finance sector.

#### 0.2.2. Regulatory Framework

There are four main regulatory bodies that have responsibilities for aspects of payment systems.

#### Reserve Bank of Australia

The Reserve Bank is Australia's central bank. The Reserve Bank is responsible for payments system oversight as well as fulfilling several other payments-related roles. The Reserve Bank operates under the *Reserve Bank Act 1959*, and most of its powers and functions in the payments system derive from that Act and the *Payment Systems (Regulation) Act*.

The power to determine and carry out the policy of the Reserve Bank (other than payments system policy) is vested in the Reserve Bank's Board, which comprises the Governor as chair, its Deputy Governor, the Secretary to the Department of the Treasury and up to six other members drawn from various sectors of the economy.

The power to determine the Reserve Bank's payments system policy resides with the Payments System Board. This includes the exercise of responsibilities under the *Payment Systems (Regulation) Act* and the *Payment Systems and Netting Act*. The Payments System

Board comprises the Governor as chair, one other Reserve Bank appointee, an appointee from the Australian Prudential Regulation Authority and up to five other members.

The Payments System Board's mandate is set out in the *Reserve Bank Act*. It is responsible for determining the Reserve Bank's payments system policy in a way that will best contribute to controlling risk in the financial system; promoting the efficiency of the payments system; and promoting competition in the market for payment services, consistent with overall stability of the financial system.

#### Australian Prudential Regulation Authority (APRA)

APRA is Australia's prudential regulator. It has responsibility for the supervision of banks, building societies, friendly societies, credit unions and specialist credit card institutions, which are participants in the payments system and offer payment services to users such as cardholders and firms.

#### Australian Competition and Consumer Commission (ACCC)

The ACCC is Australia's competition regulator. It is responsible for ensuring that payments system arrangements comply with the competition and access provisions of the *Trade Practices Act*. It may exempt the conduct of organisations and arrangements from the competition provisions if it judges it to be in the public interest. It may also accept undertakings in respect of third-party access to essential facilities.

The Reserve Bank also has responsibility for promoting competition in the market for payment services and, under the *Payment Systems* (*Regulation*) *Act*, may impose an access regime on participants and/or set standards for a system. The ACCC and the Reserve Bank have agreed a Memorandum of Understanding to ensure a coordinated policy approach. The intent is that the ACCC retains responsibility for competition and access in a payment system unless the Reserve Bank imposes an access regime or sets standards for that system.

#### Australian Securities and Investments Commission (ASIC)

ASIC has responsibility for market integrity and consumer protection across the financial system, including payment transactions. It administers the *Corporations Act* 2001 and regulates Australian corporations, financial markets, clearing and settlement facilities (in conjunction with the Reserve Bank) and financial service providers. The major functions of ASIC include the oversight of financial market and clearing and settlement facility licensees, licensing of financial service providers (includes securities dealers and advisers), registration of auditors and liquidators, and investigating and enforcing corporate and securities law.

The Reserve Bank also has specific responsibilities for establishing and monitoring compliance with financial stability standards, and for ensuring that clearing and settlement facilities do all things necessary to reduce systemic risk. Accordingly, ASIC and the Reserve Bank have agreed a Memorandum of Understanding in relation to clearing and settlement facilities that sets out a framework for cooperation between ASIC and the Reserve Bank that is intended to promote transparency, help prevent unnecessary duplication of effort and minimise the regulatory burden on facilities. It covers information sharing, notification and other arrangements intended to achieve these aims.

#### 0.3. Description of Australia's RTGS payment system

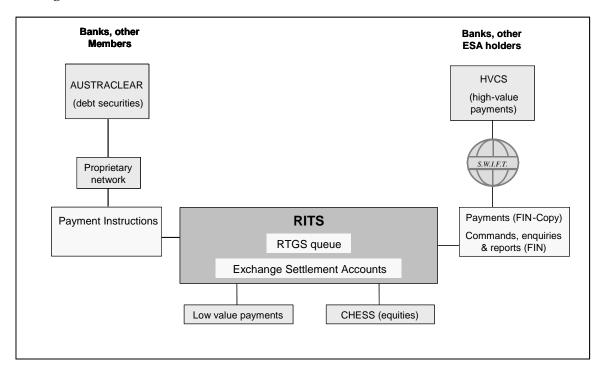
RITS is Australia's RTGS payment system. As well as RITS cash transfer transactions, RITS also settles obligations arising between financial institutions as a result of the exchange of

large-value payments in the High Value Clearing System (HVCS)<sup>11</sup>, and the settlement of debt securities trades in the Austraclear system.<sup>12</sup> RITS also provides for the net settlement of interbank obligations arising from low-value payments transactions (on a next-day basis) and those arising from equities settlement in the ASX's Clearing House Electronic Sub-register System (CHESS).

RTGS was introduced in Australia on 22 June 1998. In RTGS, processing and settlement of transactions takes place continuously and irrevocably in real time using credit funds in banks' ESAs. RTGS was instituted mainly to eliminate the settlement risk associated with domestic interbank high-value payments and to promote the overall efficiency of Australia's wholesale payment system.

Final settlement of payments system obligations occurs through ESAs at the Reserve Bank. These accounts must be maintained in credit at all times, and the Reserve Bank pays interest on overnight balances in these accounts. Banks and other ESA holders access ESAs through RITS.

The figure below illustrates the various functions of RITS.



<sup>11</sup> A SWIFT (Society for Worldwide Interbank Financial Telecommunications) closed user group conducted under rules of APCA. The HVCS rules specify settlement of obligations by RTGS in RITS.

<sup>12</sup> The Austraclear system's rules specify settlement of interbank obligations by RTGS.

