

Chapter 8

PAYMENTS SYSTEM

The chief considerations when undertaking any reform of the payments system must be to:

- preserve public confidence in the system by maintaining its integrity; and
- ensure the efficiency of the system is maximised.

The following recommendations are consistent with these goals.

8.1 What Constitutes the Payments System?

The payments system is a set of mechanisms through which individuals, businesses and governments meet their monetary obligations to each other. Strictly speaking, it is not a single system but numerous systems through which small and large payments, domestic and international, are transacted, processed, cleared and settled.

The payments system is supported by infrastructure which is provided by many, mostly financial, institutions with the facilities for recording, communicating, distributing and settling payment transactions, and, in most cases, for holding transaction balances. Industry bodies and the Reserve Bank coordinate, make the rules for and oversee operations.

There are six key components in payments systems:

- *participants*, ie. those with authorised access to the system;
- *instructions* to make a payment;
- the *instruments* or means to make a payment;
- the *delivery mechanisms* to transmit the instruction;
- presenting and exchanging instructions and instruments - *clearing*; and
- completing the payment and exchanging value - *settlement*.

The clearing and, in particular, the settlement components (that is, the point at which the transfer of value actually takes place) are the key components in terms of where the greatest potential for risk lies. With over \$100 billion, on average, passing through the payments system and needing to be settled each day, the greatest regulatory attention needs to be focused on ensuring that settlement is final and has good value. Otherwise the economy as a whole will not be able to function effectively.

8.1.1 Clearing and settling

“Clearing” is about passing instructions to another participant with a view to obtaining finality of payment. This typically occurs at a “clearing house” under established rules and procedures which include not only the operational requirements on those clearing institutions but also how settlement for the underlying values is to be obtained.

The Australian Payments Clearing Association Limited (APCA) was formed in February 1992 to assume responsibility for the management and administration of Australia's payments and clearing systems. These are divided into four streams, each with its own separate management committee drawn from its participants (with the Reserve Bank of Australia, in addition to being Chairman of APCA, having representation on each):-

- Clearing Stream 1 - for paper transactions (eg. cheques)
- Clearing Stream 2 - for bulk electronic transactions (eg. direct entry)
- Clearing Stream 3 - for consumer electronic transactions (eg. ATM, EFTPOS and Cards)
- Clearing Stream 4 - for high-value electronic transactions (eg. BITS, RITS, Austraclear and CHESS)¹

The direct participants in each of these streams (licensed banks and building society and credit union Special Service Providers) take on responsibility for clearing and settling their own payments, those of their customers and those of any other institution on whose behalf they are acting. The risks are borne by the participants (the banks) and are not underwritten by the RBA.

While the largest number of transactions are associated with clearing streams 1, 2 and 3, the largest volume by value goes through clearing stream 4 which accounted for 64% of the value of all payments in 1995 (see Table 8.1). Clearing stream 1 accounted for 35% and streams 2 and 3 accounted for approximately 1%, by value.

Table 8.1
AUSTRALIAN PAYMENTS CLEARING STREAMS: DAILY VOLUMES

CLEARING STREAM	1991		1995	
	\$ billion	% of total	\$ billion	% of total
1. Cheques and other paper debits	30	59	27	35
2 & 3. Retail Electronic:				
- Direct entry	1	2	1	1
- Plastic cards	-	~	-	~
4. Wholesale Electronic:				
- BITS	12	24	22	28
- Austraclear	7	13	18	23
- RITS	1	2	10	13
Total	51	100	78	100

* Figures in table do not include data on transactions between a bank and its customer, or between two customers of the same bank, because these transactions do not need to be exchanged between banks. The inclusion of these transactions take the value of payments exchanged average daily to in excess of \$100 billion.

- Less than \$0.5 billion.

~ Less than 0.5%.

Source: Australian Payments System Council, Annual Report, 1994/95.

