

**Payment, clearing and
settlement systems in
Australia**

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List of abbreviations

ACCC	Australian Competition and Consumer Commission
ACDES	Australian Cash Distribution and Exchange System
ADI	authorised deposit-taking institution
AML/CTF Act	Anti-Money Laundering and Counter-Terrorism Financing Act
APCA	Australian Payments Clearing Association Limited
APCS	Australian Paper Clearing System
APRA	Australian Prudential Regulation Authority
ASIC	Australian Securities and Investments Commission
ASX	Australian Securities Exchange
ASXCC	ASX Clearing Corporation Limited
ATM	automated teller machine
AUSTRAC	Australian Transaction Reports and Analysis Centre
BECS	Bulk Electronic Clearing System
CCP	central counterparty
CECS	Consumer Electronic Clearing System
CGS	Commonwealth Government Securities
CHESS	Clearing House Electronic Subregister System
COIN	Community of Interest Network
CSD	central securities depository
DVP	delivery versus payment
EFTPOS	electronic funds transfer at the point of sale
EPAL	EFTPOS Payments Australia Limited
ES Account	Exchange Settlement Account
HVCS	High Value Clearing System
MICR	magnetic ink character recognition
PSB	Payments System Board
RBA	Reserve Bank of Australia
RITS	Reserve Bank Information and Transfer System
RTGS	real-time gross settlement
SFE	Sydney Futures Exchange Limited

Introduction

The Australian financial system comprises three broad groups of institutions. As of June 2010, banks authorised to operate in Australia account for around 58% of the assets of the financial system. Other financial intermediaries (including building societies, credit unions, money market corporations, finance companies and securitisers) hold about 9% of assets. Insurers and funds managers (such as life insurance offices, general insurers, superannuation funds and unit trusts) make up the remaining 33%.

Banks, building societies and credit unions are the principal providers of payment services in Australia. The Australian Payments Clearing Association (APCA), an industry body, has responsibility for the development and maintenance of industry rules and procedures for clearing and settlement in the major payments clearing systems. A new company, EFTPOS Payments Australia Limited (EPAL) has a central role in managing and promoting the domestic EFTPOS debit card system. Obligations arising between providers of non-cash payments services are settled through Exchange Settlement (ES) Accounts at the Reserve Bank of Australia (RBA).

In common with many countries around the world, the payments system in Australia has changed significantly in the past decade. In part, this has been a response to technological change and consumer behaviour, but it has also been the result of a comprehensive programme of reform.

Far-reaching changes to Australia's financial regulatory structure came into effect on 1 July 1998. These changes represented the Government's response to the recommendations of the Financial System Inquiry (the Wallis Committee), set up in 1996 to analyse the forces driving change in Australia's financial system and advise on ways to improve regulatory arrangements. Under the new structure, the RBA gained extensive regulatory powers to promote efficiency, competition and stability in the payments system under the *Payment Systems (Regulation) Act 1998*. The Government established a second board within the RBA – the Payments System Board (PSB) – to determine the Bank's payments system policy. Its responsibilities are set out in the amended *Reserve Bank Act 1959*.

The key risk reduction initiative in Australia was the introduction of a real-time gross settlement (RTGS) system in 1998. The reform eliminated the build-up of settlement exposures between financial institutions as a result of the exchange of high-value payments and transactions in debt securities. Instead, individual transactions involving different banks are settled in real time across accounts at the RBA. In 2002, Continuous Linked Settlement (CLS) Bank joined Australia's RTGS system, allowing foreign exchange transactions involving the Australian dollar to be settled through CLS.

The RBA has taken a number of steps to improve the competitiveness and efficiency of debit and credit card systems in Australia. In 2001, the RBA designated the Bankcard, MasterCard and Visa credit card systems under the *Payment Systems (Regulation) Act 1998*. After extensive consultation the RBA determined standards which lowered interchange fees and removed restrictions on merchants charging customers for use of credit cards, and imposed an access regime that facilitates entry by new players to the credit card market.

The interchange fee Standard requires the fees paid by transaction acquiring institutions to credit card issuing institutions to be no higher, on a weighted average basis, than a cost-based benchmark. Initially separate benchmarks were calculated for each scheme but, in 2006, the Standard was amended to provide for the calculation of a common benchmark to cover both the MasterCard and Visa schemes. The amended Standard does not apply to the Australian Bankcard scheme, which was closed at the beginning of 2007.

In 2004, the RBA designated the debit card system operated in Australia by Visa International and the EFTPOS debit card payment system in Australia as payment systems

under the *Payment Systems (Regulation) Act 1998*. After extensive consultation, the RBA determined Standards for the setting of interchange fees for both systems, and the removal of the “honour all cards” rule in the Visa system.¹ It also determined Access Regimes for the EFTPOS and Visa Debit systems.

The interchange Standards have led to lower interchange fees. In the case of the EFTPOS system, the Standard involves the adoption of a cap and floor on interchange fees. For Visa Debit, there is a cap on the weighted average interchange fee in that system.

During the development of these reforms, a MasterCard-branded debit card was released in Australia. The RBA indicated that this new “scheme debit” system would be subject to the same requirements as the Visa Debit system.² Both schemes were given the opportunity to voluntarily comply with the reforms. MasterCard provided an undertaking to this effect, but Visa did not. The interchange Standard and the Standard preventing “honour all cards” rules were therefore imposed formally on the Visa Debit system.

Over a two-year period, concluding in September 2008, the RBA conducted a wide-ranging review of its payment card systems reforms. The review concluded that the regulations relating to transparency, access and the removal of restrictions on merchants that had been introduced in the reform process should be retained. With regard to interchange fees, however, the RBA expressed a view that the enhanced competitive environment provided an opportunity to step back from formal regulation. It said that if the industry could provide it with comfort that interchange fees would not rise if regulation was lifted, it would be able to withdraw from interchange regulation. In the absence of such comfort, the Bank foreshadowed regulatory intervention to further lower interchange fees. The RBA indicated that it would assess progress in meeting its requirements in August 2009.

At that time, the Bank assessed that progress was not sufficient to warrant the lifting of regulation but was sufficient to delay, for the moment, a move to further lower interchange fees. The matter remains under review, with the Bank prepared to reopen consideration of the regulations in the light of industry developments. In the meantime, the Bank released for discussion a proposal to revise the EFTPOS interchange fee Standard to more closely align the regulatory treatment of international scheme and domestic (EFTPOS) debit cards.

Following consultation on this proposal, the EFTPOS interchange fee Standard was amended (effective 1 January 2010), capping the weighted average of any multilateral interchange fees in the EFTPOS system at the same level as for scheme debit. The amended Standard for the EFTPOS system left regulation of bilateral interchange fees unchanged, with fees paid from issuers to acquirers constrained to between 4 and 5 cents.

In 2008, the RBA designated the ATM system as a payment system under the *Payment Systems (Regulation) Act 1998*. After extensive consultation, the Bank determined an Access Regime for the ATM system. The Access Regime sets a cap on the connection cost that can be charged to new entrants to the ATM system and prohibits the charging of interchange fees except in specific circumstances. It also prohibits the charging of fees for establishing direct clearing/settlement arrangements and allows the Bank to exempt certain arrangements from compliance with aspects of the Regime where this is assessed to be in the public interest.

¹ This Standard allows merchants to make a separate decision on whether to accept Visa Debit cards rather than being required to accept these cards as a consequence of accepting Visa credit cards.

² The Visa International Debit card and MasterCard Debit card are referred to as “scheme debit”. In Australia the scheme debit cards operate through the separate four-party framework of the schemes whereas the PLUS and Maestro brands provide functionality overseas for the proprietary debit cards.

The Access Regime and complementary industry-based reforms were designed to: make the cost of cash withdrawals more transparent to cardholders and place downward pressure on the cost of ATM withdrawals; help ensure continued widespread availability of ATMs by creating incentives to deploy them in a wide variety of locations, providing consumers with choice and convenience; promote competition between financial institutions; and make access less complicated for new entrants, and therefore strengthen competition.

The reforms have resulted in significant changes to the way ATM transactions are charged, with customers being charged directly for withdrawals by the ATM owner while “foreign” fees have been eliminated.

The RBA also has responsibility under the *Corporations Act 2001* for setting *Financial Stability Standards* for Australian licensed clearing and settlement facilities. The RBA set two Standards in May 2003: one applying to central counterparties (CCPs) and one for securities settlement systems. Each Standard contains a number of measures and guidelines which set out matters that the RBA will assess in determining compliance with the relevant Standard. These measures and guidelines are similar to CPSS-IOSCO Recommendations.

The RBA has the power to vary or revoke existing Standards. In June 2005, the Standard for securities settlement systems was varied to exclude from its coverage those systems where the value of financial obligations settled in a financial year does not exceed Australian Dollar (AUD) 100 million.³ This was to avoid capturing small systems that did not pose systemic concerns. In February 2009, one of the measures (Understanding risks) associated with the Standard was revised to give effect to disclosure of equities securities lending. At the same time, the Standard for CCPs was varied so that overseas-located CCPs providing services to Australian markets (and requiring an Australian licence) would be exempt from assessment against the Standard, provided they are subject to sufficiently equivalent regulation overseas.

1. Institutional aspects

1.1 The general institutional framework

Australia is a federation and both Federal (Commonwealth) and State legislation bear on aspects of the payments system and securities clearing and settlement systems.

1.1.1 Institutions

In June 1998, the Commonwealth Parliament passed legislation that gave the **Reserve Bank of Australia (RBA)** explicit responsibility for regulating payment systems in Australia. Separate legislation, giving the RBA an explicit role in the regulation of securities clearing and settlement systems, was enacted in September 2001.

The **Australian Competition and Consumer Commission (ACCC)** is Australia’s competition regulator. The ACCC and the RBA both have responsibilities for promoting competition in the payments system and have agreed a Memorandum of Understanding to ensure a coordinated approach.

The **Australian Securities and Investments Commission (ASIC)** has responsibility for market integrity and consumer protection across the financial system, including payment transactions. ASIC and the RBA both have responsibilities in relation to clearing and

³ At end-June 2010, 1 Australian Dollar bought 0.8523 US cents.

settlement facilities. A Memorandum of Understanding sets out a framework for cooperation between the two regulators in this area.

The **Australian Payments Clearing Association (APCA)** is a limited liability company which administers five clearing streams, covering: cheques; bulk electronic debit and credit payments; ATM and EFTPOS transactions; high value electronic payment instructions; and the exchange of cash between institutions. APCA also manages rules associated with an electronic network used to clear retail payments.

1.1.2 Legislation

The **Payment Systems (Regulation) Act 1998** gives the RBA powers to regulate payment systems and purchased payment facilities (such as stored value cards).

The RBA's policies under that Act are determined by its Payments System Board (PSB), which (under the **Reserve Bank Act 1959**) determines payments system policy.

The **Payment Systems and Netting Act 1998** allows the RBA to protect transactions in systems which settle on an RTGS basis from the potential application of the "zero hour rule". The Act also gives legal certainty to multilateral netting arrangements in the payments systems that are approved by the RBA. The effect of those protections is to ensure that authorised payment system rules operate according to their terms, ie payments are final and irrevocable. A system does not have to settle in central bank money to be an RTGS system for purposes of this legislation.

The **Corporations Act 2001** provides for a single licensing regime for "clearing and settlement facilities". Under the Act, the RBA is empowered to set financial stability standards for licensed clearing and settlement facilities and is required to monitor facilities' compliance with these standards and with their legislative obligation to reduce systemic risk. ASIC is responsible for all other legislative obligations imposed on clearing and settlement facilities.

The **Cheques Act 1986** establishes the framework under which cheques are drawn, accepted and paid.

The **Anti-Money Laundering and Counter-Terrorism Financing Act 2006** (the AML/CTF Act), which has substantially replaced the **Financial Transactions Reports Act 1988**, significantly enhanced Australia's regulatory scheme to detect and deter money laundering and terrorism financing. The AML/CTF Act sets out a principles-based framework, with higher-level obligations that encourage a risk-based approach to AML/CTF compliance. The **Proceeds of Crime Act 1987** makes money laundering an offence, and several supporting pieces of legislation provide for the confiscation of the proceeds of crime.

Provisions in the **Competition and Consumer Act 2010** dealing with restrictive trade practices and consumer protection are relevant to the operation of the payments system.⁴ The Act prohibits conduct such as price agreements, boycotts and exclusive dealing with the purpose or effect of substantially lessening competition. However, the ACCC may authorise such conduct if it judges that it will result in a net public benefit.

1.1.3 Other regulation

The RBA has used its powers under the *Payment Systems (Regulation) Act 1998* to regulate payment systems by imposing Standards and Access Regimes upon them.

⁴ The *Competition and Consumer Act 2010* was formerly known as the *Trade Practices Act 1974*.

Responsibility for the development and maintenance of industry rules and procedures for clearing and settlement in a number of major payments clearing systems rests with APCA, an industry body. These rules and procedures have been authorised by the ACCC.

1.2 The role of the central bank

As well as its responsibilities for monetary policy, financial stability and issuing Australia's currency notes, the RBA is responsible for the oversight and regulation of the payments system (see Section 1.2.1) and is empowered to set Financial Stability Standards for clearing and settlement facilities (see Section 1.2.2). The RBA also has an operational role in the payments system, including owning and operating Australia's RTGS system, RITS (see Section 3.2.1). It provides facilities for the final settlement of payments between financial institutions, serves as banker to the Australian Government and manages Australia's foreign exchange reserves (see Section 1.2.3).

1.2.1 Payments system oversight

The RBA is responsible for payments system oversight. An explicit mandate for payments system matters was provided through an amendment to the *Reserve Bank Act 1959* in 1998. Most of the RBA's powers and functions in the payments system derive from that amendment and the *Payment Systems (Regulation) Act 1998*.

The power to determine and carry out the policy of the RBA (other than payments system policy) is vested in the RBA's Board, which comprises the Governor as chair, its Deputy Governor, the Secretary to the Department of the Treasury and up to six other external members.⁵

The RBA's payments system policy is determined by its Payments System Board (PSB). This includes the exercise of responsibilities under the *Payment Systems (Regulation) Act 1998* and the *Payment Systems and Netting Act 1998*. The PSB comprises the Governor as chair, one other RBA appointee (appointed by the chair), an appointee from the Australian Prudential Regulation Authority (APRA) (appointed by APRA) and up to five other external members (appointed by the Treasurer). All members of the Board have equal voting rights.

The PSB's mandate is set out in the *Reserve Bank Act 1959*. The PSB is responsible for determining the RBA'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 the overall stability of the financial system.

While the PSB determines the RBA's payments system policy, the powers to carry out those policies are vested in the RBA. These powers are set out in three separate Acts,⁶ of which the centrepiece is the *Payment Systems (Regulation) Act 1998*, under which the Bank may:

- “designate” a particular payment system as being subject to RBA regulation. Designation is simply the first of a number of steps the Bank must take to exercise its powers;

⁵ The Secretary to the Treasury is the most senior public servant in the Department of the Treasury, which is the Australian Government Department that reports to Australia's Treasurer. The Treasurer's responsibilities within government include matters relating to the RBA. The external members of the Board are appointed by the Treasurer from the community but, to avoid conflicts of interest, can have no affiliation with authorised deposit-taking institutions. Members of the Board all have equal voting rights.

⁶ The *Reserve Bank Act*, the *Payment Systems (Regulation) Act*, and the *Payment Systems and Netting Act*.

- determine rules for participation in a payment system, including rules on access for new participants;
- set Standards for safety and efficiency for any payment system. These may deal with issues such as technical requirements, procedures and performance benchmarks; and
- arbitrate on disputes in that system over matters relating to access, financial safety, competitiveness and systemic risk, if the parties concerned so wish.

The *Payment Systems (Regulation) Act 1998* also gives the RBA extensive powers to gather information from payment system participants and operators.