### 1. Core Principle I: The system should have a well founded legal basis under all relevant jurisdictions.

#### 1.1. Assessment of Compliance

RITS complies with this principle. Australian legislation provides a comprehensive and well established framework for real-time gross settlement (RTGS) payments.

#### 1.2. Legal Basis

The RITS Regulations and Conditions of Operation (RITS Regulations) provide the legal structure for RITS. The RITS Regulations set out the rules for the operation of RITS and the rights and obligations of participants and the Reserve Bank. The legal basis of RITS is established by contract. Standard agreements are executed to bind each party to the RITS Regulations. The RITS Regulations explicitly submit each party to the non-exclusive jurisdiction of the courts of New South Wales and courts of appeal from them.

RITS accepts payment transfer instructions from approved feeder systems that specify RTGS. A new facility will also allow 'batch feeder' settlements submitted by an approved batch administrator. Admission as a feeder system is by specific reference in the RITS Regulations and contractual arrangement with the Reserve Bank.

Finality of payment in RITS is made legally certain by Reserve Bank approval of RITS under the *Payment Systems and Netting Act* (see below).

#### 1.3. Payment Systems and Netting Act approvals

RITS is an approved RTGS system in terms of Part 2, Section 9 of the *Payment Systems and Netting Act*. The Payment Systems and Netting Act provides for the Reserve Bank to approve a RTGS system so that transactions in that system are protected from the potential application of the zero-hour rule. Under this rule, a court-ordered liquidation is deemed to commence from the first moment of time on the day the court order was granted. The application of this rule could result in payments made by a failed institution between midnight and the time of the court order being declared invalid. This would undermine the irrevocable nature of RTGS payments and create severe liquidity, and potentially systemic, problems in the payments system.

Fallback arrangements, in the event that RTGS is unavailable and a decision has been made that it is unlikely to recover, provide for multilateral netting. The legal certainty of multilateral netting, and thereby irrevocability of finality of settlement, has been protected by an approval under Part 3, Section 12 of the *Payment Systems and Netting Act*.

## 2. Core Principle II: The system's rules and procedures should enable participants to have a clear understanding of the system's impact on each of the financial risks they incur through participation in it.

#### 2.1. Assessment of Compliance

RITS complies with this principle. As a RTGS system, RITS participants are not subject to credit risk as part of the settlement process. The documentation made available to members includes information that would enable them to have a good understanding of their liquidity risk and how to manage it.

#### 2.2. Rules and Procedures

The RITS Regulations identify the obligations and rights of the participants and the system operator and set out how the system operates (including arrangements for settlement) and its operating hours.

Where changes to the RITS Regulations occur, updated documents are circulated to all RITS members. Details of amendments are also generally notified electronically through email.

Training of an operational nature is provided to all new RITS members and is available to other members on request. Training takes the form of staff attending a presentation by the Reserve Bank on the key features of RITS (including management of payments) and performing transactions on a test environment. New members are given access to the test environment from their own offices prior to going live to enable them to perform more testing and familiarisation activities. A general round of refresher training is offered to all members periodically, to allow them to send new staff for training.

An interactive training CD covering all aspects of RITS has been provided to all members. User Guides issued to all members contain detailed information on the features of RITS and use of its functions.

#### 2.3. Financial Risks

RITS is a RTGS system; therefore credit risk arising from settlement does not accrue between participants. Transactions in RITS are irrevocable once settled. Insolvency of a participant would result in the ESA and RITS membership of that participant being suspended and transactions between that party and other participants would immediately cease to settle. Transactions previously settled are protected from application of the zero-hour rule by an approval under the *Payment Systems and Netting Act*.

Settlement funds used by RITS are funds held in ESAs at the Reserve Bank. ESAs cannot be overdrawn. Liquidity risk is mitigated by the design of the system queue, which uses a liquidity efficient algorithm, a bilateral offset mechanism and provision of intraday liquidity. Intraday liquidity (with no interest charge) is provided to ESA holders by the Reserve Bank through intraday repurchase agreements. A repurchase agreement is a purchase of cash (an ESA credit) and a sale of eligible securities<sup>13</sup> with an agreement to reverse the transaction at a future time.<sup>14</sup> There is no cap on the amount of intraday liquidity that an institution may

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<sup>13</sup> A haircut is taken on repurchase agreements (intraday and overnight or longer) to provide the Reserve Bank with cover against volatility in the price of the securities. See section 3.2.2.

<sup>14</sup> By the end of the RITS day for intraday repurchase agreements.

access, other than the value of eligible securities it holds or may obtain for repurchase agreements.

The Reserve Bank offers an Overnight Repurchase Agreement Facility to enable holders of ESAs to borrow overnight from the Reserve Bank if they are unable to source sufficient liquidity from the market to meet their settlement obligations. The facility is designed to avoid dislocations in the payments system that can arise from liquidity pressures emerging at the end of the day. Eligible securities/instruments for this facility are the same as those eligible to be used in the intraday repurchase agreement facility. The interest rate on overnight repurchase agreements is 25 basis points above the target cash rate. Intraday repurchase agreements can be converted to overnight repurchase agreements.

Any change to the Reserve Bank's policy on provision of liquidity or range of eligible securities is announced by media release and made available on its website (www.rba.gov.au).

3. Core Principle III: The system should have clearly defined procedures for the management of credit risks and liquidity risks, which specify the respective responsibilities of the system operator and the participants and which provide appropriate incentives to manage and contain those risks.

#### 3.1. Assessment of Compliance

RITS complies with this principle. RTGS does not give rise to credit risk that can occur in deferred net systems. RITS provides tools to permit participants to manage and conserve liquidity. The Reserve Bank provides liquidity by intraday repurchase agreements.