¹ Bank Interchange and Transfer System (BITS) - domestic interbank EFT system designed to handle large irrevocable transactions; Reserve Bank Information and Transfer System (RITS) - electronic transfer and settlement system for Commonwealth Government securities; Austraclear - central depository and clearing house for securities traded in Australian money markets; CHESS - equity security clearing and settlement system.

Interbank “Settlements” are made in Central Bank money across Exchange Settlement Accounts (“ESA”) at the RBA. It is only with the transfer of money across the Exchange Settlement Accounts that the system achieves finality of payment. Currently, settlement occurs on a net deferred basis which means that transfer of value instructions are netted out between clearers at the end of the day and the resulting obligations are settled at 9.00 am the following day.

Participation in settlement requires necessary infrastructure and liquidity and risk management systems. Currently, only about one third of the licensed banks carry out any form of direct settlement, with only five banks participating in the settlement for high-value electronic transactions². All other banks’ and financial institutions’ settlement is undertaken by these banks on an agency basis.

The settlement portion of the payments system is really about accessing deposits and liquid funds that banks have organised to have on hand each day in preparation for settlement. To this end, funds are withdrawn to make payments and then transferred to other deposit accounts, within a bank and between banks. The RBA regulates the custodians of those deposit accounts in order to ensure that the national savings are not threatened and monies continue to flow efficiently in the financial system.

8.1.2 The transaction facilitation components of the payments system

“Participants” are those individuals, businesses, governments, financial institutions and service providers with authorised access to the system. They may be customers, banks (including the central bank), non-bank financial institutions, cheque form printers, card manufacturers, telecommunications providers, transport companies, system owners etc.

A payment “Instruction” is typically a request by one party (the Drawer or Remitter) to another party (the Drawee or Bank) to pay a certain sum to a third Party (the Payee or Beneficiary).

A payment “Instrument” is the means by which instruction relative to payment is recorded. Sometimes, the instrument also becomes the vehicle by which the Instruction is transported between various points within the payments infrastructure. Some examples of instruments include cash; cheques; payment orders; an electronic instruction capture devices (eg. ATM, EFTPOS or Cash Management terminal).

Plastic transaction cards are not generally regarded as instruments but rather as “activating devices”. Even in the case of “Smart Cards” the instruction may be recorded on the micro-circuit, however, it is not until it is released into another electronic capture device that it can be regarded as really being within the payments system. Similarly, pre-paid cards are not themselves instruments as the value has already been exchanged at the time of initial purchase.

“Delivery Systems” are the means by which the instructions recorded on payment instruments are transported from one point within the payments system to any other point within that system. In practice, many varied forms of delivery systems may be utilised in transmitting the Instruction from the point at which that instruction first enters the payments system to the ultimate destination point for that Instruction.

² These banks are the four majors, and the State Bank of NSW.

While important, the transaction facilitation components are less critical parts of the payments system from the perspective of risk to the overall financial system and therefore require less regulatory overview or intervention.

8.2 Risk

Risk and its containment are dominant issues in local and international thinking on payments matters as payments risk extends beyond national boundaries. For any discussion regarding the regulation of the payments system and its participants, it is important to note the various dimensions of the risk:

- *Settlement risk* is faced by individual participants in the system. This risk arises when one participant is unable to meet its obligations to another participant, either because the institution cannot meet the obligation at all (partially or in full) - *credit risk*- or because it cannot meet its obligation at the required time - *liquidity risk*.
- *Systemic risk* arises when the inability of one or more participants to meet their obligations causes other participants to be unable to meet theirs.

When settlement risk increases, systemic risk also rises. The greater the accumulation of unsettled balances in a settlement system, the greater the possibility that a single case of failure to settle could trigger a chain reaction that could quickly envelop other markets and threaten the stability of the financial system.

Internationally, another level of risk is present - *Herstatt risk*³. This risk relates to the settlement of foreign exchange (FX) transactions and arises where there are the time zone differences between the countries. The failure of a participant in one time zone prior to settlement of the other leg of the FX deal in the other country leads to exposure of those participants in that later settling country.