The Government's intent was that the Bank would treat these powers as "reserve powers", to be exercised if other means of promoting efficiency, competition and stability proved ineffective. Accordingly, the Government built considerable flexibility into the new regulatory regime. Under this co-regulatory approach, the private sector continues to operate its payment systems and may enter into cooperative arrangements, which may be authorised by the ACCC under the *Competition and Consumer Act 2010*. However, if the Bank believes that there may be benefits in exercising its formal powers in a system that it oversees to improve access, efficiency or safety, it may, as a first step, invoke its powers to designate that system. It may then decide, in the public interest, to set an Access Regime or impose Standards for that system. In doing so, the Bank is required to take into account the interests of all those potentially affected, including existing operators and participants. Full public consultation is required and the Bank's decision-making processes are subject to judicial review.⁷

The RBA also regulates holders of the stored value behind purchased payment facilities under a common regime with APRA.

APRA supervises stored value holders if they are authorised deposit-taking institutions or institutions that are deemed to be carrying on banking business because they offer a widely used purchased payment facility that is redeemable in whole or in part in Australian currency.

Other stored value holders may have an exemption issued by the RBA or they may offer a purchased payment facility, or a type of facility, to which the RBA has declared that the *Payments Systems (Regulation) Act 1998* does not apply.⁸

The RBA also oversees RITS. This is performed through ongoing monitoring, including of: associated risks, market behaviour, costs, and rules and regulations. RITS is also periodically assessed against the CPSS *Core Principles for Systemically Important Payment Systems*.

1.2.2 Securities clearing and settlement oversight

The RBA is responsible for oversight of the stability of licensed clearing and settlement facilities.⁹ Its powers in this area derive from the *Corporations Act 2001*. The RBA can set

⁷ This designation process differs from regimes in other countries where payment systems are designated at inception as a means of imposing a regulatory regime and standards. The Australian approach is designed to allow market forces to determine payments arrangements with standards only imposed where there is a clear demonstration of market failure.

⁸ Classes of facilities that have been declared not to be subject to the Act include gift cards, electronic toll devices and prepaid mobile phone accounts. Also, limited value schemes (liabilities less than AUD 10 million) and limited participant schemes (less than 50 persons are users) are exempt.

⁹ Licences are granted by the Australian Government Minister responsible for the *Corporations Act 2001* on advice from ASIC.

Financial Stability Standards for clearing and settlement facilities. Under the regulatory framework, licensed facilities are required to comply with these Standards. Before determining the Standards, the RBA is required to consult with ASIC and with the clearing and settlement facilities that will be required to comply with the Standard.

1.2.3 CLS Oversight Committee

The CLS Oversight Committee is a forum for central banks whose currencies are settled in CLS Bank¹⁰ to coordinate and provide mutual assistance in oversight. The committee is organised and administered by the Federal Reserve System, which has regulatory and supervisory responsibility for CLS Bank. As CLS Bank settles transactions involving the Australian dollar, the Reserve Bank is represented on the Committee.

1.2.4 Operational role

There are a number of aspects to the RBA's operational role in the payments system.

The final settlement of payments between financial institutions occurs across ES Accounts held at the RBA.¹¹

Entities that provide third-party (ie customer) payment services or act as a CCP are eligible for ES Accounts. Institutions supervised by APRA, and which satisfy the RBA that they can manage their liquidity to meet their settlement obligations, are eligible for ES Accounts without special conditions. However, the RBA may impose collateral requirements on a transitional basis for institutions with only limited payments experience. Entities not supervised by APRA must satisfy the RBA of their capacity to meet settlement obligations and may be subject to special conditions.

Institutions currently holding ES Accounts are banks, special service providers for the credit union and building society industries, CCPs and some institutions that provide payment services to third parties but are not traditional financial institutions. Settlement of obligations between direct participants in payments arrangements occurs through these accounts.

The RBA owns and operates Australia's real-time gross settlement (RTGS) system, known as the Reserve Bank Information and Transfer System (RITS).¹² Access to ES Accounts is governed by RITS contractual arrangements. RITS also provides settlement functionality for batch settlement (ie net positions calculated by a Batch administrator) (see Section 3.2.1).

The RBA is responsible for the production and issue, reissue and cancellation of Australia's currency notes. However, it now plays a smaller role than formerly in the distribution arrangements for notes and coin. Commercial banks have an increased role in note distribution and inventory management. They own the working stocks of notes and coin and deal directly with each other to satisfy their demands and reduce their surpluses. These arrangements provide an incentive for more efficient recirculation of currency.

¹⁰ For details on CLS (Continuous Linked Settlement) please refer to the corresponding section in the forthcoming second volume of this publication.

¹¹ This refers to the point at which obligations between direct participants in payment arrangements are extinguished. Provisions in the *Payment Systems and Netting Act* prevent transactions settled in an RTGS system, approved under that Act, from being unwound. This protection applies to any transaction settled on the day that a participant may fall under external administration regardless of the point of time that external administration commences. Similar provisions under this legislation prevent net obligations (even where settlement is yet to occur) from being unwound.

¹² RITS is an RTGS system providing settlement in central bank money. Conceptually other systems may operate on an RTGS basis through creation of interbank obligations, for example Austraclear (see Section 4.4.2).

The RBA also participates in the payments system as banker to a limited range of customers. It provides specialised banking services to the Australian Government, a range of government instrumentalities and a number of official international financial institutions and central banks.

1.3 The role of other private and public sector bodies

1.3.1 Australian Competition and Consumer Commission (ACCC)

The ACCC is Australia's competition regulator. It is responsible for ensuring that private sector arrangements comply with the competition and access provisions of the *Competition and Consumer Act 2010*. It may exempt the conduct of organisations and arrangements from the competition provisions if it judges that there is a net public benefit in that conduct. It may also accept undertakings in respect of third-party access to essential facilities and arbitrate in negotiations over access in facilities that are declared services in terms of the *Competition and Consumer Act*. Private sector arrangements in the payments system, such as APCA, are subject to the *Competition and Consumer Act*.

The ACCC and the RBA both have responsibilities for promoting competition in the payments system and have agreed a Memorandum of Understanding to ensure a coordinated policy approach.

1.3.2 Australian Securities and Investments Commission (ASIC)

ASIC was established on 1 July 1998. It 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 RBA – see Section 1.2.2) and financial service providers. The functions of ASIC include the oversight of financial market and clearing and settlement facility licensees, licensing of financial service providers (securities dealers and advisers), registration of auditors and liquidators, and investigating and enforcing corporate and securities law. A Memorandum of Understanding sets out a framework for cooperation between ASIC and the RBA.

1.3.3 Australian Prudential Regulation Authority (APRA)

APRA was established on 1 July 1998. It is the prudential regulator of the Australian financial services industry. It oversees banks, credit unions, building societies, general insurance and reinsurance companies, life insurance, friendly societies and most members of the superannuation industry.

APRA operates under the *Australian Prudential Regulation Authority Act 1998* and its powers derive from the *Banking Act 1959*, the *Insurance Act 1973*, the *Life Insurance Act 1995* and the *Superannuation Industry (Supervision) Act 1993*. The power to determine and carry out the policy of APRA is vested in its senior management (known as Members), who are appointed by the Government.

All authorised deposit-taking institutions (ADIs) (which include banks, building societies and credit unions) are supervised by APRA under one licensing regime and are covered by the same depositor protection provisions. If an ADI is, or is likely to be, unable to meet its obligations, APRA may assume control and carry on its business, or appoint an administrator, until its deposits are repaid or APRA is satisfied that suitable provision has been made for their repayment. If APRA believes that the institution will be unable to meet its obligations within a reasonable time period, it has the power to wind it up and distribute its assets, with depositors having first claim. The *Banking Act 1959* provides that the Australian

assets of an ADI shall be available to meet deposit liabilities in Australia in priority to all other claims, conferring a depositor repayment preference in the event of liquidation.¹³

APRA and the RBA have agreed a Memorandum of Understanding. APRA has a representative on the Payments System Board.

1.3.4 Australian Transaction Reports and Analysis Centre (AUSTRAC)

AUSTRAC is Australia's anti-money laundering and counter-terrorism financing (AML/CTF) regulator and specialist financial intelligence unit (FIU). In its regulatory role, AUSTRAC oversees compliance with the reporting requirements of the *Anti-Money Laundering and Counter-Terrorism Financing Act 2006* by a wide range of financial services providers, the gambling industry and other specified reporting entities and "cash dealers".¹⁴ In its intelligence role, AUSTRAC provides financial transaction reports to Commonwealth, State and Territory law enforcement, security, social justice and revenue agencies, as well as certain international counterparts. AUSTRAC assists its partner agencies in the investigation and prosecution of criminal and terrorist enterprises in Australia and overseas.

1.3.5 Council of Financial Regulators

The Council of Financial Regulators is a non-statutory body chaired by the RBA and comprising the head and one other representative of the RBA, APRA, ASIC and the Commonwealth Treasury. Its role is to contribute to the efficiency and effectiveness of regulation by providing a high-level forum for cooperation and collaboration among its members. The Council is not a regulator in its own right.

1.3.6 Australian Payments Clearing Association (APCA)

APCA was established in 1992 to coordinate and manage development of industry policies and rules for a number of payments clearing arrangements.¹⁵ APCA is a limited liability company, with a board of directors drawn from its shareholders, who are participants in its various clearing arrangements. Shareholders are the RBA, banks and the building society and credit union industry bodies. The costs of running APCA are met by members broadly in proportion to their importance in the payments arrangements, measured in terms of the volume of transactions cleared in each clearing stream. Other interested groups or individuals may join as associate members.

APCA manages five clearing streams whose rules have been authorised by the ACCC:

- the Australian Paper Clearing System (APCS) for cheques and other paper-based payment instructions;
- the Bulk Electronic Clearing System (BECS) for bulk electronic debit and credit payment instructions;
- the Consumer Electronic Clearing System (CECS) for ATM and EFTPOS payment instructions;

¹³ APRA also administers the Financial Claims Scheme, under which, in the event of an insolvency of an ADI, protection is given to the first AUD 1 million per depositor. The Financial Claims Scheme is the Australian Government's deposit protection initiative enacted in October 2008 in response to the global financial crisis.

¹⁴ As defined by the *Financial Transactions Reports Act 1988*.

¹⁵ These contractual arrangements include system rules specifying participation requirements, message standards for bilateral file exchange and other bilateral payments instructions, minimum standards for participant operational reliability, procedures for calculating net obligations, time and manner of settlement, dispute resolution and procedures for handling a participant default.

- the High Value Clearing System (HVCS) for high-value electronic payment instructions; and
- the Australian Cash Distribution and Exchange System (ACDES) for the exchange of cash between institutions.

APCA also manages the rules associated with the Community of Interest Network (COIN) (see Section 3.3.3.7) used for the electronic clearing of APCS, BECS and CECS payments.

Each clearing stream is managed by a Management Committee drawn from the participants – typically banks, building societies and credit unions. The RBA is a member of some of these committees, namely those where it is a substantial player in the particular clearing arrangement. In addition, Advisory Councils and Stakeholder Forums have been established to provide organisations that are indirectly associated with payments clearing with an avenue of input to Management Committees. The RBA and APCA have agreed to a set of liaison procedures to ensure cooperation in payment systems oversight.

1.3.7 EFTPOS Payments Australia Limited (EPAL)

EPAL was established in April 2009 to manage and promote the EFTPOS (proprietary debit) system. EPAL is wholly owned and funded by its members, which are the major participants in the EFTPOS system.

Decisions in relation to EFTPOS membership, participation, compliance, processing and the implementation of wholesale fees are made by EPAL.

EPAL scheme rules and the technical operational and security rules are approved by the Board of EPAL, with major amendments also requiring a special resolution of the members. The Board has eight industry-appointed directors, including representatives of both large and small financial institutions and large merchants, plus three independent directors drawn from a variety of private sector backgrounds and a managing director.

1.3.8 Financial Ombudsman Service (FOS)

FOS is a free, independent dispute resolution scheme funded by participating providers of financial services.

The FOS facilitates resolution of disputes between customers (both individuals and small businesses) and service providers, including those relating to the payments system. The FOS may consider disputes where an individual claimant is claiming damages of up to AUD 280 000 and the service provider is unable to resolve the dispute through its internal dispute resolution procedures. The FOS has the power to make recommendations and awards that are binding on the service provider but not on the complainant, who retains the right to take legal action if he or she does not accept the ruling of the FOS.

1.3.9 Financial Sector Advisory Council

The Financial Sector Advisory Council provides advice to Australia's Treasurer on financial sector developments and policies. Its members are drawn mainly from the private sector.

2. Payment media used by non-banks

There are a wide range of media by which payments are made in Australia. Cash continues to be a popular form of payment for low-value transactions. Australia has well established debit and credit card networks that have become the main means, other than cash, by which Australian consumers make payments. Cheque use is in decline, but remains common for business payments. Reliance on cheques has been reduced by growth in the use of debit

and credit cards, and electronic credit and debit transfers (at the retail level), and by RTGS (for wholesale payments). Credit transfers and direct debits are also used widely by governments and businesses. 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. Like most other countries, Australia has experienced a move away from over-the-counter and paper-based transactions towards electronic payments.

2.1 Cash payments

Currency continues to be a convenient and popular form of payment for everyday, low-value transactions. A consumer study undertaken by the RBA in 2007 indicated that, at that time, around 70% of the number of consumer payments, and 38% of the value, were undertaken using cash. Cash was particularly important for small transactions, accounting for nearly all payments under AUD 10 and close to 90% of transactions under AUD 25. The ratio of currency to GDP is relatively steady at around 4%.

Coin is produced by the Royal Australian Mint in 5 cent, 10 cent, 20 cent, 50 cent, AUD 1 and AUD 2 denominations and is issued to meet demand as forecast by financial institutions. The RBA issues Australian currency notes based on its forecasts of demand. Currency notes are printed by Note Printing Australia Ltd, a wholly owned subsidiary of the RBA. Notes are issued in denominations of AUD 5, AUD 10, AUD 20, AUD 50 and AUD 100. All notes are printed on polymer substrate and incorporate a number of security features that make them highly resistant to counterfeiting.

2.2 Non-cash payments

2.2.1 Cheques and other paper-based instruments

Cheque use has been rapidly declining in recent years. In 2009/10 (ie year ended June 2010), cheques accounted for less than 12% of the value and 5% of the number of non-cash payments, down from around 17% and 11% respectively in 2004/05. The *Cheques Act 1986* allows cheques to be drawn on authorised deposit-taking institutions (ie banks, building societies, credit unions and special service providers). Many smaller financial institutions provide cheque issuance facilities to their customers through arrangements with a bank. Cheques are not commonly used for payments at the point of sale in Australia. They are used more frequently for bill payments and for business-to-business payments.

Banks also use warrants, which are irrevocable paper-based payment instruments, for some transactions between themselves. Warrants are limited, by industry agreement, to values of less than AUD 500 000.

2.2.2 Electronic credit transfers and direct debits

Electronic credit transfers and direct debits are long-established forms of making payments in Australia. Most of these transactions are made using the framework set by the rules of the Bulk Electronic Clearing System (BECS) but credit transfers are also made through a separate bank-owned system, BPAY.

BECS credit transfers and direct debits are generally initiated from files containing batches of payment instructions compiled by paying or payee institutions or their agents and passed on to their sponsoring financial institutions. BECS is used widely, especially by government departments and companies, for regular payments such as social security benefits, salary and dividend payments and payment of bills.

BPAY is a bill payment system where transfers are mainly initiated by customers, both individuals and businesses, using the telephone or internet. BPAY aggregates the instructions into files for transfers between participating institutions.

In BECS, electronic files of payment instructions are exchanged bilaterally, whereas BPAY payment instructions, as for credit transfers in many countries, are processed through a central automated clearing house. Sections 3.3.4 and 3.3.5 describe arrangements for clearing and settlement of BECS and BPAY transfers.

In 2009/10, more than 1.7 billion credit transfers were made, with a value of AUD 6 422 billion. They represented about 27% of the number and 49% of the value of retail non-cash payments. This compares with 1.2 billion credit transfers in 2004/05, worth AUD 4 580 billion. BECS credits were 84% of the transfers by value in 2009/10 while the remaining 16% were BPAY transfers.

A large number of BECS credits are made by government departments, and these include unemployment and other welfare payments. The RBA's Government Direct Entry Service performs these transfers through BECS. The service uses high-speed data links to gather payments data from government agencies which, after amalgamation, verification and sorting, are distributed electronically to relevant financial institutions. Around 275 million transactions were processed in 2009/10, up from around 265 million transactions in 2004/05.