#### 3.2. Credit Risk

Credit risk in a payment system is defined as arising where participants accept that final settlement of a payment has occurred (such as a payment instruction to credit a customer account) before any associated interbank obligations have been settled. In RTGS systems there is no credit risk as interbank obligations are settled simultaneously with acceptance for settlement of the payment instruction.

#### 3.2.1. Credit Risk to Participants

RITS is a RTGS system. There is no credit risk to participants receiving payments. A funds transfer through RITS is settled by funds held in ESAs at the Reserve Bank with immediate finality.

#### 3.2.2. Credit Risk to the Central Bank

ESAs cannot be overdrawn. Liquidity is provided by intraday repurchase agreements. All securities taken under repurchase agreements are of a very high credit quality. Eligible securities include: debt securities and discount instruments issued by the Australian Government, the central borrowing authorities of the state and territory governments and select issues by supranational organisations, foreign governments and government agencies that have an explicit government guarantee; and select bank bills and certificates of deposit (issued by third parties). All issues must be denominated in Australian dollars. A full description of this facility and eligible securities is provided on the Reserve Bank's website.

The Reserve Bank takes a two per cent margin on all repurchase agreement trades. In the event of a very large price movement, the Reserve Bank requires additional securities to be provided as overcover.

#### 3.3. Liquidity Risk

Liquidity risk is mitigated by the design of the system queue (which uses a liquidity efficient 'next-down looping' algorithm that helps prevent gridlock and incorporates a bilateral offset mechanism) and by the ready provision of intraday liquidity by the Reserve Bank. <sup>15</sup>

The Reserve Bank provides an intraday liquidity facility limited only by the availability of eligible securities. Participants provide eligible securities for intraday repurchase agreements. <sup>16</sup>

In unusual circumstances where a participant is unable to reverse an intraday repurchase agreement with the Reserve Bank by the end of the day, the transaction can be converted to an overnight repurchase agreement by agreement with the Reserve Bank. <sup>17</sup>

#### 3.3.1. Management of Liquidity Risk

While the Reserve Bank ensures that system liquidity is adequate to ensure that the cash rate is at target, individual institutions are responsible for managing their own liquidity. The level of system liquidity (aggregate end-of-day ESA balances) is determined by the Reserve Bank's market operations. Holdings of securities eligible for repurchase agreement are a commercial decision by each participant. There is no limit on the amount of liquidity the Reserve Bank may supply by repurchase agreement, other than the value of eligible securities held by the private sector.

Liquidity is monitored both by the Domestic Markets Department of the Reserve Bank and in the RITS operational area of the Reserve Bank (Payments Settlements Department). These areas are in contact throughout the day.

In Domestic Markets Department, staff monitor the settlement of transactions initiated at the morning's open market operations and the level of total liquidity (including intraday repurchase agreements) throughout the day. Projected end-of-day liquidity is also monitored throughout the day.

Payments Settlements Department operations staff continuously monitor RITS in real time for any functional problems, including those that may impact on liquidity. Monitoring includes checks as to whether a participant's payments are consistent with previously observed patterns and viewing queued payments information to ensure bottlenecks are not occurring.

Some payment systems impose throughput guidelines and pricing policies designed to ensure that a backlog of payments on the system queue, or gridlock, does not occur. Gridlock has not been a problem for RITS; the operation of the system queue is aimed at gridlock prevention and participants are alert to the development of payment loops or

<sup>15</sup> Under next-down looping, the queue processor tests payments for settlement in order of receipt by the queue, settling or leaving each payment as it continues a traversal down to the end of the queue before looping back to the top. Payments are tested in order of receipt but may not settle in the same order.

<sup>16</sup> See section 3.2.2.

<sup>17</sup> The Bank offers an overnight repurchase agreement facility as a liquidity safety valve.

chains. By number, over half of each day's settlements occur before noon; as such, the Reserve Bank does not believe it is necessary to impose throughput guidelines. However, throughput is monitored continuously throughout the day and on occasion individual participants have been advised that the pattern of their payments behaviour may cause problems. At present it is felt that this informal approach is sufficient to ensure smooth operation of the system.

#### 3.3.2. Tools for Managing Liquidity

ESA holders have several tools available to them to manage their liquidity.

Participants can determine the way in which individual transactions draw upon liquidity by setting a status of 'deferred', 'active' or 'priority'. Queued payment instructions with a status active or priority are tested for settlement by the system queue. An active payment instruction will be processed unless it would cause the level of the paying institution's ESA balance to fall below an amount specified by each member (this 'sub-limit' is set within the system by the participant to reserve a tranche of liquidity for important payments and can be changed during the day). Priority payment instructions ignore any sub-limit and are tested against the full ESA balance. The use of sub-limits and the priority status provide a means by which funds can be reserved so that time critical or priority payments can be processed efficiently and when required.

The payment status and sub-limit functionality is available to all ESA holders via manual entries on their RITS terminals. This functionality is also available via SWIFT (Society for Worldwide Interbank Financial Telecommunications) messages, which allow participants to automate use of these functions in their own systems. This Automated Information Function (AIF) allows participants to submit commands (including a command to change a payment status or sub-limit), make enquiries and receive advice about payments (when specified types of payments arrive on the system queue and when payments settle) in SWIFT FIN messages. The AIF is also used for client credit management, and is mainly used by the banks whose clients undertake relatively large volumes of Austraclear settlements.

ESA holders can also use their payment management functions to create the conditions for the auto-offset feature to settle a particular payment. This is more frequently used for client credit reasons, but could also be used to assist in liquidity management.