8.3 Real Time Gross Settlement System

In line with developments taking place internationally⁴, Australia has scheduled to introduce a Real Time Gross Settlement System by the end of 1997 for settling clearing stream 4 payments (i.e. for high value electronic transactions). With RTGS, settlement will take place between banks on a gross basis (rather than on a net basis) in real time throughout the day (rather than just once a day). Participating banks (and the two Special Service Providers) will need to have Exchange Settlement Accounts and to keep these in credit. Transfers will take place between these accounts. If insufficient funds are available at any point in time, payments will be queued until sufficient funds have been received in

³ On June 26, 1974, Bankhaus Herstatt, a small bank in Cologne active in the FX market, failed. Prior to the announcement of Herstatt's closure, several of its counterparties had irrevocably paid Deutsche Mark to Herstatt on that day through the German payments system against anticipated receipts of U.S. dollars later the same day in New York in respect of maturing spot and forward transactions. Upon termination of Herstatt's business at 3:30 pm in Frankfurt, (10:30 am New York time) Herstatt's New York correspondent bank suspended outgoing U.S. dollar payments from Herstatt's account. The action left Herstatt's counterparty banks exposed for the full value of the Deutsche Mark deliveries made (credit risk and liquidity risk). Moreover, banks which had entered into forward trades with Herstatt not yet due for settlement lost money in replacing the contracts in the market (replacement risk) and others lost deposits held with Herstatt (traditional counterparty credit risk).

⁴ 13 countries have introduced RTGS and a further 13 are expected to be on stream by end 1997.

the accounts. Further, to ensure that there is sufficient liquidity available, the RBA has announced that banks will be able to make intraday borrowings from their PAR assets⁵.

The introduction of RTGS will remove an important form of settlement risk present in net deferred settlement systems, which results from settlement lags and payments not being synchronised. However, it will not remove liquidity risk (which arises if the number of unsettled payments is such that the flow of payments through RTGS becomes gridlocked) or credit risk (in the situation in which participants have acted in anticipation of receiving funds). Under RTGS, if a bank fails to meet its payment obligations, then the probability that payments system failure can be confined to that one bank is increased, (assuming other banks can manage to make up for the funds they did not receive from the failed bank by accessing liquidity elsewhere). But failure of even one bank could have significant effects on investor confidence in the system and potentially on overall liquidity in the economy.

While RTGS will go some way toward mitigating systemic risk, it will not remove it. Moreover, while the large value transactions will be settled on RTGS, some 35% of payments (by value), will continue to be settled on a net deferred basis. In addition, major payments system risk will continue to exist in the settlement of the overseas legs of foreign exchange transactions, until a comprehensive interlinked, real time global settlement can be implemented. It should also be noted that RTGS is only one payments risk management tool available to the banking system. Multilateral netting of non-time critical payments is another tool which is associated with lower liquidity management costs.

8.4 The Need for Restricted Access to Settlement and Clearing

8.4.1 Settlement

While access to a market or to participation in an activity is recognised as an important determinant of competition, in the case of the settlement of payments, access is also a key element of risk control. The objectives of greater competition need to be balanced against public policy concerns with the safety and soundness of the financial system. Clearly, the freedom of both entry and exit that are implied by vigorous competition are simply not compatible with the stability and integrity of the payments system. There is too much at stake should the system fail.

For this reason, strict access criteria are laid down by Central Banks worldwide, with the right to directly participate in value transfer systems (clearing and settling) being conferred only on those who are best able to bear the risks involved - predominantly banks and in limited instances other licensed deposit taking institutions.⁶

The access criteria include financial strength, technical and scale criteria and supervision of the institution by a recognised competent authority. Access to the large value interbank transfer systems is most strictly controlled, due to the size of the risks involved and the wider systemic implications if the system does not function properly.

⁵ Prime Assets Requirement (PAR): each bank is to maintain at all times a minimum proportion of its balance sheet (6% of liabilities) in specified prime assets (mostly Government securities).

⁶ For detailed discussion see *Report to the Committee of Governors of the Central Banks of the Member States of the European Economic Community on Minimum Common Features for Domestic Payments Systems*, Working Group on EC Payments Systems, November, 1993.