Direct debits across BECS mostly originate from billers, such as insurance and utilities companies when collecting regular payments, or from financial institutions when collecting loan repayments. Some large enterprises also use direct debits to collect payments from their commercial clients and such payments may be for large amounts. Under these debit arrangements, payers give financial institutions authority to debit their accounts at the initiative of nominated payees.

There were about 665 million direct debits in 2009/10 (474 million in 2004/05), with a value of around AUD 4 970 billion (AUD 3 323 billion in 2004/05). This represented about 11% of the number and 38% of the value of retail non-cash payments.

2.2.3 Payment cards

The use of payment cards continues to grow steadily in Australia.

Debit cards allow access to deposit funds in customers' accounts. In Australia, banks, credit unions and building societies are the main issuers of debit cards, which can be used in ATMs, and EFTPOS terminals. At the end of June 2010, there were 42.6 million Australian-issued debit cards which could be used to access more than 33 million deposit accounts. Debit cards were used to make 830 million ATM withdrawals in 2009/10, up from 775 million in 2004/05; and 2 123 million purchase or point of sale cash-out transactions, up from 1 147 million transactions in 2004/05. Combined, these transactions totalled AUD 292 billion in 2009/10 and AUD 209 billion in 2004/05.

There are two main types of debit cards issued in Australia: those issued for access to the proprietary domestic Australian EFTPOS system, and those issued as international scheme cards. In Australia, EFTPOS system cards require Personal Identification Number (PIN) authorisation to initiate electronic transactions. Transactions are debited from customers' accounts in real time. Payment to the merchant is guaranteed by the acquiring bank for authorised transactions. Many merchants also offer a cash-out facility to cardholders making purchases. Terminals operate whenever the merchant is open; for some merchants, such as petrol stations, this is 24 hours a day, seven days a week. Many EFTPOS terminals are integrated with retailer cash registers. There were 712 434 EFTPOS terminals in Australia in June 2010, up from 518 532 terminals in June 2005.

Proprietary debit cards are issued by most sizeable retail financial institutions in Australia, and all these cards are accepted at all merchants that have EFTPOS terminals. The

proprietary debit cards under the EFTPOS brand cannot be used in situations where the card is not present at the merchant, such as payments over the telephone and internet. They also cannot be used outside Australia without prior arrangements with an international scheme.

Debit cards issued under the MasterCard and Visa brands are authorised with a signature or PIN (the latter method is replacing the former over time) at the point of sale and can be used over the telephone, internet and internationally. In Australia, EFTPOS system cards are the dominant type of debit card, although issuance of international scheme branded debit cards is growing. Most MasterCard and Visa branded debit cards are multifunction cards providing access to both the EFTPOS system and the international scheme.

The RBA undertook reforms to the EFTPOS system for proprietary debit cards and the debit card system operated by Visa in September 2006. MasterCard provided a voluntary undertaking to comply with the Visa Debit Standards. These reforms capped the level of scheme debit interchange fees; set a cap and floor to bilateral EFTPOS system interchange fees; removed the requirement that merchants accepting scheme credit cards also accept scheme debit cards; allowed merchants to surcharge customers using scheme debit cards for payment; and liberalised access arrangements for the EFTPOS system, in conjunction with an EFTPOS Access Code developed by APCA. From January 2010, the RBA established a separate cap for multilateral EFTPOS interchange fees.

Credit cards are issued mainly by banks. The most common brands are MasterCard and Visa. Four banks also issue American Express credit cards, as does American Express itself. Australia's original national credit card scheme was a local brand, Bankcard, introduced in 1975. After experiencing many years of declining market share, it closed in the first half of 2007.

Credit cards provide prearranged revolving credit, up to a specified limit. Payments for goods and services and withdrawals of cash are made against the line of credit. About 330 different types of cards are available from over 70 issuers. The features on offer may include: an interest-free period of up to 55 days; an annual fee (ranging from around AUD 24 to AUD 1 200 per annum); and a loyalty scheme. In recent years a number of new credit card products have been offered, including low interest rate cards and complementary American Express cards with existing MasterCard/Visa accounts.

At the end of June 2010, there were 20.5 million Australian-issued credit and charge cards which could be used to access 14.6 million credit and charge card accounts, compared to 15.6 million cards and just under 12 million accounts in June 2005. During 2009/10, credit and charge cards were used to make 29 million cash withdrawals (total value AUD 11 billion) and 1 530 million non-cash transactions, with a value of around AUD 222 billion. The use of credit cards for cash withdrawals has declined in recent years, with 37 million cash withdrawals and 1 169 million non-cash transactions, worth around AUD 153 billion, made in 2004/05.

The RBA introduced reforms to the credit card schemes beginning in August 2002. These reforms set standards that cap the level of interchange fees, allow merchants to surcharge customers using credit cards for payment and liberalise access arrangements for credit card schemes. Survey data show that surcharging by merchants has grown strongly in recent years; in June 2010 26% of surveyed merchants imposed a surcharge on at least one of the credit cards they accepted.¹⁶

¹⁶ *East & Partners (2010) Australian Merchant Acquiring & Cards Markets: Special question placement report prepared for the Reserve Bank of Australia, June.*

*Charge and retailer cards*¹⁷ allow payment to be deferred from the date of purchase until the account due date; some provide revolving credit. In some instances, the card may be linked to a separate line of credit through an account with a financial institution. In recent years, some of the major offerings have been replaced by co-branded cards from the international schemes.

Prepaid cards have a small but growing presence in the Australian payments market. They take a variety of forms: reloadable or not reloadable; linked to an account in the name of the cardholder or non-specific account; limited to use at a single merchant (or defined group of merchants) or able to be used widely. Some vendors also market reloadable cards as an alternative to traveller's cheques, debit cards and credit cards when travelling overseas, and may sell cards denominated in foreign currencies. Prepaid cards with wide acceptance are currently issued by authorised deposit-taking institutions under the auspices of one of the international card schemes.

2.2.4 ATMs

Automated teller machines (ATMs) were introduced on a wide scale in 1981. Financial institutions and independent deployers developed their own ATM networks. While they remained owned and controlled by individual institutions and sometimes groupings of institutions, over time mutual access arrangements were developed. By 2001 all the individual networks allowed access to all cardholders throughout Australia. ATMs allow cash withdrawals and account balance enquiries; some also provide facilities for deposits, transfers between accounts and ordering of cheque books and statements. There are no general legal restrictions on the location or number of machines, other than some location restrictions in casino or poker machine gaming areas in some states. Operators have agreed to meet standards established by Standards Australia covering design and placement. Most are capable of operating 24 hours a day but in many locations access is only available during business hours. ATM transactions can be initiated by debit cards and certain credit, prepaid and charge cards and are authorised using a PIN. In June 2010, there were 28 764 ATMs across Australia with about 53% owned by financial institutions and the remainder by independent deployers. By comparison, in June 2005 there were 23 472 ATMs in Australia.

The RBA has introduced reforms to the ATM system. These reforms set a cap on the connection cost that can be charged to new entrants to the system and prohibit the charging of interchange fees except in specific circumstances. In conjunction with complementary industry-based actions, the reforms have resulted in significant changes to the way ATM transactions are charged, with customers now charged directly for withdrawals and balance enquiries by the ATM owner while "foreign" fees – charged by the customer's own institution when using a card in another institution's ATM – have been eliminated.

2.2.5 Third-party bill payments

The main providers of third-party bill payment services are Australia Post, the national postal service, and BPAY, a bank-owned service company (see Section 3.3.5).

Australia Post provides bill payment services for around 1 000 billers. Payments can be made by telephone, the internet or over the counter at Australia Post outlets, although not all billers accept payment using all three of these options. Over-the-counter payments can be made using cheques, cash, and debit and credit cards. Australia Post processes bill payments into billers' nominated bank accounts.

¹⁷ Also called travel and entertainment, store and private label cards.

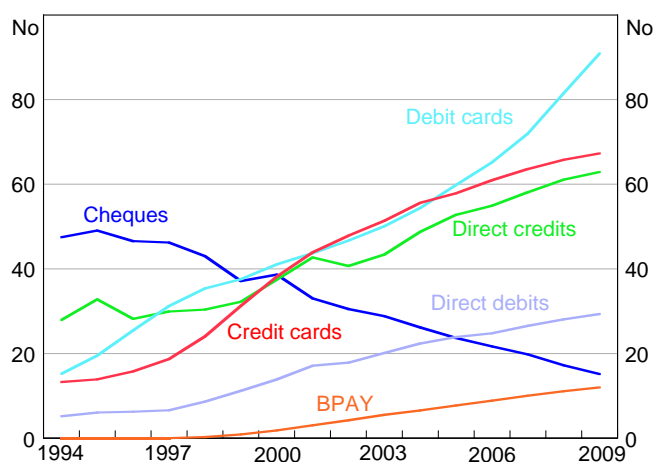
BPAY facilitates bill payments by allowing customers of participating financial institutions to arrange for the transfer of funds from their deposit or credit card account using phone banking or internet banking services. Over 87% of BPAY transactions are now initiated via the internet. There are more than 18 000 billers and over 160 financial institutions participating in BPAY. BPAY also offers an electronic bill presentment service called BPAY View.

2.3 Recent developments

2.3.1 Payment patterns

Recent years have seen a continuation of the trend towards electronic payments that has been evident for the past two decades or so (Graph 1). The number of cheques written in 2009 was less than half that in 2000. While comprehensive data on the use of cash are not available, the value of cash withdrawn over the counter at branches of financial institutions, through ATMs and by cash-outs on credit and debit cards has generally grown more slowly than the value of consumption over recent years. In contrast, the value and number of credit and debit card, BPAY and direct entry transactions have all grown considerably faster than consumption.

Graph 1
Non-cash payments per capita¹
Per year

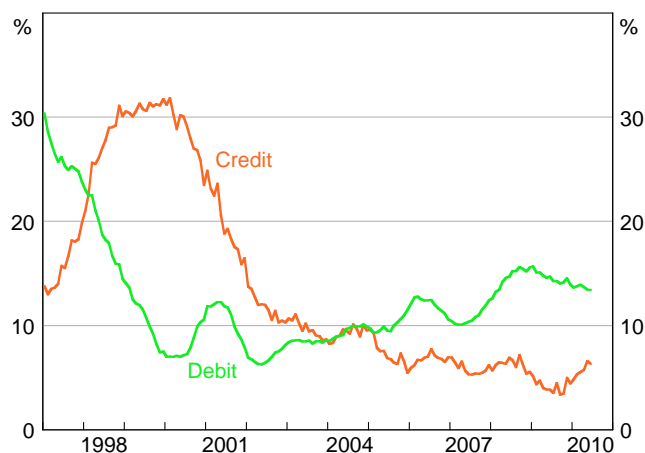


¹ Apart from BPAY, data from 2002 onwards are based on the RBA's Retail Payments Statistics. Data for earlier years come from APCA and the RBA, and have been adjusted for differences between these sources and the Retail Payments Statistics.

Sources: ABS; APCA; BPAY; RBA.

Over the past few years, both the value and number of debit card transactions have grown more quickly than those for credit cards (Graph 2). This is a reversal of the pattern seen from the late 1990s, when growth in credit card spending was particularly rapid. Although the number of debit card transactions is greater than the number of credit card transactions, total spending on credit cards remains significantly higher, reflecting the larger average size of credit card transactions.

Graph 2
Number of card payments¹
 Year-on-year growth



¹ RBA credit card data prior to March 2008 adjusted to remove BPAY transactions.

Sources: BPAY; RBA.

According to 2010 survey data from Roy Morgan Research, a market research company, around 94% of adults hold a debit card of some sort, compared with 47% who hold a credit or charge card.

The combined market share of the MasterCard and Visa schemes was 85% of the value of credit and charge card transactions in 2009. Market shares have generally been relatively stable, with the exception of periods in 2004 and 2009 when major banks began issuing American Express credit cards.

2.3.2 Payment products

Over recent years, there have been a number of new card products offered to consumers. These include:

- the introduction of prepaid cards by the major credit card schemes. These cards take a variety of forms; for example, gift cards can be used at almost any merchant that accepts MasterCard or Visa credit cards, but are typically non-reloadable and allow purchases only. In contrast, general-purpose prepaid cards may be reloadable and allow cash withdrawals at ATMs. Prepaid travel cards may also be denominated in foreign currencies, with some cards allowing multiple currencies to be loaded; and
- a proliferation of new credit card types, including premium and super-premium cards that attract significantly higher interchange fees. At the same time, there has been much greater variation in the card features offered to customers, including low interest rate cards and new structures for rewards cards. Some issuers provide complementary American Express cards with existing MasterCard/Visa credit accounts, while merchant co-branded cards have also emerged.

2.3.3 E-money

Several internet payment systems have also begun operations over recent years, including PayPal, which holds member accounts for online transactions, funded by either a direct debit from a deposit account with a financial institution or by a credit or scheme debit card payment. PayPal is an authorised deposit-taking institution in Australia. Other online payment systems include PayMate, which does not hold customer accounts but funds transactions with a credit or scheme debit card payment, and Payclick, which provides micro payments from a prepaid account.

3. Payment systems (funds transfer systems)

3.1 General overview

Retail payments clearing systems account for 99% of the number of non-cash transactions in Australia although only about 20% of the value. The Australian Payments Clearing Association (APCA) administers: the Australian Paper Clearing System (APCS) for cheques and other paper instruments; the Bulk Electronic Clearing System (BECS) for credit transfers and direct debits; and the Consumer Electronic Clearing System (CECS) for ATMs and EFTPOS payments. There are separate clearing arrangements for the four party credit and debit card schemes (Visa, MasterCard) operating in Australia, and for BPAY.

Settlement of obligations arising from the clearing of instruments in each of these systems is on a deferred net basis with batch settlement completed in RITS each morning at 9 am across ES Accounts at the RBA.

The RTGS system operated by the RBA settles payments arising from a range of sources. There were around 32 000 transactions each day in 2010, which accounted for about 80% of the value of non-cash payments. These payments arose from foreign exchange settlements using correspondent banks, payments relating to settlement of foreign exchange transactions through CLS Bank, the cash leg of securities markets trading, and large-value customer related payments.¹⁸

The institutions that participate in the RTGS system are members of RITS (see Section 3.2.1). They participate under RITS contractual agreements with the RBA. RITS accepts proprietary payments instructions as well as payments instructions from two feeder systems: Austraclear and the closed user group administered by APCA under the High Value Clearing System (HVCS) arrangements (see Section 3.2.2).

There is also a cash distribution system, the Australian Cash Distribution and Exchange System (ACDES), which operates under rules and procedures administered by APCA (see Section 3.3.6).

3.2 Large-value payments systems

3.2.1 Reserve Bank Information and Transfer System (RITS)

Australia's RTGS system is RITS.

¹⁸ Including transactions conducted by the RBA in the implementation of monetary policy.

3.2.1.1 Institutional framework

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 RBA. The legal basis of RITS is established by contract, and standard agreements are executed to bind each party to the RITS Regulations.

RITS is owned and operated by the RBA. The RBA is also responsible for the oversight of RITS. The governance structure of the RBA ensures there is a clear delineation between departments concerned with oversight and those responsible for day-to-day operations, customer relations and the development of RITS, including separate reporting lines. The governance of RITS is accountable and transparent to participants and other relevant parties. Information about RITS and its governance structure is published on the RBA's website and users and other parties are consulted in relation to prospective changes to RITS.

The RBA conducts its oversight of RITS through ongoing monitoring, including of associated risks, market behaviour, costs, and rules and regulations. RITS is continually monitored against the *Core Principles for Systemically Important Payment Systems*. The Bank periodically publishes an updated assessment.

3.2.1.2 Participation

Membership of RITS is available upon application to the RBA. Membership is mandatory for all ES Account holders. Eligibility criteria for ES Accounts are established by the Payments System Board and published online. These criteria are designed to enhance competition in the provision of payment services by allowing all domestic providers of third-party payment services access, irrespective of their institutional status.¹⁹

Australian-authorized banks are required to hold an ES Account for the settlement of their high-value transactions through RITS. However, ES Account holders whose total payments in RITS account for less than 0.25% of the total value of RTGS payments may apply to the RBA to settle their payments through an agent.²⁰ Nevertheless, ES Account holders using an agent are required to have an ES Account set up in RITS for contingency purposes.