## 4. Core Principle IV: The system should provide prompt final settlement on the day of value, preferably during the day and at a minimum at the end of the day.

#### 4.1. Assessment of Compliance

RITS complies with this principle. RITS is a RTGS system. Payments settle in real-time with immediate finality.

#### 4.2. Final and Irrevocable Payment

As discussed in section 1.3, an approval under Part 2, Section 9 of the *Payment Systems and Netting Act* provides legal certainty for settlement in RITS. Payment is final and irrevocable upon the simultaneous debit and credit of the paying and receiving participants' ESAs at the Reserve Bank.

#### 4.3. System Queue

Before a payment is accepted onto the system queue, it is validated to ensure the message/entry fields are valid and the payment is eligible for settlement. If the payment is valid and eligible for settlement, it is placed on the system queue for settlement testing. It is queued until the paying bank has sufficient funds in its ESA. Once a payment is settled, it is irrevocable. Until a payment has been settled, the sending bank may recall the transaction.

#### 4.4. Operating Hours and Unsettled Payments Instructions

The operating timetable is established by the RITS Conditions of Operation. RITS standard settlement hours are from 07:30 to 18:30 in Australian Eastern Standard Time (April to October) and from 07:30 to 20:30 in Australian Eastern Daylight Time (November to March). For a further 30 minutes after the close of settlement, members may download relevant reports for reconciliation. The Reserve Bank has the discretion to vary the operating hours.

Payments which are unsettled at the end of the day are automatically removed from the system queue, with an advice sent to the paying bank. To be settled, these payments must be resubmitted with a new value date. This can be at any time for SWIFT payments, which are 'warehoused' if RITS is not open. This is preferable to automatic resubmission of payments that do not settle on a day, because it enables the paying bank to decide on whether a payment should still be settled and to avoid reconciliation issues with its internal systems.

#### 4.5. Failure of a Participant

The RITS Regulations require each member to immediately advise the Reserve Bank if it were to become aware of an insolvency event in respect of itself. Should that occur, the affected participant's ESA and RITS membership would be suspended. Unsettled transactions would be removed from the system queue. Transactions that have previously settled are irrevocable and cannot be unwound. Protection from the zero-hour rule is provided by an approval under the *Payment Systems and Netting Act*.

The RITS Regulations also provide for the Reserve Bank to suspend a bank if that bank is unable to meet its net deferred batch obligations (the 9am batch), or if, in the opinion of the Reserve Bank, it is unable to meet its RTGS settlement obligations in RITS. If the Reserve Bank suspends a bank, it must inform that bank and give notice of the suspension to all members. If a bank is suspended due to failure to settle its 9am batch obligations, the batch amounts will be recast to exclude the bank that has failed to settle.

5. Core Principle V: A system in which multilateral netting takes place should, at a minimum, be capable of ensuring the timely completion of daily settlements in the event of an inability to settle by the participant with the largest single settlement obligation.

#### 5.1. Assessment of Compliance

Not applicable. RITS is a RTGS system.

## 6. Core Principle VI: Assets used for settlement should preferably be a claim on the central bank; where other assets are used, they should carry little or no credit risk and little or no liquidity risk.

#### 6.1. Assessment of Compliance

The system complies with this principle. RITS settles in central bank funds through ESAs at the Reserve Bank.

## 7. Core Principle VII: The system should have a high degree of security and operational reliability and should have contingency arrangements for timely completion of daily processing.

#### 7.1. Assessment of Compliance

While this principle requires considerable subjective assessment, the Reserve Bank's assessment is that RITS complies. Developments post release of the Core Principles have led to reassessment both domestically and internationally of the robustness of critical infrastructure. Emerging best practice for disaster recovery is to have an 'out of region' site to which staff can be relocated and operations resumed. Taking into account the location of financial system infrastructure and concentration of Reserve Bank operations, the Reserve Bank has decided to establish a backup site at the limits of the greater Sydney metropolitan region. RITS has full redundancy of components at the primary site and backup is currently provided at a backup site over 10 kilometres from the Sydney central business district (CBD), where there is also redundancy of components. Contingency arrangements are tested regularly.

#### 7.2. Security

RITS is monitored using a variety of automated tools, graphs and manual checks at least every 15 minutes. Security policies are regularly reviewed. The system currently provides a high level of integrity, authentication, non-repudiation, availability and auditability.

Internal audit reviews are conducted regularly. External security reviews of both internal systems and network occur annually. The Security Section within the Reserve Bank's information technology (IT) department regularly reviews security risks.

RITS members are responsible for the security of their own environment, including their users' access to RITS and any internal proprietary systems used to create and receive RITS transactions. Rather than apply prescriptive standards to RITS members, who in the main are major financial organisations, the Reserve Bank has to date relied on the internal standards applied by those financial institutions to be consistent with their corporate policy. However, as part of a project to update the RITS user interface<sup>18</sup>, the Reserve Bank is introducing digital certificates to strengthen authentication, integrity and protection from non-repudiation. The legal framework for this under the RITS Regulations will reference a RITS Security Policy to be complied with by members. The Reserve Bank also produces a daily Security Audit Report that records failed login attempts, security modifications and security audit administration.

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<sup>18</sup> This is due for completion in 2006.

A range of security measures are in place to limit operational risk. These include dual controls, authorisations, independent daily checking of audit trails, and separation of responsibilities and duties (between business, operations and settlements).

Currently traffic across the online network (Austraclear National Network Infrastructure)<sup>19</sup> is not encrypted. It should be noted this is a closed network with low visibility and a correspondingly lower threat. The project noted above, to update the RITS user interface, will provide 'end-to-end encryption' of online traffic using SSL<sup>20</sup>.