The pivotal role of banks in the payments system is integrally linked to the fact that ultimately value is transferred between deposit accounts held at banks and to a lesser extent other deposit taking institutions. Consistent with international practice, the following recommendation is put forward:

Recommendation 8.1: Only banks and industry based Special Service Providers (for non-bank deposit takers) should be allowed to operate an Exchange Settlement Account (ESA) with the Reserve Bank, and hence have direct access to the clearing and settlement components of the payments system.

The RBA is currently proposing that any deposit taking institution that can keep the ESA in credit can, and should, participate in RTGS. Its preliminary view is that agency arrangements will not be actively encouraged. This would not be consistent with maximising settlement efficiency or minimising the risk of gridlock occurring.

The ability of settlement participants to provide liquidity support in the event of default or RTGS gridlock is essential if the risk of systemic failure is to be mitigated. The total of all the surpluses in ESAs, currently averaging at around \$4 billion each day, can be viewed as the system's real liquidity. On any day, different ESA holders will have different amounts of surplus and the custom has been to "borrow" from another holder (bank) if it has excess surplus on a particular day and another holder could use that excess for short term liquidity management.

While the amount of system liquidity in the market will remain unchanged regardless of the number of ESAs, the larger the number of settlement participants, the more thinly the system liquidity potentially will be spread. With more rather than fewer ESAs, the average surplus per ESA will reduce. However, at the same time the probability increases that an ESA holder will need to "borrow" a portion of another holder's surplus to meet a payment under RTGS for the very reason that it is operating with less surplus. Finally, as the likelihood of a surplus borrowing requirement increases, it will be harder to borrow the funds because they will be spread amongst more participants. More ESA holders will clearly result in less efficiency and possible system gridlock⁷.

Recommendation 8.2: Access to Exchange Settlement Accounts for settlement on Real Time Gross Settlement (RTGS) should be limited to a "reasonable" number of regulated deposit takers, who in turn act as agents for other institutions.

With the introduction of RTGS, the RBA has foreshadowed that ESA holders will be able to make intraday borrowings against PAR for liquidity purposes. As has already been recommended in Section 7.8, PAR should be abolished. In its place, banks will implement alternative more commercial and flexible liquidity management programs, including holding a range of quality, liquid assets against which the RBA could provide intraday credit facilities if required or which the RBA could rediscount. If there was a longer term liquidity requirement, the RBA could act as lender of last resort at penalty rates if deemed appropriate.

Recommendation 8.3: Exchange Settlement Account holders should be allowed to manage liquidity on a more flexible and commercial basis than via the current requirement to maintain the Prime Assets Ratio, including the provision of intra-day credit by the Reserve Bank.

⁷ The UK payments settlement system only has 16 participants, in part to avoid this gridlock possibility.

8.4.2 Clearing

For the clearing systems to work efficiently, the volume of transactions to be exchanged directly by each institution must be sufficient to warrant separate sorting and recording by other participants. Where volumes fall below those levels of economic efficiency (currently set by APCA at 0.5% of national volume or 2% of regional volume), the clearing system is better served by those small institutions appointing an agent to act on their behalf. APCA should review efficiency hurdle rate criteria on a regular basis.

Recommendation 8.4: Access to Clearing Systems should continue to be limited to regulated deposit taking institutions which can meet scale efficiency hurdles, as set by the Australian Payments Clearing Association (APCA).

8.5 Access to Instruments and Delivery Mechanisms to Ensure Preservation of Payments System Stability and Integrity

8.5.1 Instruments

Instruments (and activating devices) which bear payments instructions, such as cheques, ATMs, EFTPOS and credit and debit cards should be manufactured and distributed in such a way as to ensure they do not compromise the efficiency and integrity of the payments or clearing systems. Where applicable, they must also provide security, privacy and preserve integrity of data. APCA, on behalf of the RBA and deposit taking institutions currently undertakes the regulation of the instruments component of the payments system by setting and monitoring the standards and rules.