In addition to ES Account holders, some non-bank members of RITS participate as non-transaction members (ie they do not make or receive RTGS payments directly). This arises from a requirement that eligible counterparties for the RBA's Open Market Operations must be RITS members, notwithstanding that settlement may occur through an agent.

As at end-2010, there were 93 RITS members, 71 of which held ES Accounts (56 banks and 15 other institutions) with the remaining 22 participating as non-transaction members.

3.2.1.3 Types of transactions

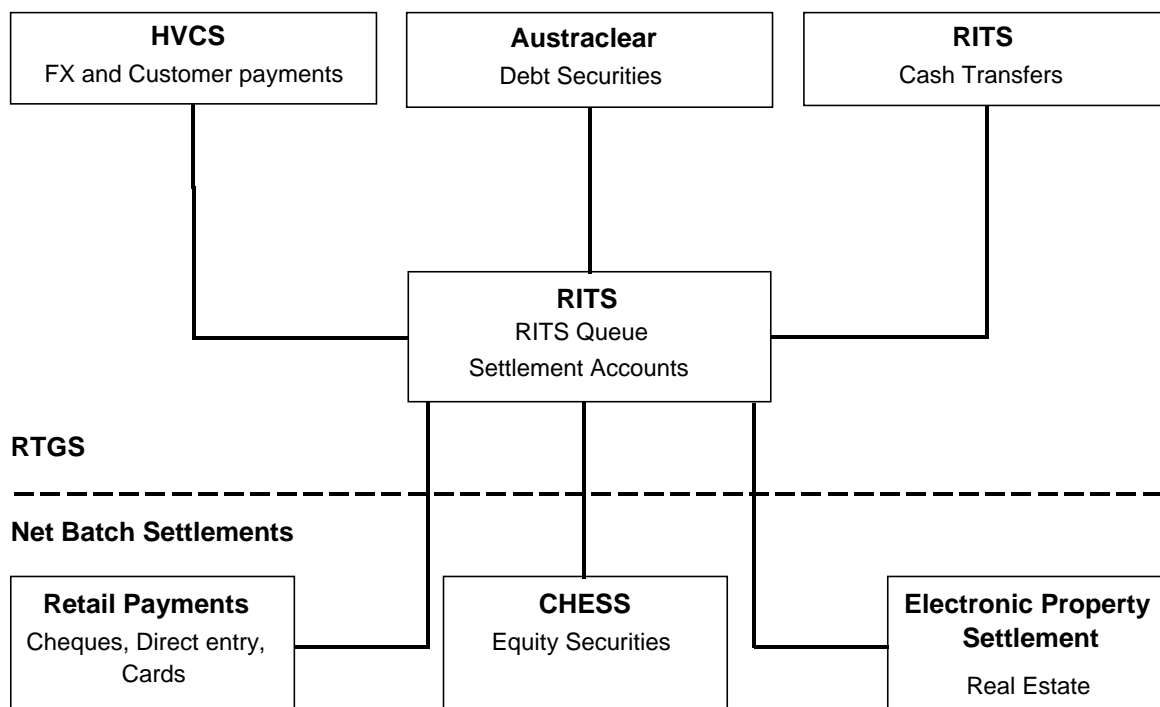
Payments instructions settled through RITS can be submitted either through the RITS proprietary network or via two external feeder systems: the HVCS, which is a SWIFT closed user group administered by APCA, or Austraclear, which is a securities settlement system

¹⁹ The Reserve Bank does not permit ES Account holders to outsource the operation of their accounts, ie the ability to make or receive payments instructions cannot be outsourced. Furthermore, the Reserve Bank requires that ES Account holders maintain operational staff throughout RITS operating hours that may be immediately contactable by the Bank in the event of a contingency. In practice, this requires a domestic presence.

²⁰ This represents a relaxation of an earlier policy in recognition of the fact that a number of new bank entrants did not have sufficient potential scale to justify establishing the necessary back office systems and staff to operate an ES Account. The original policy was designed to prevent accrual of obligations between banks that can arise from indirect participation. The setting of 0.25% represents a trade-off between these two factors. In practice, most eligible banks have not migrated to agency arrangements.

operated by the Australian Securities Exchange (ASX). In addition, RITS provides (non-RTGS) settlement functionality for the simultaneous debit and credit of obligations arising from low-value netting arrangements (ie retail transactions for which obligations are calculated on a multilateral net basis so that the sum of all positions is zero). These net positions are entered for settlement either outside RTGS open hours (at a 9 am window for APCA systems; see Section 3.2.1.4) or within the RTGS day, following submission of a Batch by a Batch Administrator, at a time that RITS identifies that all participant obligations can be simultaneously met from credit funds.

Figure 1
Access to RITS



There are three main categories of RTGS payment transactions settled across ES Accounts:

- The cash leg of wholesale debt securities settlements (and some money market cash transactions) undertaken in Austraclear (see Section 4.4.2).
- The Australian dollar leg of foreign exchange transactions, either AUD flows arising from CLS or correspondent bank settlements and other large-value SWIFT transactions. These are made through the HVCS (see Section 3.2.2). The HVCS is also termed the SWIFT Payment Delivery System (PDS).
- Interbank payments instructions (known as “cash transfers”), including interbank money market transactions. These are entered directly into RITS as “proprietary” RITS instructions.²¹

²¹ There are no prescriptive requirements for particular types of RTGS transactions to be submitted to RITS by any particular channel, nor are retail or other types of payments prohibited. However, delivery-versus-payment settlement of securities occurs through Austraclear, CLS is a member of the HVCS for the purpose of making and receiving payments and RITS proprietary transactions do not provide for customer identifiers (ie RITS

RITS settles batches of interbank obligations that arise from a number of low value exchanges of payments. Participant obligations that arise from customer retail payments (cheque, cards and direct entry) are settled on a deferred multilateral net basis in RITS at 9 am each business day. Interbank obligations from the cash side of equities transactions are also settled through RITS on a multilateral net basis: equities transactions are processed through the ASX's Clearing House Electronic Subregister System (CHES) (see Section 4.1) and submitted to RITS for settlement in the CHES batch at around midday each day. Additionally, RITS provides functionality for batch settlement of real estate transactions for which net settlement amounts are entered through Austraclear. This facility has not been widely used yet.

3.2.1.4 Operation of the system and settlement procedures

Within RITS, transactions settle in central bank money over ES Accounts, which must be maintained in credit at all times. Non-transaction RITS members do not have ES Accounts and must settle any payments through an agent.

The technical requirements for participation in RITS are set out in the RITS Regulations. Participants access RITS either by the Austraclear National Network Infrastructure (ANNI, Austraclear's proprietary network) or through the internet. Access via the internet and ANNI is encrypted end-to-end using the SSL protocol, with unique logins and digital certificates (stored on hardware tokens) using a secure process.

RITS operating hours for settlement are 7.30 am to 6.30 pm each business day Australian Eastern Standard Time and from 7.30 am to 8.30 pm during Australian Eastern Daylight Time (the first Sunday in October to the first Sunday in April). Prior to 8.45 am, settlement is limited to RITS cash transfers and interbank Austraclear transactions. This enables ES Account holders to fund debit positions in the 9 am batch and their subsequent daily RTGS payment obligations. RTGS settlement temporarily ceases at 8.45 am to allow the 9 am batch to run. The Daily Settlement session begins at 9.15 am, with RTGS settlement recommencing. At 4.30 pm, the main day session ends and there is a 45 minute settlement close session in order to enable the settlement of remaining queued transactions. After this, there is an evening settlement session, designed to facilitate CLS Bank settlement, in which "evening agreed" settlement participants continue sending and receiving SWIFT instructions.²² The RBA retains discretion to vary the operating hours of RITS.

RITS is designed to be liquidity efficient and intraday liquidity is available through an intraday repurchase agreement facility provided by the RBA (see Section 3.2.1.5). RITS incorporates a central queue and offset functionality. Prior to settlement, RTGS transactions are entered into RITS where they proceed to the RTGS queue. Transactions are tested for settlement by RITS to ensure that the paying participant member has sufficient funds in its ES Account to cover the payment. Transactions that pass all tests are settled, while those unable to be settled at that time remain on the queue. The next transaction on the queue is then tested for settlement in a "next down looping" process. The "settle or leave" process allows transactions to be settled in any order and provides for very efficient use of liquidity.

proprietary transactions result in debits and credits to participant ES Accounts only). The money market in this context is an over-the-counter mechanism by which ES Account holders with surplus liquidity (noting that ES Accounts attract a below market interest rate) lend to ES Account holders with a potential deficit of liquidity. Proprietary and customer transactions drive changes to projected end-of-day balances that influence the distribution of system liquidity and the money market.

²² All Australian CLS settlement members need to participate in the evening session. Other banks make a decision to participate or not based on their business requirements. For banks that are not "evening agreed", the SWIFT day finishes at the end of the settlement close session at 5.15 pm.

Redistribution of liquidity is also facilitated by a gridlock-preventing feature known as “Auto-offset”. When a payment from a member has been unsettled on the queue for one minute or more, RITS automatically searches the RTGS queue for offsetting payments from the receiving member. If these offsetting payments can be settled simultaneously, leaving both parties in credit, RITS will do so automatically (the gross amounts of all payments are posted to the relevant accounts at the same time). Targeted Bilateral Offset functionality also allows two RITS members to select transactions for offset against each other, thus assisting in client credit management at the same time as enhancing the efficient use of system liquidity.

RITS also utilises a “sub-limit” feature enabling participants to determine how a payment draws on liquidity. Participants may mark the status of payments submitted to RITS as either “priority”, “active” or “deferred”. The sub-limit reserves liquidity for the settlement of priority payments – these payments marked are tested against the full balance of the participant’s ES Account. Payments with a status of active are only tested against balances above the sub-limits, while deferred payments are not tested for settlement until their status is revised, which can be done at any time prior to settlement.

Participants can monitor and manage all outgoing payments in real time, and can monitor incoming payments that are active on the queue.

At the end of a session, transactions that are no longer eligible for settlement, either due to insufficient funds or being marked as deferred, are removed from the queue (with notification sent to the paying participant) and may be resubmitted in a subsequent session. A transaction may be withdrawn while it is in the RITS queue, prior to it being successfully settled.

Upon successful settlement testing and simultaneous debiting and crediting of ES Accounts, a transaction is final and irrevocable. This finality and irrevocability is supported by RBA approval of RITS under the *Payment Systems and Netting Act 1998*, which provides legal certainty for settlement in RITS in the face of participant insolvency.

3.2.1.5 Risk management

As RITS is an RTGS system, participants are not exposed to credit risk: since customer accounts are not updated before interbank settlement is completed (with finality), there is no opportunity for a build-up of credit exposures between participants.

To minimise liquidity risk, RITS provides liquidity optimisation features (see Section 3.2.1.4) and access to central bank intraday liquidity through the use of repurchase agreements (repos).

The intraday repurchase agreement facility provided by the RBA enables participants to convert a range of highly rated debt securities (as determined by the RBA) into liquidity by means of an interest-free repurchase transaction (with an initial margin of over cover), with an agreement to reverse the transaction by the end of the day. These arrangements minimise the risk of credit exposure. In the event that a participant is unable to reverse an intraday repo with the RBA by the end of the day, the transaction can be converted to an overnight repo, with interest charged at 25 basis points above the target cash rate.

Participants have access to a range of information to manage their liquidity risk through the RITS interface. In particular, participants are able to view, in real time, their ES Account 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 ES Account balances.

To manage operational risk, the RBA monitors RITS in real time for any problems at either the system or participant level, and the industry has detailed plans and procedures in place for dealing with contingencies. These are coordinated by the RBA and set out the industry response in circumstances where RITS, the SWIFT PDS or Austraclear are unavailable. They also cover circumstances where an individual participant is unable to send and receive payments. These plans and procedures are tested regularly. Participants also have internal procedures to deal with contingencies, with many able to switch to secondary connections to

RITS. The RBA maintains a live backup RITS facility at a remote site. The backup site is permanently staffed and both the primary and backup sites feature dual redundancy architecture.

3.2.1.6 Pricing

RITS pricing is designed to recover the operational costs that the RBA incurs in the course of running RITS.

Participants are charged a fee of AUD 0.88 for each debit and credit to their ES Account through RITS and AUD 2.95 for each side of a cash transfer (with 10% goods and services tax applicable to both); these fees do not vary according to the time of day. The RITS fee structure is reviewed regularly, when consideration is given to both the level and range of fees. There are currently no fixed fees such as annual or entry fees imposed by RITS.

Even so, participants incur joining and annual fees for access to RITS through Austraclear's proprietary network as well as transaction fees for the settlement of securities (payable to Austraclear). Additional membership and transaction fees are incurred for transactions submitted through the SWIFT PDS (HVCS).

3.2.1.7 Major ongoing and future projects

Work is under way to provide more timely settlement of low-value retail payments, currently settled on a next day deferred basis. Community networks (instead of bilateral links) will be used to exchange clearing files and simultaneously send associated settlement instructions to RITS. Participants will have the option to settle these low-value clearing obligations on a bilateral (or individual) basis or as part of a multilateral group settlement. This is expected to bring risk reduction and efficiency benefits for the RITS system and its participants, and support further innovation in the payments industry.

This work comprises three main parts:

- Establishment of RITS network connectivity with members utilising Community of Interest Network (COIN) infrastructure (see Section 3.3.3.7). This work has been completed;
- Provision of a Low Value Clearing Service (LVCS) to facilitate interconnectivity between COIN and SWIFT networks so that RITS members can exchange clearing files across their preferred network rather than having to use both COIN and SWIFT infrastructure. The LVCS became operational in June 2010; and
- Provision of a Low Value Settlement Service (LVSS) to facilitate more timely settlement of low-value clearings. RITS members will be able to provide settlement instructions to RITS for these low-value clearings by either SWIFT or COIN. This service is expected to be available in the first half of 2011.

Together, this new infrastructure will improve timeliness and efficiency of the clearing and settlement of low-value payments in Australia. This infrastructure modernisation aims to provide a platform to support product innovation and customer service, as well as reduce the risk associated with the current net deferred settlement arrangements.

3.2.2 High Value Clearing System (HVCS)

HVCS is a SWIFT closed user group payment arrangement established by APCA to provide a framework for access to RTGS for SWIFT message based payments so as to achieve settlement of participant obligations in central bank money with customer details exchanged outside RITS. It uses the SWIFT FIN-Copy service. The HVCS arrangements specify standards for access, operational reliability and other rule-based requirements. The HVCS does not involve proprietary system architecture.

3.2.2.1 Institutional framework

The HVCS regulations and procedures are administered by APCA. A management committee comprised of participant representatives is responsible for the effective operation of HVCS. The committee is also responsible for approving changes to the HVCS regulations. The committee is accountable to the APCA Board, which represents APCA's shareholders.

3.2.2.2 Participation

The RBA, authorised deposit-taking institutions and other prudentially supervised providers of payments services that hold ES Accounts at the RBA are entitled to join HVCS. There are no special membership categories and all members are directly responsible for their own settlement obligations. As at September 2010, there were 52 members of HVCS.

3.2.2.3 Types of transactions

HVCS is designed for the exchange of high-value electronic payments (ie SWIFT based payment instructions), such as the Australian dollar leg of foreign exchange settlements, including CLS obligations, as well as interbank customer payments. In practice, HVCS provides a significant volume of relatively low-value SWIFT based instructions (participants do not find that it is cost-effective to separate these low-value instructions from straight through processing functionality). Participant obligations arising from each individual HVCS instruction settle on an RTGS basis through RITS and comprised around two thirds of RITS payments by value in 2009/10 (and over 90% by volume).

3.2.2.4 Operation of the system and settlement procedures

The mechanism by which HVCS participants exchange payments is the SWIFT FIN-Copy service. A payment message within FIN-Copy is queued while a settlement request message is sent via the SWIFT network to RITS. RITS settles the interbank payment on an RTGS basis and forwards a settlement response to SWIFT, which then matches the settlement response it receives to the queued payment. SWIFT then forwards the message confirming payment to the participating member who is to receive the payment.