All SWIFT messages are secured using standard SWIFT security.

#### 7.3. Operational Reliability

The table below shows operational availability over the past three years. Availability is measured relative to total hours available when the system is open for settlement and reporting. The Reserve Bank's goal is 99.9 per cent availability. The table is split between components under the Reserve Bank's control (application software and hardware) and external network components (comprising the Austraclear and SWIFT networks) that are outside the Reserve Bank's control.

Year	RBA Controlled Components	External Networks
2002	99.978 per cent	99.765 per cent
2003	99.916 per cent	99.862 per cent
2004	99.937 per cent	99.876 per cent

The Reserve Bank conducts a full series of rigorous tests, including acceptance, compatibility, regression, contingency, capacity and performance testing prior to making any significant change (hardware, communication network or software) or software upgrade to the production system. A narrower scoped set of tests are conducted prior to other changes. Weekend implementation tests occur for the majority of changes. Capacity and performance tests ensure that the system can process a peak day's transactions in less than two hours.

The Reserve Bank operates the RITS Help Desk to assist participants with any issues concerning their use of RITS and connection to it. Participants are required to notify the Help Desk of any technical problem affecting their RITS transaction activity. The Help Desk also monitors system activity and performance and logs incidents as they occur. All incidents are advised to senior management of the department (Payments Settlements Department) that operates RITS. Following any serious event, incident reports are generated and distributed, including to the Audit Department, Risk Management Unit and the Assistant Governor, Business Services Group in addition to the senior management of Payments Settlements Department.

The RITS Help Desk monitors system and business activity and performance throughout the processing day with the aid of tabular data, graphical presentations and online enquiries. This provides both high-level and detailed individual member information which enables

<sup>19</sup> Infrastructure owned by Austraclear.

<sup>20</sup> Secure Sockets Layer (SSL) is a protocol developed by Netscape for transmitting private documents via the Internet. SSL works by using a public key to encrypt data that is transferred over the SSL connection. Both Netscape Navigator and Internet Explorer support SSL and many Web sites use the protocol to safely transmit confidential information, such as credit card numbers.

the RITS Help Desk to identify potential problems affecting a member or the system as they occur.

The IT department of the Reserve Bank has automated alarms in place to alert the computer operators in the event of a component or other technical failure. Alerts may be visual, audible, or sent by SMS and email. SMS and email alerts are also sent to other sections of the IT department as relevant. Email alerts are generally sent to internal group email addresses (by section) to allow for easy update when there are staff movements.

The RITS Help Desk also maintains information on the reliability of members' systems by recording incidents they become aware of in a System Incidents database. This information provides an input into a regular report distributed to Payments Settlements Department management.

Events impacting the ability of participants to provide uninterrupted transaction flows are recorded in the above database. Information recorded in the database includes source of problem, description of problem, solution to problem, downtime, impact on RITS sessions, and links to associated documents including, where appropriate, incident reports.

#### 7.4. Business Resumption

A high-level Business Continuity Plan focuses on situation management, communication and information dissemination. There are detailed Contingency Event Plans and comprehensive failover procedures. Business continuity tests are conducted at least four times each year using production systems on a weekend. Contingency drills exist whereby a contingency event is simulated at desk to test that all staff are aware of the communication arrangements and procedures. Contingency tests, which test systems rather than staff responses to a scenario, are conducted prior to any system upgrade. Regular visits to alternate sites are made by relevant staff.

There is no single point of failure within the primary site, with dual components in place for all key systems. In addition to this 'redundant' capability at the primary site, there is a geographically remote backup site with real-time disc mirroring of production data and the same processing capacity as the primary and redundant systems at the primary site. Only a very limited number of staff can be accommodated at the backup site. <sup>21</sup> It is extremely unlikely that a contingency event would render both the primary site and backup site inoperable. However, in that event, procedures provide initially for waiting until restoration. In extremis, and RTGS processing was abandoned for the day, participants may bilaterally agree to exchange payments using low-value clearing streams, or other exchange mechanism, and interbank settlement would take place on a deferred net basis the following business day. There is no central alternative payment system for customer payments.

In the event of a component failure at the primary site, recovery should be within 15 minutes. In the event of a failure at the primary site which cannot be recovered at that site, the benchmark time for full recovery at the backup site is within 40 minutes of the decision being taken to relocate processing (this does not include relocation of staff as the backup systems can be operated from the primary site). In an extreme circumstance where it is necessary to relocate staff to the backup site to operate the backup systems, full recovery should take no more than 60 minutes.

<sup>21</sup> The second site for RITS is located within the greater Sydney metropolitan region, but remote from the primary site and with different power, water and telecommunications sources.

The Reserve Bank's current business recovery site, providing alternative workplace accommodation for critical staff including those operating RITS (except for a very limited number who can be accommodated at the backup site), is located close to the Sydney CBD and provides robust protection against the unavailability of the Reserve Bank's head office building. As its separation from the CBD is no longer considered adequate, a project is underway to implement a combined technical (that is systems) and business backup site for the Reserve Bank (including RITS) at a single site remote from the Sydney CBD. This will provide the ability to have RITS staff (operations, business and technical) permanently located at a site remote from head office.

Detailed plans have been developed for the activation and operation of each site to support full recovery. All procedures are fully documented. Hard copies are kept at the backup site. They also reside in an Electronic Document Management System which is automatically replicated to the Reserve Bank's backup site. Key staff hold a copy of the relevant documentation in the form of a USB storage device.

The Reserve Bank expects members of RITS to have robust backup arrangements commensurate with their business operations and importance to the system as a whole. APCA rules impose failover requirements on members of the HVCS.

As part of its routine monitoring, the Reserve Bank contacts any member where a potential operational problem is identified. There is intensive follow-up where there is the potential for the efficient operations of the system to be compromised. Following major system upgrades, all members are required to prove access to systems at both sites.

### 8. Core Principle VIII: The system should provide a means of making payments which is practical for its users and efficient for the economy.

#### 8.1. Assessment of Compliance

While this principle requires considerable subjective assessment, the Reserve Bank's assessment is that RITS complies with this principle.

#### 8.2. Objectives

The primary objective in establishing RITS was to eliminate the accumulation of interbank obligations throughout the day under the previous net deferred arrangements. RTGS was chosen as it addresses this problem at source by preventing the build-up of unsettled obligations. It was also recognised that RTGS was best practice.

A further objective was to make payment transactions legally robust. Under previous arrangements there was considerable doubt over whether multilateral netting arrangements were legally certain.

#### 8.3. Liquidity Efficiency

RTGS systems, which settle payments on a gross basis, are intrinsically less liquidity efficient than systems that settle on a net basis. <sup>22</sup> The risk that RTGS might require greater liquidity

<sup>22</sup> However, incoming payments are a real-time source of liquidity unavailable in deferred net payment systems.

than previous arrangements was addressed through the design of the queuing mechanism and provision of an intraday repurchase facility.

Participants make extensive use of intraday liquidity. RTGS was introduced in Australia at around the same time that Australian prudential supervision arrangements were reformed, and also following a relatively sharp decline in holdings of liquidity by banks. While it is difficult to disentangle the effects of these factors, the Reserve Bank's assessment is that there is no evidence to suggest that participants have had to increase their holdings of assets eligible for repurchase agreements as a result of the introduction of RTGS.

#### 8.4. Needs of Participants

The Australian financial system is characterised by deep financial markets, a wide range of financial instruments and large values of foreign exchange transactions. Participants in these markets require a payments system providing prompt final settlement with minimum exposure to other participants.

Various options (including the introduction of Lamfalussy-compliant deferred net settlement arrangements) were explored prior to the Reserve Bank deciding to implement the RTGS system based upon its existing system (RITS<sup>23</sup>) that already provided access to members' ESAs.

Subsequent discussions involved senior bank officers from various institutions around Australia. Considerable liaison with participants was conducted in finalising the specifications for the RTGS system enhancements to RITS. A Cross-Project Steering Committee with representatives from the Reserve Bank, major banks, APCA and Austraclear Limited, and chaired by a Deputy Governor of the Reserve Bank, provided a forum for ongoing project discussions at a senior level.

Member banks, via the industry association APCA, were responsible for the decision to use SWIFT FIN-Copy (Y-mode) as the Payments Delivery System (PDS) for customer payments. This decision was supported by the Reserve Bank. Responsibility for the PDS is split between the Reserve Bank (the Central Institution) and APCA (the Closed User Group Administrator).

The Reserve Bank also involved the financial community more broadly at various conferences and meetings, including some organised by the Australian Society of Corporate Treasurers, the Securities Institute of Australia, the Custodial Services Group and the International Banks and Securities Association of Australia.

#### 8.5. Participation

When RTGS was introduced in 1998, the Reserve Bank, as a matter of policy, required all banks to settle their high-value payments using funds held in an ESA at the Reserve Bank. This is referred to as direct participation.

The Reserve Bank was aware that internationally some payment systems involved indirect participation. Indirect participation is where payments of indirect participants become settlement obligations of a direct participant that has agreed to act on behalf of the indirect participant. The effect is that indirect participants settle across the books of direct

<sup>23</sup> Which at that time was a securities settlement system.

participants, while direct participants settle their own and indirect participants' obligations. When a direct participant is responsible for the settlement obligations of a large number of indirect participants there is increased risk of systemic disruption arising from the failure of that direct participant.

The Reserve Bank was concerned that allowing indirect participation in RTGS might lead to a high degree of concentration of payments through a few direct participants. This was the case in several countries and was a matter of concern to their central banks. The Reserve Bank was also aware that indirect participants could be at a competitive disadvantage in offering payments services.

The Reserve Bank formed a view that broad participation in RTGS was preferable and as a matter of policy required all banks to make their own high-value payments in RTGS using their own ESA. The policy was relaxed in March 2003 to allow very small participants (accounting for less than 0.25 per cent of total payments, by value) to enter into agency relationships with other ESA holders for settlement of their RTGS transactions. To date, this has meant little change in participation arrangements. Currently only two (of 56) ESA holders have been approved to use an RTGS agent.

#### 8.6. Operational Performance

RITS has excellent operational reliability. See section 7.3.

#### 8.7. Costs

The Reserve Bank's objective is operational cost recovery. Currently, this is met by a flat transaction fee. ESA holders pay a fee for each RTGS debit and credit to their ESA, that is, each transaction incurs a fee of \$0.88 (plus a Goods and Services Tax of 10 per cent) levied on the payer and the receiver of each RTGS transaction.

Participants can select the most cost-effective means of linking their proprietary payment processing systems to SWIFT to send customer payments to the central RTGS system, RITS, and to manage credit allocation to customers operating in the Austraclear system.

#### 8.8. Capacity

A capacity plan setting out throughput performance requirements for the various elements of the system was devised during the development of RTGS. It is reviewed and updated periodically, and regular performance testing is carried out. System capacity requirements are set to accommodate projected volumes eighteen months in advance with 20 per cent headroom, and to allow a whole day's transactions to be processed in two hours. Based on recent throughput figures and expected growth, this equates to around 31,500 payments per day, or an hourly throughput requirement of 15,750 per hour. Recent testing results show that the actual throughput rate is over 20,000 per hour.