The core operating hours of HVCS are 9.15 am to 4.30 pm Australian Eastern Standard Time. To accommodate the operation of CLS Bank, there is a final settlement session for HVCS payments restricted to agreed banks. In winter, this session is from 4.30 pm to 6.30 pm and in summer, 4.30 pm to 8.30 pm. If summer time finishes in Australia but has not started in Europe the session is from 4.30 pm to 7.30 pm.

3.2.2.5 Risk management

Payments are settled on an RTGS basis through RITS. See Section 3.2.1.5 for a discussion of RITS risk management.

However, if due to an operational or other disruption RTGS through RITS becomes unavailable and is unlikely to recover on the day of failure, HVCS may implement contingency ("fallback") arrangements to substitute multilateral net settlement of the interbank obligations arising from transactions instead of normal RTGS settlement. Under these fallback arrangements, HVCS participants may, by prior bilateral agreement, send and receive HVCS payments in hard copy or electronic form. This fallback netting arrangement is protected as an "approved multilateral netting arrangement" under the *Payment Systems and Netting Act 1998*, subject to the RBA agreeing to switch to fallback arrangements.

In order to manage operational risk, HVCS participants must meet defined technical requirements and their systems must be capable of meeting minimum throughput requirements. HVCS participants must have backup facilities. Those participants who account for 2% or more of the value of sent and received payments within HVCS are required to have

a backup system in a geographically remote location. Participants must regularly test their internal backup arrangements and provide an annual compliance certificate to APCA management with regard to technical requirements set out in the HVCS procedures.

3.2.2.6 Pricing

Participants in the HVCS are required to pay an initial entry fee and an annual membership fee. Operating costs are assigned in proportion to participants' transaction volumes. HVCS development costs are assigned equally across members, usually in the form of one-off charges.

HVCS does not impose transaction-based fees for messages passing through HVCS. However, SWIFT imposes fees for each SWIFT payment message and the RBA charges a fee for each debit and credit to an ES Account.

3.3 Retail payment systems

3.3.1 Card-based systems – proprietary

3.3.1.1 Institutional framework

Proprietary debit cards issued by financial institutions typically provide access to both the ATM system and the electronic funds transfer at point of sale (EFTPOS) system.

The operational arrangements for ATM and EFTPOS (proprietary debit) transactions have in the past been determined solely under the regulations and procedures of APCA's Consumer Electronic Clearing System (CECS). However, in April 2009 a new company, EFTPOS Payments Australia Limited (EPAL) was established to manage the EFTPOS system. Decisions in relation to EFTPOS membership, participation, compliance, processing and the implementation of wholesale fees will now be made by EPAL. Operational arrangements in relation to the ATM system will continue to be set by the CECS regulations and procedures.

For CECS, a Management Committee consisting of CECS participants is responsible for approving changes to the regulations and procedures including the means and timing of settlement, technical standards and dispute resolution. Management Committee decisions can be reviewed by the APCA Board, which is made up of representatives from APCA's shareholders. Changes to CECS regulations must also be approved by a meeting of CECS members.

For EPAL, scheme rules and the technical operational and security rules are approved by the Board, with major amendments also requiring a special resolution of members. The Board of EPAL has eight industry-appointed directors, including representatives of both large and small financial institutions and large merchants, plus three independent directors drawn from a variety of private sector backgrounds and a managing director.

3.3.1.2 Participation

There are 14 founding members of EPAL, including two major retailers that "self acquire" a large portion of their EFTPOS transactions. As at December 2010, there were 17 participants in CECS, consisting of 10 banks, three special service providers, two retailers and two payments system service providers. Most members of CECS have some form of representation within EPAL.

3.3.1.3 Types of transactions

Proprietary cards are issued by financial institutions under their own brand. In Australia, proprietary debit cards can be used to initiate both ATM and EFTPOS transactions. Many

merchants also offer a cash-out facility to cardholders making purchases. Transactions on proprietary cards require PIN authorisation and are debited to customers' accounts in real time.

3.3.1.4 Operation of the system and settlement procedures

Services provided

Linkages between proprietary networks mean that there is effectively one national system of EFTPOS terminals, which accepts cards from all card issuers. The major national banks and the large regional banks provide most of the acquiring services to merchants. Most large merchants own their own terminals, while smaller merchants tend to lease them from their acquirers. Two major retailers switch their transactions to the various card issuers and transaction processors, in effect acquiring their own transactions. Other financial institutions, such as small regional banks, building societies and credit unions, are linked to the national system through arrangements with one of the larger banks or a small number of specialist providers of payments system services.

ATM networks are also linked bilaterally and, as with the EFTPOS system, there is effectively one national system with cards from all issuers accepted. Traditionally, the major banks and large regional banks owned and maintained large numbers of full service ATMs while smaller financial institutions grouped together to offer ATM services through service companies. More recently, there has been significant growth in the numbers of ATMs operated by independent ATM deployers who usually establish arrangements with a financial institution, or a specialist provider of payments system services, to link into the national ATM network.

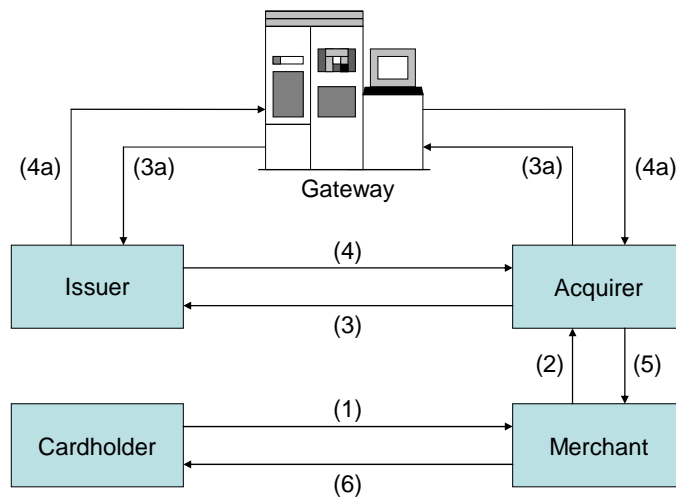
Data transmission

There is no centralised electronic clearing system or technical infrastructure for the proprietary debit system. Most items are exchanged electronically on a bilateral basis. The CECS and EPAL procedures specify formatting and other message standards and security standards.

Authorisation

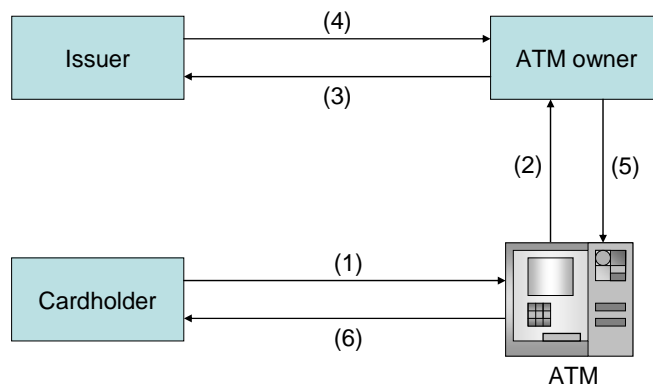
The information flows in a typical EFTPOS transaction are illustrated in Figure 2. The cardholder presents their card to the merchant and enters their PIN (1), and the relevant data are transmitted to the merchant's financial institution (the acquirer) (2). If it is one of the acquirer's own cards, the account is checked internally and authorisation returned to the merchant (5). If the card is issued by another financial institution, the information is switched to the card issuer either directly via a bilateral link (3) or, if the issuer does not have this link, via a third institution acting as a gateway (3a). The issuer then checks if its cardholder has available funds. If so, it will return an authorisation message to the acquirer either directly (4) or via the gateway (4a). The acquirer passes the message to the merchant (5) and the transaction is complete (6).

Figure 2
Information flows for an EFTPOS transaction



Typical information flows for an ATM cash withdrawal are similar, as illustrated in Figure 3. The cardholder puts their card into an ATM, enters their PIN and the details of the withdrawal (1); the relevant information is then transmitted to the ATM owner (2). If the ATM owner and card issuer are the same institution, the transaction remains internal to that network. If the card is issued by another institution, the ATM owner will switch the information to that issuer (3). The issuer then checks the account and returns an authorisation (or a decline) via the ATM owner (4) to the ATM (5). Assuming authorisation was given, the cash is dispensed (6).

Figure 3
Information flows for an ATM transaction



Clearing and settlement procedures

Settlement arrangements are determined by the CECS and EPAL rules for the ATM and EFTPOS systems and the RBA’s settlement processes that apply to all the low-value clearing streams. Each day, financial institutions calculate their national bilateral positions for

ATM and EFTPOS transactions against other clearing institutions and report these by 4 am the following business day to the Collator at the RBA.²³ These balances are then settled in RITS on a multilateral net basis at 9 am.

3.3.1.5 Risk management

Participants in the ATM and EFTPOS systems are members of EPAL and CECS or certified to CECS standards. The regulations and procedures imposed by these bodies mitigate fraud and other operational risks by requiring a minimum level of quality for operations, equipment and security measures. The regulations reference relevant Australian and international industry standards on, for example, system messaging formats, physical card characteristics and data protection. They also describe procedures to address operational contingencies, such as a failure of infrastructure, major telephone exchange outage, or loss of primary and backup interchange links. The rights and duties of card issuers and card users in the event of fraudulent transactions or operational failure are laid out in the Electronic Funds Transfer Code of Conduct, administered by the Australian Securities and Investments Commission (ASIC).

Participants in the ATM and EFTPOS systems are subject to various types of fraud risk, including stolen and counterfeit cards, card skimming and false card applications. Fraud risk in the EFTPOS system is reduced by the use of a PIN and the fact that EFTPOS transactions are only used in card-present environments. Accordingly, the EFTPOS system has experienced relatively low rates of fraud compared to other instruments. Both the EFTPOS and ATM systems are exposed to risk due to the use of magnetic stripe cards, although EPAL plans to convert all EFTPOS cards to EMV chip technology by 2014.²⁴

Next day interbank settlement of ATM and EFTPOS transactions means that participants are exposed to settlement risk. This risk is addressed indirectly by EPAL and CECS membership requirements that aim to ensure participants have sufficient financial resources to meet their obligations. Total interbank settlement obligations (and hence the risks) generated from these systems are comparatively small – less than 1% of the value of daily payment flows. EPAL and CECS regulations specify rules to deal with a participant's failure to settle. The legal validity of netting arrangement for payments is protected as an "approved multilateral netting arrangement" under the *Payment Systems and Netting Act 1998*.

To the extent that liquidity risk is generated, arrangements are in place to allow ES Account holders to access additional liquidity for settlement if required (see Section 3.2.1.5).

3.3.1.6 Pricing

Members of CECS pay a uniform annual fee and a periodic fee that is based on their share of the national transaction volume. These fees are allocated to the operating costs of CECS and the CECS share of the general operating and administrative costs of APCA.

²³ "Collator" is a defined role in terms of APCA payments arrangements. APCA has appointed the Reserve Bank as Collator. The Collator collates advice from each participant in each APCA payment system (not including HVCS, which uses RTGS settlement) of gross credit and gross debit positions against each other participant as a result of bilateral file exchanges. The Collator matches these data, calculates multilateral net positions and passes these to RITS for batch settlement at 9 am on the day following the file exchange.

²⁴ EMV is a standard for the operation of credit and debit payment cards based on integrated circuit (chip) technology. The name EMV comes from Europay, MasterCard and Visa, the companies that started development of the standard.

Interchange fees, negotiated bilaterally between participants in the EFTPOS system, are paid by issuers to acquirers – the opposite of most card systems around the world.²⁵ The RBA determined a Standard for the setting of interchange fees in the EFTPOS system in 2006. The Standard sets a cap and floor on interchange fees, constraining them to between 4 cents and 5 cents per transaction, paid to the acquirer. Interchange fees on cash-out transactions (including purchase transactions with a cash-out component) remain unregulated. An amendment to the Standard in 2009 introduced a cap of 12 cents, paid to the issuer, for any multilateral EFTPOS interchange fees; that is, multilateral fees can be up to 12 cents paid to the issuer, or any amount paid to the acquirer. This amendment was intended to allow the newly formed EFTPOS scheme to establish multilateral interchange fees under a comparable regulatory framework to the Visa Debit System. As at the end of 2010, no multilateral EFTPOS interchange fees were in place. However, EPAL has indicated that a multilateral EFTPOS interchange fee regime will be put in place during the course of 2011.

Interchange fees in the ATM system were abolished in March 2009 as part of a package of reforms designed to improve competition in the Australian ATM system. The other main elements of these reforms were an industry-developed access code and the freedom for ATM owners to charge cardholders directly for the use of an ATM, provided that the charge is disclosed to the customer before the transaction is finalised.²⁶ At the same time, issuing institutions typically removed fees levied on their own customers for transactions made at another institution's ATMs. In 2010, most ATM owners charged a fee of around AUD 2 for cash withdrawals by a customer of another financial institution.

3.3.1.7 Major ongoing and future projects

On 3 June 2010, EFTPOS Payments Australia Limited (EPAL) announced that the EFTPOS system will move to EMV chip technology, with the industry aiming to complete the transition by 2014. According to EPAL, EMV chip technology will make the EFTPOS system more secure and provide a platform for new services.

By end-2011, the communications network used for EFTPOS and ATM traffic will move from fixed bilateral links to the use of an industry Community of Interest Network (COIN). This will allow new entrants to participate by establishing connectivity to a single network, rather than requiring multiple fixed links to other participants.

3.3.2 Card-based systems – scheme

3.3.2.1 Institutional framework

The major international card schemes operating in Australia are Visa, MasterCard, American Express and Diners Club. Transactions undertaken using scheme cards, both credit and debit, are cleared under the rules of the relevant scheme.

²⁵ Background to these arrangements can be found in the 2000 joint study conducted by the RBA and the ACCC, *Debit and Credit Card Schemes in Australia – A Study of Interchange Fees and Access*, available on the RBA website.

²⁶ More detailed information on the rationale for the ATM reforms and the components of the reform package can be found in *An Access Regime for the ATM System* on the RBA website.

3.3.2.2 Participation

Authorised deposit-taking institutions (ADIs) are eligible for membership of the Visa and MasterCard schemes.²⁷ This includes a special class of ADIs known as Specialist Credit Card Institutions (SCCIs), which carry out card issuing or acquiring activities but do not otherwise engage in banking business. Two SCCIs (one issuer and one acquirer) are currently members of card schemes. Other members of the Visa and MasterCard schemes include banks, building societies and credit unions.

The American Express and Diners Club schemes have traditionally issued and acquired their own card transactions. In recent times, a number of banks have been licensed to issue American Express cards to their customers. In these cases, the banks provide the credit for purchases and are responsible for billing, issuing statements and providing access to accounts (eg via internet banking). American Express and Diners Club remain the sole acquirers of transactions in their schemes.

3.3.2.3 Types of transactions

Scheme card transactions (debit and credit) most commonly occur at points of sale, generally with the same terminals as those undertaken with proprietary cards. Most terminals are equipped with both magnetic stripe and chip readers and allow authorisation by signature or PIN. A small number of point-of-sale transactions are undertaken through contactless terminals. Apart from contactless and chip capabilities, the main differences from proprietary debit transactions lie beyond the customer interface, as discussed below. The major national banks and the large regional banks provide most of the acquiring services for the Visa and MasterCard schemes to merchants and around half of all ATMs.

As noted in Section 2.2.3, proprietary debit cards cannot be used in situations where the card is not present at the merchant, such as payments over the telephone and internet. On the other hand, scheme cards (debit and credit) can be used for telephone, internet and mail order purchases. The use of scheme cards over the internet has been increasing in recent years to around 10% of the value of card payments.

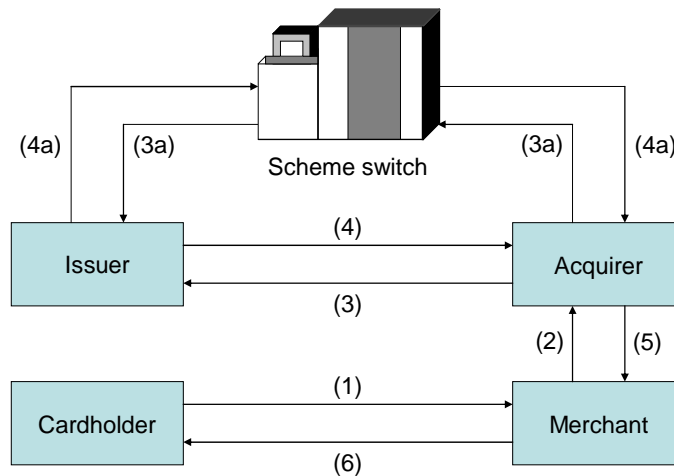
3.3.2.4 Operation of the system and settlement procedures

In Australia, as elsewhere, there is a centralised electronic clearing system for scheme card transactions. Most items are exchanged electronically, with a small residual of paper-based transactions. Scheme rules specify formatting and other message standards and security standards.

The most numerous category of scheme card purchase transactions are those performed electronically at the point of sale. The information flows involved in a typical transaction of this type are illustrated in Figure 4.

²⁷ ADIs are corporations authorised under the *Banking Act 1959* to undertake various banking activities, and are subject to prudential regulation by APRA. ADIs include banks, building societies and credit unions.

Figure 4
Information flows for a scheme card transaction



The scheme card is swiped through or placed into an electronic terminal on the merchant's counter; if required the cardholder enters their PIN into the terminal at this stage (1). The transaction and cardholder details are routed to the merchant's financial institution (the acquirer) (2). If the acquirer is also the issuer, the transaction can be authorised internally and the authorisation returned to the merchant (5). If the issuer is another institution, the acquirer routes the transaction to that issuer either bilaterally (3) or via a switch facility provided by the scheme (3a). The issuer either authorises or declines the transaction and a message is sent back to the acquirer, (4) or (4a), and on to the merchant (5). If the transaction is authorised, and a PIN has not been required, the cardholder signs a voucher. The merchant checks the signature against the card and, if all is in order, the transaction is complete.

There are separate clearing and settlement arrangements for the card schemes operating in Australia. MasterCard and Visa have appointed settlement banks for the settlement of domestic card transactions. For those participants that have ES Accounts, the obligations to and from the settlement bank are settled as part of the 9 am multilateral deferred net settlement. For participants without an ES Account, settlement is effected multilaterally through accounts with the designated settlement bank.

3.3.2.5 Risk management

Members of the Visa and MasterCard schemes are required to be ADIs subject to prudential supervision, as noted in Section 3.3.2.2. American Express and Diners Club issue and acquire many of their own card transactions, and third-party issuers are ADIs. Scheme rules mitigate fraud and other operational risks by requiring a minimum level of quality for operations, equipment and security measures. The rights and duties of card issuers and card users in the event of fraudulent transactions or operational failure are set out in the rules of each scheme and, for transactions not authorised by signature, the Electronic Funds Transfer Code of Conduct, administered by ASIC.

Participants in the scheme card systems are subject to various types of fraud risk, including stolen and counterfeit cards and card details, card skimming and false card applications. The ability to use scheme cards (credit and debit) in a card-not-present environment presents additional fraud risks to those faced in the ATM and EFTPOS systems. The Visa and MasterCard schemes are moving to EMV chip cards and terminals, although many existing

cards, including all cards issued by the American Express and Diners Club schemes, remain reliant on magnetic stripe technology.

Total interbank settlement obligations (and hence the risks) generated by the Visa and MasterCard systems are small compared to overall interbank obligations. Visa and MasterCard each indemnify their members against any loss due to a participant failure. While this reduces the risks faced by individual members, Visa and MasterCard could be exposed to losses in the case of a default. Both schemes have in place policies to manage the risk of participant failure, including the requirement for prudential supervision of members and the posting of collateral by members that do not meet minimum credit requirements.

3.3.2.6 Pricing

Interchange fees in the Visa and MasterCard systems are paid by the acquirer to the issuer and are subject to regulatory caps – a weighted average of 50 basis points for credit card transactions, and 12 cents for debit card transactions. Acquirers generally charge merchants an ad valorem fee for card transactions and a separate fee for line and terminal rental. Both issuers and acquirers pay a variety of scheme fees to Visa and MasterCard for services including transaction processing and marketing.

Cardholders do not generally pay transaction fees, but may face fixed annual fees for credit cards or monthly account keeping fees for debit card accounts.

3.3.2.7 Major ongoing and future projects

Chip technology

The transition to chip technology for credit cards is continuing, with most terminals and a growing proportion of cards now chip-enabled. The credit card schemes have removed interchange fee penalties for merchants that process transactions on chip cards on a terminal that is not chip-enabled, although the schemes continue to promote the adoption of chip technologies, for instance through rules that shift liability for fraud to parties that have not adopted chip technology. At this time few, if any, ATMs are chip-enabled.

Contactless payments

Visa and MasterCard have both introduced contactless payment technology into Australia. A small but growing number of merchants have adopted contactless terminals, and issuers have started to issue chip cards with radio frequency antennae.

3.3.3 Cheques

3.3.3.1 Institutional framework

Cheques, and other paper-based payment instruments such as money orders, AUD traveller's cheques and warrants are processed under the rules of APCA's Australian Paper Clearing System (APCS).

A Management Committee consisting of APCS participants is responsible for approving changes to the regulations, including means and timing of settlement, technical standards (such as message and security standards) and dispute resolution. Management Committee decisions can be reviewed by the APCA Board, which is made up of representatives from APCA's shareholders. Changes to APCS regulations must also be approved by a meeting of APCS members.

3.3.3.2 Participation

There are currently three classes of APCS members. Tier 1A members clear directly with one another and settle their resulting obligations across ES Accounts at the RBA. Tier 1B

members appoint Tier 1A members to clear on their behalf, but retain responsibility for their own settlement obligations. Tier 2 members appoint Tier 1A members as their agents to both clear and settle on their behalf. There are eight Tier 1A, three Tier 1B and 45 Tier 2 members of APCS.

3.3.3.3 *Types of transactions*

Cheques and other paper-based payment instruments such as money orders, AUD traveller's cheques and warrants are cleared through the APCS.

3.3.3.4 *Operation of the system and settlement procedures*

Operation of the system

Most banks provide a "three day clearing cycle". That is, if a cheque is deposited at an institution on Monday (Day 1), and cleared electronically, the institution makes the funds available to its customer for use on Wednesday (Day 3). Further details are provided below.

At the end of Day 1, institutions send all cheques deposited at their branches to their data centres or their clearers. Details of the value of the cheque are then added to the magnetic ink character recognition line (the MICR line), which includes details of the customer's account number, institution and branch. Cheques are then sorted into those drawn on the institution itself and those drawn on other institutions.

Settlement for the bulk of paper items drawn on other institutions (about 99%) is based on bilateral exchange of electronic files containing cheque details. Electronic files are sent to each clearing institution and paying institutions must inform the collecting institution by no later than the next business day if the cheque is to be dishonoured.

Physical exchange of cheques still occurs, either bilaterally or at regional clearing centres, but for the majority this is on a "not for value" basis as value has already been exchanged based on electronic information. To date, paying institutions have chosen to obtain their cheques for possible examination and storage. The *Cheques Act 1986* allows for the truncated presentation of cheques exchanged between institutions (ie electronic transmittal of data with the physical cheque remaining at the institution that collected it), although this is not widely used in Australia. Cheques deposited by customers are credited to their accounts on the day of deposit; where appropriate, interest accrues from the day of deposit. In most cases, the paying customers' institution posts debits to their customers' accounts on the night a cheque is exchanged. This means that paying customers' accounts are almost always debited on the same day as depositing customers' accounts are credited, so there is very little institution/customer float generated in the cheque clearing cycle.

In the absence of a covering line of credit, depositing customers are generally not able to withdraw these funds until the institution at which the deposit was made is reasonably sure that the cheque will be paid. Cheques are not considered paid until the paying institution has had time to validate the cheque and the drawer's capacity to cover it. The industry works on an exception basis, with paying institutions notifying collecting institutions only of those cheques that are dishonoured.

Clearing and settlement procedures

At the end of each clearing day, Tier 1A institutions advise the Collator at the RBA in Sydney of their bilateral net settlement positions with other Tier 1A institutions. These settlement balances also incorporate the positions of those institutions that have appointed a Tier 1A institution to clear and settle on their behalf. Tier 1A institutions are also responsible for reporting the multilateral net settlement positions of Tier 1B institutions for which they clear. No later than 3 am Sydney time on the following day, the final value of the previous day's exchanges is determined by the Collator, for settlement at 9 am. Institutions' ES Accounts are credited and debited simultaneously through a batch settlement in RITS. No central

bank/institution float is generated. Daily interest adjustments are made between institutions to reflect the fact that, although institutions pay interest to their customers from the day of deposit, they do not receive funds from the paying institution until settlement the next business day.

Industry practice is to credit customers for the amount of deposited cheques on the day of deposit. However, the deposited funds cannot be withdrawn until the bank of deposit is satisfied there is no further risk of dishonour. A cheque may be dishonoured for a number of reasons, including: the drawee institution becomes a failed financial institution; a cheque has been deemed fraudulent; or the payer has insufficient funds to meet the payment obligation. Funds credited to a recipient's account attract interest (if applicable to that account) from the day of deposit but may not be available for withdrawal for a number of days. Agreed industry best practice is that funds should be available no later than two days after the day of deposit.

3.3.3.5 Risk management

Participants in the cheque system are subject to a number of risks, including those arising from fraudulently altered cheques, stolen cheque books, counterfeit cheques and kite flying (the activity of depositing valueless cheques and making withdrawals against those valueless cheques). Efforts have been made to mitigate risks arising from these sources, including by the incorporation of a number of security features in paper cheques, and the use of software programs to track consumer behaviour.

The APCS is a "recognised settlement system" under the *Cheques Act 1986*, which allows for the turnback, or presumed dishonour, of cheques for which a failed institution has not settled, removing the credit risk inherent in deferred net settlement. The legal validity of netting arrangement for APCS payments is protected as an "approved multilateral netting arrangement" under the *Payment Systems and Netting Act 1998*. The APCS regulations specify arrangements that apply should a direct settling participant fail to meet its obligations. In this case, the failed participant is removed from the batch and batch obligations are recalculated.

Net interbank obligations generated by the APCS are small relative to both the total value of interbank settlements in RITS and the largest of the retail clearing streams, BECS (see Section 3.3.4). Arrangements are in place to allow ES Account holders to access additional liquidity for settlement if required.

3.3.3.6 Pricing

While there are no transaction-based fees for participation in the APCS, participants are required to pay both entrance fees and annual fees, based on the share of transactions processed through the APCS. Because the system is bilateral, most of the system's costs are associated with administration.

3.3.3.7 Major ongoing and future projects

APCA is examining strategies and policies to manage the long-term decline in paper payments. The scope of this work includes looking at: areas where cheques are still used extensively; whether sufficient alternatives to cheques exist or need to be developed; and measures to improve cheque processing efficiencies and reduce processing costs.

By mid-2011, the communications network used for APCS and BECS will move from fixed bilateral links to the use of either the COIN or SWIFT (using its FileAct service). This will allow new entrants to participate by establishing connectivity to a single network (either COIN or SWIFT), rather than having multiple fixed links to other participants.

3.3.4 Retail credit and debit transfer systems – BECS

3.3.4.1 Institutional framework

Credit transfers and direct debits are processed bilaterally under the rules of APCA's Bulk Electronic Clearing System (BECS).

A Management Committee, consisting of BECS participants, is responsible for approving changes to the regulations, including means and timing of settlement, technical standards (such as message and security standards) and dispute resolution. Management Committee decisions can be reviewed by the APCA Board, which is made up of representatives from APCA's shareholders. Changes to BECS regulations must also be approved by a meeting of BECS members.

3.3.4.2 Participation

There are two classes of members of BECS. Tier 1 members clear directly with one another and settle resulting obligations across ES Accounts at the RBA. Tier 2 members appoint Tier 1 members as their agents to both clear and settle on their behalf. There are 14 Tier 1 and 45 Tier 2 members of BECS.

3.3.4.3 Types of transactions handled

Credit transfers and direct debits, including bulk payments and transactions initiated via the internet or telephone banking facilities of financial institutions, are cleared through BECS.

BECS credit transfers are used widely, especially by government departments and companies for regular bulk payments such as social security benefits and salary and dividend payments, and more recently by individuals for internet-initiated payments. Direct debits are used mostly by billers, such as insurance and utilities companies, for collecting regular payments, as well as by financial institutions to collect loan repayments. In the case of direct debits, the payer must agree to the ongoing debiting of their account by providing an authority to the payee to allow funds to be deducted from their account.

3.3.4.4 Operation of the system and settlement procedures

Operation of the system

BECS is based on bilateral arrangements between participants. Files of direct-entry credits and debits are prepared by financial institutions and bilaterally exchanged between Tier 1 members using electronic links.

Credit transfers initiated by customers (payers) are debited from their accounts on the day of the transfer. These transfers are irrevocable and so there is no risk of dishonour. In most cases, the receiving customers' (payees') institutions will post credits to their customers' accounts overnight for value on the day of the transfer. Industry rules for Tier 1 members of BECS require that these funds be available to customers by 9 am the next morning. However, since customers may have their accounts with institutions who are not direct settlement members of BECS, receiving customers may not have their accounts credited for an extra day depending on the arrangements involved.

Direct debits initiated by customers (payees) are debited from the paying customers' (payers') accounts on the day of the transfer. Unlike credit transfers, these transfers carry the risk to beneficiaries of payments being dishonoured. In most cases, the payees' institution will post provisional credits to their customers' accounts the same day; however, in some cases payees may not have their accounts credited for up to three days depending on the internal processing systems of their institution.

Clearing and settlement

At the end of each day, Tier 1 members reconcile their inward and outward exchanges (which include the positions of their Tier 2 appointers) and report their bilateral positions against other Tier 1 members to the RBA Collator in Sydney no later than 11 pm. These are settled on a multilateral net basis at 9 am on the following business day through RITS.

3.3.4.5 Risk management

Credit transfers are irrevocable and there is no risk of dishonour. Direct debits, on the other hand, like cheques, carry the risk to beneficiaries of payments being dishonoured. Dishonours of direct debits are generally communicated within 24 hours by payers' financial institutions.

Participants face settlement risk arising from next day settlement of interbank obligations. The legal validity of netting arrangements for BECS payments is protected as an "approved multilateral netting arrangement" under the *Payment Systems and Netting Act 1998*. The BECS regulations specify arrangements that apply should a direct settling participant fail to meet its obligations. In this case, the failed participant is removed from the batch and batch obligations are recalculated.

The direct entry system generates the largest interbank obligations of any of the retail payment systems. Nonetheless, these constitute only a small proportion of the total value of RITS settlements. Arrangements are in place to allow ES Account holders to access additional liquidity for settlement if required.

3.3.4.6 Pricing

While there are no transaction-based fees for participation in BECS, participants are required to pay both entrance fees and annual fees, based on the share of transactions processed through BECS. Because the system is bilateral, most of the system's costs are associated with administration.

3.3.4.7 Major ongoing and future projects

By mid-2011, the communications networks used for APCS and BECS will move from fixed bilateral links to the use of either the COIN or SWIFT (using its FileAct service). This will allow new entrants to participate by establishing connectivity to a single network (either COIN or SWIFT), rather than having multiple fixed links to other participants.

3.3.5 Retail credit and debit transfer systems – BPAY

3.3.5.1 Institutional framework

BPAY is an electronic bill payment system owned by Australia's largest banks. There are more than 18 000 billers and over 160 financial institutions participating in BPAY.

3.3.5.2 Participation

BPAY has three classes of membership: 13 participant members; 151 associate members; and 22 payer institution members (PIMs). Participant members are involved in the clearing and settlement of BPAY transactions. Associate members and PIMs must contract a participant member to exchange and settle transactions involving their customers. Participant members, associate members and PIMs provide their customers with access to the BPAY interface, and credit and debit value to their customers' accounts.

3.3.5.3 Types of transactions

BPAY allows customers of participating financial institutions to pay their bills using credit transfers from their bank or credit card account with the transfers initiated by telephone or

internet banking services (including mobile applications and mobile internet banking). Unlike bill payments using direct debits, the customer has the option to initiate a transaction when a bill payment is due rather than providing a one-off authorisation for ongoing bill payments.