### 9. Core Principle IX: The system should have objective and publicly disclosed criteria for participation, which permit fair and open access.

#### 9.1. Assessment of Compliance

RITS complies with this principle. The RITS Regulations set out the broad process of applying for membership; the Reserve Bank's powers and responsibilities relating to membership applications; and conditions placed on existing members.

#### 9.2. Access Policy

Because RITS settles in central bank money, an ESA at the Reserve Bank is a prerequisite for settling in RITS.<sup>24</sup> RITS is the only means of access by ESA holders to these accounts. The Reserve Bank's policy relating to eligibility for ESAs (and therefore membership of RITS as an ESA holder) was announced by media release in 1999. Subsequent policy changes relating to the operation of ESAs are generally put on the Reserve Bank's website.

Eligibility for an ESA is based on criteria that are set by the Reserve Bank's Payments System Board. In summary, applicants for ESAs must be:

- an actual or prospective provider of third-party (customer) payment services with a need to settle clearing obligations with other providers; and
  - In general, applicants must be current or prospective members of a payments clearing arrangement or operate a clearing house which acts as a central counterparty. ESAs will be provided only for settlement of obligations from the clearing process.
- able to demonstrate that they have the liquidity to meet settlement obligations under routine conditions, during seasonal peaks and under periods of stress.

The conditions imposed on institutions which operate ESAs may vary depending on the type of institution. Institutions that are authorised and supervised by APRA are eligible for an ESA without special conditions, though they must still demonstrate that they have the necessary operational capacity and adequate liquidity to operate in RITS. The Reserve Bank may impose collateral requirements, for a transitional period, on institutions with limited payments experience that have obligations arising from participation in the net deferred clearing streams.

Organisations that operate in the RTGS system that are not authorised and supervised by APRA are required to demonstrate that they have the necessary operational capacity and adequate liquidity and may be subject to ongoing collateral requirements. These institutions have been granted an ESA for a particular purpose and conditions are generally imposed to restrict use of the ESA to that particular purpose.

All ESA holders are required to be a member of RITS and meet all of its operating conditions and charges.

<sup>24</sup> A separate class of member that does not undertake transactions within RITS does not require an ESA, and so is exempt from the ESA eligibility criteria.

#### 9.3. Termination

Rules relating to suspension, termination and resignation from RITS are set out in the RITS Regulations. A member may resign by giving the Reserve Bank one month's notice in writing or, if the Reserve Bank agrees, a shorter period of notice.

The Reserve Bank may at any time terminate or vary the terms of the membership of any member without providing any reasons for such termination or variation, or impose particular conditions on an institution's membership of RITS. In addition to these rights, the Reserve Bank may suspend, for such period it considers appropriate, any member who fails to comply with any provision of the RITS Regulations, who has become insolvent, or who is guilty of any conduct regarded by the Reserve Bank to be contrary to the interests of the members or the system.

### 10. Core Principle X: The system's governance arrangements should be effective, accountable and transparent.

#### 10.1. Assessment of Compliance

RITS complies with this principle.

RITS is owned by the Reserve Bank and operated as a functional area of the Reserve Bank — it is not a separate entity. The management and operation of RITS fall under the governance structure of the Reserve Bank, and are subject to its normal Reserve Bank Board oversight, decision making and audit processes.

#### 10.2. Governance of the Reserve Bank

The Governor and Deputy Governor of the Reserve Bank are appointed by the Australian Government in accordance with the *Reserve Bank Act*. The Governor is the chief executive of the Reserve Bank (as an independent statutory authority) and chairman of the Reserve Bank Board and Payments System Board. The Governor reports to these boards and is accountable for the policy decisions and performance of the Reserve Bank.

The Governor and other Reserve Bank executives appear biannually before a parliamentary committee (the House of Representatives Standing Committee on Economics, Finance and Public Administration). This Committee may ask the Governor and other Reserve Bank executives questions on aspects of the Reserve Bank's functions and responsibilities. The Committee is responsible for monitoring the Reserve Bank and ensuring its transparency and accountability to Parliament, the financial sector and the community as a whole. Reports of the Committee are tabled in the House of Representatives.

#### 10.3. Decision Making

RITS is owned and operated by the Reserve Bank. Decisions affecting the day-to-day operations, customer relations and enhancement of RITS are the responsibility of Payments Settlements Department.<sup>25</sup> Decisions concerning the operation of RITS and ESAs are consistent with the policy environment determined by Payments Policy Department (the

25 Clear procedures are in place to elevate day-to-day operational matters within Payments Settlements Department and other areas of the Reserve Bank, as appropriate.

functional area of the Reserve Bank responsible for payments system oversight) and the senior executive of the Reserve Bank (Executive Committee).

Payments Settlements Department is part of the Reserve Bank's Business Services Group, which is headed by an Assistant Governor and is subject to frequent operational audits conducted by the internal audit area of the Reserve Bank.

Major decisions that may require significant expenditure, or have policy implications, are considered by the Reserve Bank's Executive Committee.

#### 10.4. Consultation

Consultation with users and other parties is the responsibility of the Planning & Client Relations Group of Payments Settlements Department. This group liaises with system users and prospective change to the system is discussed through this forum.

For specific projects, operational or technical working groups are typically formed, incorporating both staff and user representatives, to facilitate the implementation of the change and gain feedback from users.

#### 10.5. Transparency

All decisions affecting the operation of RITS are advised to participants. Policy decisions that impact upon RITS are also advised by media release. Major decisions and the reasons for them, are explained in the Reserve Bank's annual report.