3.3.5.4 Operation of the system and settlement procedures

A customer initiates a BPAY payment via their financial institution's telephone or internet banking systems, by entering details of the payment (including the amount and a customer reference number) and the biller to which it is to be paid (identified by a biller code). The customer's financial institution then transfers funds from either a deposit or credit card account to the biller's bank. In most cases, BPAY payments relate to a paper or e-mail bill transmitted outside the BPAY system; however, BPAY does operate an electronic bill presentment service (BPAY View) which is now offered by a small number of billers.

At the end of each business day, the members of BPAY send a file detailing the transactions initiated by their customers to the Central Interchange Processor (CIP). The CIP calculates the net amounts owing by each member to the system. BPAY transactions are settled along with BECS transactions in a multilateral net batch at 9 am in RITS. BPAY has contracted one of Australia's largest banks to act as its agent in BECS, to enable interbank settlement of BPAY obligations. If a payment is made during a business day, funds are available to the biller the next business day.

3.3.5.5 Risk management

Participants in the BPAY system are members of BPAY and BECS or certified to BECS standards. The BPAY and BECS rules and operating procedures mitigate fraud and other operational risks by requiring a minimum level of quality for operations, equipment and security measures. The rights and duties of financial institutions and their customers in the event of fraudulent transactions or operational failure are set out in the Electronic Funds Transfer Code of Conduct, administered by ASIC.

Participants in the BPAY system are subject to fraud risks including the use of stolen credentials for telephone or internet banking systems. Fraud risk in the BPAY system is managed through the security measures built into financial institutions' telephone and internet banking systems from which BPAY payments are initiated.

Obligations in the BPAY system are settled along with BECS transactions in the RITS system at 9 am each business day on a deferred multilateral net basis. The interbank settlement obligations generated by the BPAY system are relatively small and of similar magnitude to the card payment systems.

BPAY has made an application for approval of its netting arrangements under the *Payment Systems and Netting Act 1998*, in order to safeguard its netting arrangements from legal challenge in the case of a participant entering external administration (where the participant is or may become insolvent).²⁸ Approval has been granted subject to a number of rule changes being made by BPAY.

²⁸ The *Payments System Netting Act* provides protection for netting where a party to an approved netting arrangement goes into external administration ie where:

- they become a body corporate that is an externally administered body corporate within the meaning of the Corporations Law; or
- they become an individual who is insolvent under administration within the meaning of the Corporations Law; or
- someone takes control of the person's property for the benefit of the person's creditors because the person is, or is likely to become, insolvent.

The comparatively small value of obligations generated by the BPAY system and the batch settlement of these obligations means that minimal liquidity risk is generated. Arrangements are in place to allow ES Account holders to access additional liquidity for settlement if required (see Section 3.2.1.5).

3.3.5.6 Pricing

There are generally no specific fees charged to customers for BPAY transfers; however, individual institutions may charge customers a fee once a particular number of transactions are made. Billers, on the other hand, pay a fee to their financial institution for every payment received through BPAY. The biller's financial institution pays a wholesale fee to the payer's institution of 45.1 cents for a payment from a deposit account, or 40.7 cents plus 0.297% of the transaction value for a payment from a credit card account.

3.3.6 Cash distribution and exchange

Cash distribution and exchange occurs under a commercial arrangement between the RBA and private sector banks. Under existing arrangements, private sector banks own and hold the working stock of notes and coins and are responsible for its distribution. Accordingly, receipt of cash from the central bank reflects the net needs of each private bank. The RBA compensates commercial banks for interest forgone on their working stock of notes and coin up to a defined limit.

APCA's Australian Cash Distribution and Exchange System (ACDES) governs the exchange of cash between participating members. ACDES provides a formal framework for participating members to undertake exchanges of cash in an orderly and secure manner. The rules allow members with a shortage of particular denominations of cash in a particular geographical area to obtain cash from members with a corresponding surplus.

Commercial banks can purchase new notes from the RBA. The RBA has two banknote distribution centres.

3.3.6.1 Institutional framework

An APCA Management Committee, consisting of representatives of each of the participants and the RBA, is responsible for approving changes to the ACDES Regulations and Rules. Management Committee decisions can be reviewed by the APCA Board, which is made up of representatives from APCA's shareholders.

The ACDES Regulations and Rules stipulate the means and timing of settlement, and dispute resolution procedures; they also set out the minimum matters that must be covered in bilateral agreements between participants. The bilateral agreements set out the general terms on which participants enter into transactions with each other.

The purchasing of cash from the RBA is covered by legal agreements between the RBA and ACDES participants.

3.3.6.2 Participation

Five banks are participating members of ACDES and undertake exchanges of cash directly with each other. These five banks comprise Australia's four major banks and one regional bank. Together, these participants supply the majority of the community's cash needs.

3.3.6.3 Types of transactions

Transactions are cash exchanges: the buying and selling of physical cash between participants with settlement in ES Account funds (ie net buyers of cash transfer ES Account funds to net sellers).

3.3.6.4 Operation of the system and settlement procedures

Settlement for cash exchanges occurs on a deferred net bilateral basis through RITS by around 10 am on the following business day. Settlement of emergency buys may occur same-day by 4 pm through RITS.

3.3.6.5 Risk management

Risks are managed by the ACDES Management Committee using the ACDES Regulations, Rules and Failure to Settle Guidelines and the Business Continuity Manual. Members have established exchange trading/dealing limits with counterparties to limit intraday settlement risk for transactions.

3.3.6.6 Pricing

Members undertake exchanges at face value and share the costs of operating ACDES based on respective percentages of national activity.

4. Systems for post-trade processing, clearing and securities settlement

4.1 General overview

Clearing and settlement facilities operating in Australia are required to be licensed under the *Corporations Act 2001*. This legislation specifies that to grant a licence for clearing or settlement, the Australian Government must be satisfied, among other things, that the facility has adequate operating rules and procedures to ensure that systemic risk is reduced, and that the facility operates in a fair and effective manner. In making this assessment, the Australian Government considers advice from the RBA and ASIC.

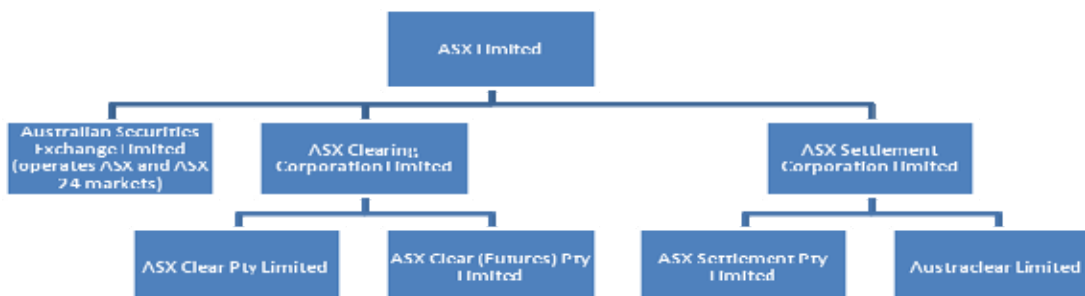
Licensed facilities are subject to ongoing oversight by the RBA and ASIC. The RBA is responsible for ensuring that such facilities conduct their affairs in a way that is consistent with financial system stability. The *Corporations Act* specifies that licensed facilities must comply with the *Financial Stability Standards*, which are determined by the RBA, and do all other things necessary to reduce systemic risk. The RBA publishes formal annual assessments of all licensed facilities, which include specific evaluations against the *Financial Stability Standards*. ASIC is responsible for ensuring that licensed facilities meet any other supervisory obligations, including that operations are carried out in a fair and effective way, and that other conditions on a facility's licence are being satisfied.

Four licensed clearing and settlement facilities are subject to the *Financial Stability Standards* – two CCPs, ASX Clear Pty Limited (ASX Clear) and ASX Clear (Futures) Pty Limited (ASX Clear (Futures)), and two securities settlement facilities, ASX Settlement Pty Limited (ASX Settlement) and Austraclear Limited (Austraclear).²⁹ These entities are all part of a single corporate group, Australian Securities Exchange (ASX) Limited.³⁰ ASX Limited is a for-profit, public company listed on its own financial market, ASX.

²⁹ A fifth entity, IMB Ltd, is licensed to settle a small volume of transactions in its own shares.

³⁰ ASX Limited was formed through the merger of Australian Stock Exchange Limited and Sydney Futures Exchange (SFE) Corporation Limited in 2006.

Figure 5
ASX Group corporate structure



ASX Limited operates two markets, ASX and ASX 24 (formerly the SFE market). The ASX market provides trading services with respect to equities, warrants and a limited range of derivatives. The ASX 24 market offers trading services with respect to a range of futures and options. The ASX and ASX 24 markets are each linked to a separate CCP. ASX Clear offers CCP services for products traded on the ASX market. ASX Clear (Futures) offers CCP services for derivatives traded on the ASX 24 market, and for certain over-the-counter (OTC) transactions between ASX Clear (Futures) participants.

Equity trades initiated on the ASX market are settled by ASX Settlement, which also settles off-market equities trades between its participants. ASX Settlement owns and operates the Clearing-House Electronic Subregister System (CHESS), a central securities depository (CSD) for equities, which utilises the RITS system (see Section 3.2.1) for settlement of the funding leg through participating banks in central bank money.³¹ Cash payments between clearing participants arising from margins and cash-settled derivatives trades initiated on the ASX and ASX 24 markets are made through Austraclear. Austraclear's primary function is to provide delivery versus payment (DVP) securities settlement (and CSD services) for fixed income securities.³² Austraclear is a feeder system to RITS, with interbank obligations settling in central bank money on an RTGS basis.

4.2 Post-trade processing systems

Austraclear also provides a limited range of post-trade processing services for OTC transactions. These include trade confirmation services for OTC debt securities transactions and some OTC derivatives transactions.³³ Austraclear offers these services as a complement to its settlement services, facilitating straight through processing of such transactions. (For more information regarding Austraclear, see Section 4.4.2.)

4.3 Central counterparties and clearing systems

The two CCPs licensed to operate in Australia are ASX Clear and ASX Clear (Futures), both subsidiaries of ASX Limited.

³¹ RITS offers a batch settlement facility that simultaneously debits and credits batch obligations.

³² These securities are traded on an OTC basis.

³³ Austraclear typically charges AUD 3 per side for OTC trade confirmation services.

4.3.1 ASX Clear

4.3.1.1 Institutional framework

ASX Clear Pty Limited is a wholly owned subsidiary of ASX Clearing Corporation Limited (ASXCC), itself a wholly owned subsidiary of ASX Limited. ASXCC is responsible for the investment of ASX Clear (and ASX Clear (Futures)) risk resources including margins (held under trust) and provides subordinated loans to both ASX Clear and ASX Clear (Futures). ASXCC holds an ES Account at the RBA.

ASX Clear is governed by its own board of directors, while the ASX Group is governed by the ASX Limited Board. The ASX Limited Board is primarily responsible to shareholders for the overall performance of ASX Group. Responsibility for oversight and risk management of the clearing and settlement facilities is delegated to the facilities' individual boards, which report to the ASX Limited Board. The boards all comprise a majority of independent, non-executive directors.

The legal basis for ASX Clear's operations is set out in the ASX Clear Operating Rules and Procedures. These rules define the nature and scope of its obligation to provide clearing services to participants, and describe the conditions under which final and irrevocable settlement of obligations is deemed to have occurred. The Operating Rules and Procedures also set out the rights and obligations of participants, including in the event of default or suspension.

Under Australian law, the ASX Clear Operating Rules and Procedures have effect as a contract between ASX Clear and each of its participants, and between each participant and each other participant. Furthermore, Australian law protects the netting arrangements contained in the ASX Clear Operating Rules and Procedures. This provides certainty for the netting process in the event of the insolvency of a participant.

The RBA in its oversight role continually monitors ASX Clear's compliance with the *Financial Stability Standard for Central Counterparties*, and publishes formal assessments annually. ASIC also publishes annual market assessment reports of the ASX Group; these cover, among other things, the fair and effective provision of services by the licensed clearing and settlement facilities, and whether the facilities' licence obligations are met. See Section 4.1 for a full description of the Australian regulatory framework.

4.3.1.2 Participation

There are two classes of participant in ASX Clear: direct participants (which clear for their own and client activity, as ASX trading participants); and general participants (which in addition to clearing for their own and client activity may act as third-party clearers for other ASX trading participants, ie other trading participants that are not clearing members of ASX Clear). At September 2010, ASX Clear had 54 participants – 51 direct participants and 3 general participants. The 51 direct participants comprised eight domestic banks, 23 domestic brokers and 20 foreign entities.

4.3.1.3 Types of transactions

ASX Clear provides CCP services for products traded on the ASX market. These include equities, pooled investment products, warrants, certain interest rate products and equity- and commodity-related derivatives.

4.3.1.4 Operation of the system and settlement procedures

For cash equities trades, novation occurs with effect from the matching of the trade on the market. In the case of derivatives trades, novation takes place no later than the evening of the day of the trade, when trade details are allocated to participants' accounts. Following novation, clearing participants receive confirmation messages regarding the trades that have

been novated, and on the next day (T+1) receive notification of their net obligations to ASX Clear for the previous day's trades.

Securities obligations between ASX Clear and its clearing participants are settled in ASX Settlement. Associated interbank payment obligations are settled in RITS.³⁴ Equities obligations are settled on a T+3 basis. Margin payments are initiated via Austraclear and settled through RITS (at present cash equities are not margined).

ASX Clear trade information is stored in CHESS.

4.3.1.5 Risk management

ASX Clear applies three layers of risk management protections:

- **Participation requirements and ongoing monitoring.** Direct participants are required to hold at least AUD 5 million in core capital and general participants are required to hold at least AUD 10 million in core capital. Core capital consists of share capital, reserves and retained profits. Participants are also subject to requirements regarding technical and operational capacity. Minimum capital requirements provide comfort that a participant has sufficient financial capacity to absorb unexpected financial or operational shocks. They can also help to ensure that participants commit significant financial resources to the clearing business and assume the responsibility that direct participation entails. Furthermore, minimum capital requirements provide a means (albeit imperfect) of reducing the probability of a call on a CCP's risk resources by assuming exposures only to participants meeting a threshold level of credit quality.
- **Margining and other collateralisation of exposures by participants.** Margins protect the CCP from normal price volatility. Margins are routinely collected from participants in respect of derivatives exposures, but not currently for cash equities (see Section 4.3.1.8 in respect of a project to introduce margins for cash equities). Initial margin requirements are calculated on the basis of covering three standard deviations of the estimated distribution of price movements. Variation margins are collected to mark to market the value of positions on a daily basis, and may also be called intraday. For both derivatives and equities positions, additional collateral may be requested where exceptionally large or concentrated exposures are identified through capital stress testing. The margins and other collateral posted by a defaulting participant would be drawn on first to cover losses resulting from their default. ASX Clear tests the validity of its margin methodology by periodic backtesting.
- **Maintenance of risk resources.** ASX Clear risk resources protect against losses that could arise if a default exceeds any margin posted by the defaulting participant, ie risk resources guard against losses arising from a participant default in extreme but plausible conditions. ASX Clear risk resources comprise AUD 250 million in fully paid-up ASX Clear funds³⁵ and up to AUD 300 million which can be levied on surviving participants in the event of a participant default. ASX Clear assesses the adequacy of pooled risk resources by stress testing on a daily basis.

³⁴ On a Model 3 DVP basis. Securities are immobilised prior to submission of a batch payment instruction to RITS. Upon successful settlement of that RITS batch, settlement participant cash positions are immediately updated with a corresponding release of securities to their intended recipients.

³⁵ As ASX is a for-profit CCP (and is not mutualised), own resources are called upon prior to mutualised participant promissory resources in the default fund "waterfall". Own resources comprise own equity, restricted capital reserve, a subordinated loan funded by ASX Limited and a subordinated loan funded by a commercial bank.

In the event of a participant default, ASX Clear is able to reschedule any payments involving the failed participant. ASX Clear may also enter into market transactions to sell or purchase securities to facilitate the settlement of novated transactions. For derivatives, ASX Clear has the ability to close out a defaulted participant's positions, or to seek to transfer the client positions of the defaulted participant to a surviving participant.

4.3.1.6 *Links to other systems*

ASX Clear is linked to the ASX Trade platform and the ASX Settlement and Austraclear settlement facilities. ASX Clear settles margin and treasury investment related transactions through RITS across the ES Account of ASXCC.

4.3.1.7 *Pricing*

Combined clearing and settlement fees for equity trades are charged at 0.25 basis points per trade.³⁶ The corresponding fees for warrants, structured products and interest rate securities are 0.35 basis points per trade.

Clearing participants are also required to pay an annual fee of AUD 5 000, or AUD 7 500 if offering third-party clearing services.

4.3.1.8 *Major ongoing and future projects*

Projects that ASX Clear is currently planning include:

- **Routine margining of equities.** ASX Clear intends to introduce margining for cash equities positions.
- **Harmonisation and linking of CCP activity.** ASX Limited has an ongoing project to harmonise and link the activities of its two CCPs (ASX Clear and ASX Clear (Futures)). The project will include migrating both CCPs to a common margining system.

4.3.2 **ASX Clear (Futures)**

4.3.2.1 *Institutional framework*

ASX Clear (Futures) Pty Limited is a wholly owned subsidiary of ASX Clearing Corporation Limited, itself a subsidiary of ASX Limited. ASX Clear (Futures) has the same governance structure, legal framework and regulatory framework as ASX Clear (see Section 4.3.1.1). ASX Clear (Futures) was formerly known as SFE Clearing Corporation.

4.3.2.2 *Participation*

At September 2010, ASX Clear (Futures) had 15 participants, predominantly large foreign banks and their subsidiaries.

4.3.2.3 *Types of transactions*

ASX Clear (Futures) provides CCP services for derivatives traded on the ASX 24 market, including futures and options on interest rate, equity, energy and commodity products, and for non-market trades between ASX Clear (Futures) participants, including block trades, strip

³⁶ All prices quoted exclude goods and services tax.

trades and exchange-for-physical trades. ASX Clear (Futures) clearing participants must appoint a settlement participant in Austraclear to settle margin and other obligations.³⁷

4.3.2.4 Operation of the system

ASX Clear (Futures) novates trades initiated on the ASX 24 market upon ASX 24's registration of the matched trade. Non-market trades are novated when ASX Clear (Futures) approves and registers the trade details.

Each trading day, ASX Clear (Futures) calculates the obligations of its clearing participants arising from cash settlement of derivative contracts and margins. Participants with net obligations to the CCP are required to make RTGS payments through Austraclear (ie a payments message through the Austraclear system that will result in a transfer of ES Account funds to ASXCC via RITS RTGS functionality) (see Section 4.4.2 for a description of Austraclear).³⁸ Once these payments have been received, ASX Clear (Futures) makes payments to those participants with a net obligation from the central counterparty. Settlement occurs in real time across the ES Accounts of participating banks at the RBA (see Section 3.2.1). Unless there is a participant default, flows across the ES Account of ASXCC will reflect net margin receipts or payments.

Where derivative contracts require physical settlement, ASX Clear (Futures) utilises the securities settlement functions within Austraclear or, for certain commodities, facilitates delivery via a warehouse.

4.3.2.5 Risk management

The ASX Clear (Futures) risk management framework has three key components:

- **Participation requirements and ongoing monitoring.** ASX Clear (Futures) participants are required to maintain a minimum of AUD 5 million in net tangible assets. Participants are also subject to requirements regarding technical and operational capacity. Minimum capital requirements provide comfort that a participant has sufficient financial capacity to absorb unexpected financial or operational shocks. They can also help to ensure that participants commit significant financial resources to the clearing business and assume the responsibility that direct participation entails. Furthermore, minimum capital requirements provide a means (albeit imperfect) of reducing the probability of a call on a CCP's risk resources by assuming exposures only to participants meeting a threshold level of credit quality.
- **Margining and other collateralisation of exposures by participants.** Margins protect the CCP from normal price volatility. Clearing participants are required to post initial margin for their derivatives positions. Initial margins are calculated on the basis of covering three standard deviations of historical price movements. In addition, clearing participants are required to pay variation margins on a daily basis, covering any price movements in the previous day. ASX Clear (Futures) can also collect variation margins on an intraday basis. Additional margin may also be requested where exceptionally large or concentrated exposures are identified through capital stress testing. In the event of a default, any margin posted by the defaulting participant would be used first to cover its obligations to ASX Clear

³⁷ A clearing participant in ASX Clear (Futures) may also be an Austraclear settlement participant. A settlement participant that does not have an ES Account at the RBA must appoint a participating bank.

³⁸ Note that a clearing participant with surplus collateral lodged with ASX Clear (Futures) may not need to make a payment through Austraclear settlement participants and participating banks.

(Futures). ASX Clear (Futures) tests the validity of its margin methodology by periodic backtesting.

- **Maintenance of risk resources.** ASX Clear (Futures) risk resources protect against losses that could arise if a default exceeds margin posted by the defaulting participant, ie risk resources guard against losses arising from a participant default in extreme but plausible conditions. Risk resources comprise AUD 370 million of fully paid-up own and participant funds and AUD 30 million in participant promissory funds. ASX Clear (Futures) assesses the adequacy of risk resources by stress testing on a daily basis.

In the event of a participant default, ASX Clear (Futures) has the ability to close out any open contracts, to exercise or terminate open contracts, or to seek to transfer client positions.

4.3.2.6 Links to other systems

ASX Clear (Futures) is linked to ASX 24 markets and to Austraclear. ASX Clear (Futures) settles margin and treasury investment related transactions through RITS across the ES Account of ASXCC.

4.3.2.7 Pricing

Clearing fees for cash-settled financial derivatives are combined with ASX 24 trading fees, and range between AUD 0.60 and AUD 1.50 per side depending on the derivative product cleared. Clearing fees for physically settled securities derivatives range between AUD 2 and AUD 2.50 per side, with higher fees for physically settled commodity derivatives.

In addition, clearing participants may be charged an annual fee of AUD 10 000.

4.3.2.8 Major ongoing and future projects

As discussed in Section 4.3.1.8, ASX Limited is currently working to harmonise the activities of its two CCPs.

4.4 Securities settlement systems

Two securities settlement systems licensed to operate in Australia are subject to the *Financial Stability Standards* – ASX Settlement and Austraclear; both are subsidiaries of ASX Limited.³⁹

4.4.1 ASX Settlement

4.4.1.1 Institutional framework

ASX Settlement Pty Limited is a wholly owned subsidiary of ASX Settlement Corporation Limited, which is itself a wholly owned subsidiary of ASX Limited. As with the ASX Limited CCPs, responsibility for governance lies across a specific ASX Settlement board and the ASX Limited Board (see Section 4.1). ASX Settlement was formerly known as ASX Settlement and Transfer Corporation.

The legal basis for ASX Settlement's operations is set out in its operating Rules and Procedures. Under Australian law, these rules have effect as a contract between ASX Settlement and each of its participants, and between each participant and each other

³⁹ A third entity, IMB Ltd, is licensed to settle a small volume of transactions in its own shares.

participant. The operating Rules and Procedures set out the rights and obligations of participants and ASX Settlement, including in the event of default or suspension.

The netting arrangements undertaken by ASX Settlement with respect to its participants' obligations have approval as a protected netting arrangement under the *Payment Systems and Netting Act 1998*. This provides certainty for the netting process in the event of the default of an ASX Settlement participant or a payments provider (see Section 1).

The RBA continually monitors ASX Settlement's compliance with the *Financial Stability Standard for Securities Settlement Facilities*, and publishes formal assessments annually. ASIC also publishes annual market assessment reports of the ASX Group; these cover, among other things, the fair and effective provision of services by the licensed clearing and settlement facilities, and whether the facilities' licence obligations are met. (See Section 4.1 for a description of the Australian regulatory framework.)

4.4.1.2 Participation

At September 2010, ASX Settlement had 106 participants.

4.4.1.3 Types of transactions

ASX Settlement operates the securities settlement facility for equities and warrants traded on the ASX market.⁴⁰

4.4.1.4 Operation of the system

ASX Settlement's securities settlement system is CHESSE.⁴¹ Settlements in CHESSE occur on a Model 3 DVP basis, with settlement of participants' cash obligations and securities transfers occurring simultaneously upon confirmation that interbank settlement across ES Accounts at the RBA has taken place as a multilateral net batch.

On business day T+1, CHESSE generates a single net batch instruction reflecting the net position of each participant's novated trades in each line of stock. Between T+1 and T+3, participants can also instruct CHESSE to include additional non-novated (off-market) transactions in the batch at T+3. The majority of non-novated transactions are typically related to the "priming" of clearing participants' accounts to facilitate settlement of novated trades.

On T+3, after the cutoff for new settlement instructions, transfer of securities positions is stopped in CHESSE and participants' "payment providers" are requested to fund the net cash obligations of settlement participants. Payment providers hold ES Accounts at the RBA and act on behalf of settlement participants.⁴² Payment obligations are settled between payment providers in RITS in a single daily multilateral net batch. Immediately upon confirmation from RITS that the funds transfers have been settled, ASX Settlement completes the net securities transfers in CHESSE, thus ensuring DVP and final settlement.

⁴⁰ It also operates a transfer service for a very small number of transactions undertaken on minor regional exchanges.

⁴¹ The ASX Group encompasses a vertically integrated exchange, CCP and settlement system (including the CSD). CHESSE spans both the CCP and the settlement system. Transactions arising from the exchange pass through the ASX proprietary trading engine via a proprietary message system to CHESSE. ASX has added infrastructure to permit competing exchanges to access its CCP and settlement services (which involves access to CHESSE). CHESSE distinguishes between novated and non-novated trades but Model 3 DVP settlement involves a single net position for each line of stock that represents the net of novated and non-novated transactions.

⁴² There were 12 payment providers operating in ASX Settlement at June 2010.

4.4.1.5 Risk management

Settlement risk in CHESS is mitigated by the use of a Model 3 DVP mechanism. CHESS settlement is from credit funds only so that ASX Settlement is not exposed to credit risk.

Often delivery of securities occurs at the end of a chain of custodian transfers, a process that a settlement participant may have limited capacity to control in a global market. Accordingly, ASX Settlement participants may not be able to ensure that all securities are lodged in the appropriate accounts prior to settlement. CCPs provide participants with a guarantee against the default of a participant. They do not, however, guarantee timely settlement. A small proportion of settlement fails are common in equities settlement systems.

This risk can be mitigated through securities lending arrangements. ASX Settlement does not feature a centralised securities lending service but all ASX Settlement participants have standing arrangements with institutional lenders (eg custodians).

If, due to a shortfall of either securities or funds, a participant is unable to settle its scheduled obligations in the batch, ASX Settlement rules allow for all or some of the transactions of the affected participant to be “backed out”. These transactions are then rescheduled for settlement on the next settlement day. ASX Settlement’s back-out process seeks to remove as few transactions from the batch as possible, maximising settlement values and volumes, while minimising the spillover to other participants.

To ensure that participants have the proper incentive to avoid settlement fails, ASX Settlement imposes a fee for failed settlements. Serious or lengthy fails may be referred to the ASX Disciplinary Tribunal.

Operational risk is mitigated through maintenance of a live backup site. A small core of staff for key functionality is permanently located at the backup site and procedures ensure that full migration of personnel to the backup site can occur within two hours. The backup site can be operated remotely from the primary site.

Settlement participants are required to maintain business continuity arrangements to allow the recovery of usual operations within approximately two hours following a contingency event.

ASX Settlement regularly tests business recovery arrangements. Connectivity and procedural testing of the backup site are performed monthly. Live tests (ie where market, clearing and settlement services are provided in real time from the backup site) are conducted on a two-year cycle.

4.4.1.6 Links to other systems

ASX Settlement is linked to the ASX Clear CCP. ASX Settlement utilises RITS for cash settlement between participant banks (see Section 4.4.1.4).

4.4.1.7 Pricing

Combined clearing and settlement fees for transactions settled by ASX Settlement are described in Section 4.3.1.7.

Settlement participants are also required to pay an annual fee of AUD 5 000 or AUD 10 000, depending on the type of access they require.

4.4.2 Austraclear

4.4.2.1 Institutional framework

Austraclear Limited is a wholly owned subsidiary of ASX Settlement Corporation Limited, itself a subsidiary of ASX Limited. Austraclear and ASX Settlement have the same governance structure and regulatory framework (see Section 4.4.1.1).

Austraclear's Regulations are a contract between Austraclear and each of its participants, and between participants, governed by Australian law. Austraclear is an electronic depository and securities settlement system for Commonwealth Government Securities and other debt securities. It is an RTGS feeder system to RITS and is approved under the *Payment Systems and Netting Act 1998*. Austraclear provides transfer of securities against Austraclear cash accounts between a diverse range of participants. Non-bank Austraclear participants must nominate a "participant bank" that agrees to meet their obligations. Austraclear RTGS of securities creates interbank obligations that simultaneously settle across ES Accounts at the RBA on an RTGS basis through RITS.⁴³ Some transactions will settle solely in Austraclear (ie where two non-bank participants share a common participant bank).

4.4.2.2 Participation

At September 2010, Austraclear had 729 participants.

4.4.2.3 Types of transactions

Austraclear primarily settles trades executed in the OTC market for fixed income securities, including government bonds and repos. It also accepts payments instructions for cash settlement of derivatives transactions and margins.

4.4.2.4 Operation of the system

Austraclear's key settlement system is EXIGO.

Austraclear settles securities transactions on a Model 1 DVP basis. This involves the simultaneous transfer of payment and securities obligations between the buyer and seller on an item-by-item (gross) basis through the settlement cycle. Austraclear also provides for one-way cash transfers between participants, which are settled on an item-by-item (gross) basis.

To settle payments, participant banks hold ES Accounts at the RBA and act on behalf of other Austraclear participants.⁴⁴ Settlement of payment obligations occurs between participating banks across ES Accounts at the RBA on an RTGS basis. A simultaneous transfer of securities title occurs in Austraclear to complete final settlement.

4.4.2.5 Risk management

Austraclear addresses settlement risk by the use of a Model 1 DVP mechanism.

Operational risk is mitigated through maintenance of a backup site. Key systems offer full redundancy at both the primary and backup sites.

Austraclear tests backup arrangements quarterly and carries out connectivity and procedural testing on a monthly basis. Live tests (ie where market, clearing and settlement services are provided in real time from the backup site) are conducted on a two-year cycle.

Through its Regulations, Austraclear also requires that its participants have appropriate disaster recovery arrangements.

⁴³ "Participant Bank" is a defined term in the Austraclear Regulations, meaning a participant in RITS with an ES account at the RBA which has unconditionally agreed to meet obligations on behalf of an Austraclear participant or participants.

⁴⁴ At June 2010, 59 participant banks were operating in Austraclear.

4.4.2.6 *Links to other systems*

Austraclear has links with two overseas international securities depositories – Euroclear and Clearstream. These links allow Austraclear participants to hold entitlements to securities held in those depositories in their Austraclear account. Austraclear also has a link with Central Moneymarket Unit (CMU), a CSD operated by the Hong Kong Monetary Authority, which allows CMU participants to settle securities held in Austraclear.

Austraclear is linked to the ASX Clear and ASX Clear (Futures) CCPs. It is a feeder system to RITS enabling RTGS of cash obligations (see Section 4.4.2.4).

4.4.2.7 *Pricing*

Transaction fees for settlement of fixed income securities are set at AUD 11 per side, and for cash transfers at AUD 5 per side.

Participants are also charged annual access fees, ranging from AUD 750 to AUD 5 000 depending on the type of access.

4.4.2.8 *Major ongoing and future projects*

ASX Limited is augmenting Austraclear's user functionality and internal operations including trade management, trade input, corporate action reporting, market repo trade enhancements and straight through processing. The project is expected to be completed in stages over 2011 and 2012.

4.5 Use of the securities infrastructure by the central bank

The RBA provides liquidity (including intraday) via transactions in eligible securities. Eligible securities for market operations and intraday repurchase transactions must be lodged in Austraclear.