The Reserve Bank website provides a description of the payments system, the Reserve Bank's Payments Policy Department objectives and initiatives, and a detailed description of the Reserve Bank's operational role. This includes a description of ESAs and their eligibility requirements, details of securities that can be used in overnight and intraday repurchase agreements, and the mechanics of how these are used to generate liquidity.

The website also includes statistics on RTGS transactions and media releases and other publications relating to payments system matters.

#### 10.6. Oversight and Audit

The Payments System Board of the Reserve Bank is responsible for payments system oversight. While RITS is owned and operated by the Reserve Bank, it is, as are other payment systems, subject to the Payments System Board's oversight.

While, as set out in section 10.3, the day-to-day operation of RITS and enhancements to the system are operational matters for the Reserve Bank, the Payments System Board is periodically updated on developments. The areas responsible for oversight (Payments Policy Department) and operations (Payments Settlements Department) meet regularly to discuss policy issues and operational developments.

RITS is subject to the normal audit procedures applying to the Reserve Bank. The Reserve Bank Audit Committee, comprising the Deputy Governor of the Reserve Bank as Chairman, a non-executive member of the Reserve Bank Board, and an external appointed member, meets quarterly. Minutes of the Audit Committee are circulated to the Reserve Bank Board and discussed as appropriate.

#### Responsibilities of the Central Bank in Applying the Core Principles

## A. Responsibility A: The central bank should define clearly its payment system objectives and should disclose publicly its role and major policies with respect to systemically important payment systems.

#### A.1. Assessment of Compliance

Australia's central bank, the Reserve Bank, complies with this principle.

The power to determine the Reserve Bank's payments system policy resides with its Payments System Board. This includes the exercise of responsibilities under the *Payment Systems (Regulation) Act* and the *Payment Systems and Netting Act*. The Payments System Board comprises the Governor as chair, one other Reserve Bank appointee, an appointee from APRA and up to five other members.

The Payments System Board's mandate is set out in the amended *Reserve Bank Act*. It is responsible for determining the Reserve Bank's payments system policy in a way that will best contribute to controlling risk in the financial system; promoting the efficiency of the payments system; and promoting competition in the market for payment services, consistent with overall stability of the financial system.

Payments System Board policy decisions are communicated through media releases, which are published on the Reserve Bank website (www.rba.gov.au). Where a policy decision is of direct relevance to a payment system, or its participants, this is also communicated by letter. Approvals of payment systems by the Payments System Board, under powers granted to it by legislation, are published in the *Commonwealth of Australia Gazette* — from which time they take effect. The provisions of some Acts require tabling of approvals before Parliament. The Reserve Bank maintains on its website lists of approvals granted, and standards and access regimes imposed.

### B. Responsibility B: The central bank should ensure that the systems it operates comply with the Core Principles

#### B.1. Assessment of Compliance

The Reserve Bank complies with this principle.

The Reserve Bank owns and operates RITS. The Reserve Bank conducted a preliminary assessment of RITS in the Payments System Board's 2000 annual report. The Bank has conducted a more detailed assessment using the framework developed by the International Monetary Fund (IMF) as part of the preparatory work for the IMF's Financial Sector Assessment Program assessment of Australia in 2005. In the judgement of the Reserve Bank, RITS complies with the Core Principles for Systemically Important Payment Systems.

## C. Responsibility C: The central bank should oversee compliance with the Core Principles by systems it does not operate and it should have the ability to carry out this oversight.

#### C.1. Assessment of Compliance

The Reserve Bank complies with this principle.

The Payments System Board's mandate to oversee the payments system is set out in the amended *Reserve Bank Act*. The Reserve Bank has extensive regulatory powers under the *Payment Systems (Regulation) Act*. This Act allows the Reserve Bank to obtain information from payment system participants and to set access regimes and determine risk control and efficiency standards for designated payment systems.

RITS, which is owned and operated by the Reserve Bank, is currently the sole systemically important payment system. RITS is Australia's RTGS system and settles RITS payments instructions as well as payments instructions from feeder systems. The Reserve Bank oversees those feeder systems and ensures that their operation does not have implications for the compliance of RITS with the Core Principles.

## D. Responsibility D: The central bank, in promoting payment system safety and efficiency through the Core Principles, should cooperate with other central banks and with any other relevant domestic or foreign authorities.

#### D.1. Assessment of Compliance

The Reserve Bank complies with this principle.

The Reserve Bank maintains close relations with other central banks and participates in a number of international fora to promote the stability of financial markets and sound and legally robust payment systems. The Reserve Bank was a member of the Committee on Payment and Settlement Systems Task Force on Payment Systems Principles and Practices that drafted the Core Principles.

Domestically, the Reserve Bank cooperates with other regulators which have interests in various aspects of the payments system. The Reserve Bank has agreed a Memorandum of Understanding with the ACCC to ensure a coordinated policy approach to promoting competition in the market for payment services. A Memorandum of Understanding between the ASIC and the Reserve Bank sets out a framework for cooperation between ASIC and the Reserve Bank in respect of regulatory responsibilities for clearing and settlement facilities. The Reserve Bank is responsible for the financial stability aspects of these facilities (refer also to section 0.2.2).

The Reserve Bank also cooperates with Australia's prudential regulator, APRA. APRA is responsible for supervision of financial institutions and the Reserve Bank is responsible for regulation of the payments system in which they participate and systemic stability more generally; both institutions meet regularly to discuss issues that bear upon these responsibilities. APRA requires prospective authorised deposit-taking institutions to obtain an ESA at the Reserve Bank as a condition of authorisation under the *Banking Act 1959*.