Recommendation 8.5: There should be no restriction on access to participation in the payments system by new Instrument providers (other than stored value card issuers), provided such new entrants meet the standards and abide by the rules set by APCA.

Stored value cards, while only being trialed at the moment, will potentially be in widespread use in time. They are important because of their possible efficiency impacts, particularly on the reduction of centralised data and payments processing⁸ and their ability to provide consumers with significantly improved access.

It should be recognised that stored value cards represent a new form of “money” or cash substitute. If usage becomes widespread, it will be imperative for the community to have confidence in this cash substitute if the integrity of the financial system is not to be threatened.

The stored value card operates on the basis of cardholders “prepaying” value into the card for use at some later time when they will transfer some or all of the value in the card to a merchant or other card holder. There would be potential for abuse or fraud if the recipient of the prepayment was not a licensed deposit taking institution as these cards could be associated with sizeable floats. Cardholders must be assured that their “money” or the value stored in the cards can eventually be unlocked and used as promised by the card issuer. If any card issuer defaults on this promise the integrity of all stored value cards will

⁸ They should eliminate some of the accounting for individual transactions and should reduce the need to clear small items.

be questioned and the integrity of the payments system will be jeopardised. If a stored value card issuer defaulted with a very large loss of float, the stability of the payments system could even be threatened.

Similar integrity considerations apply in the case of the potential issue of new forms of “money” to be used in on-line computer transactions. However, the problem with Internet transactions, including the establishment of Internet payment systems, is that regulators cannot control them. Nevertheless, the policy should be for electronic money issuance only to be undertaken by licensed deposit takers or entities that have legal alliances with licensed deposit takers. *Caveat emptor* will have to apply for any subscription to on-line payments services run by unlicensed deposit takers.

Recommendation 8.6: Only licensed deposit taking institutions should be allowed to issue stored value cards.

8.5.2. Payments instruction delivery mechanisms

New entrants that can deliver value propositions to customers will promote competition leading to lower cost and improved service.

Any institution (or a third party on behalf of an institution) should be allowed to participate in the delivery of payments instructions using existing and emerging technologies. (Delivery does **not** include clearing/exchange or the value transfer.) However, the institution must be able to comply with established technical and operational standards and must not impair the overall efficiency of the clearing system for which delivery is being provided.

To maintain confidence in the system, preservation of individual privacy, data integrity and security are also paramount.

Standards, rules and protocols are best determined and administered by APCA and the recipients of those instructions. Those recipients must stand as principals in liability and be fully accountable to the public and other payments system participants.

Recommendation 8.7: Any organisation can be a participant in the delivery of payments instructions provided that it complies with agreed rules and protocols.

8.6 Access to Payments System Infrastructure

Emerging new delivery systems such as may be available via broadband and fibre optic cable technology are very capital intensive infrastructure platforms that only two Australian organisations are currently investing in. As these infrastructure platforms have the potential to become part of future new core delivery payments channels, their use should not be limited. Strategic alliances which restrict access to this infrastructure to a limited number of the payments system participants would reduce competition and result in less efficient provision of payment system services.

Recommendation 8.8: Suppliers of infrastructure should not be allowed to form alliances with payments system participants to limit competition.

8.7 Control of Payment Clearing and Settlement Systems

The thrust of recent Australia-wide regulatory reform has been to put the provision of utilities and services used by the public at large into private sector control in order to increase competition and efficiency in the economy. Currently, amongst the range of commercial activities in which it is engaged, the Reserve Bank controls the RITS clearing system and will control the RTGS following its development. It also proposes to regulate the use of multilateral netting systems rather than allowing the industry, which undertakes the actual risk management, to independently develop its own risk management tools. Government regulator control of clearing and settlement systems does not necessarily sit comfortably with the regulatory role nor does it produce the most efficient system⁹.

Just as control of Austraclear and CHESSE resides in the private sector, so too should control of RITS and RTGS.

Recommendation 8.9: For greatest efficiency, the systems through which payments clearing and settlement take place should be controlled by the private sector.

⁹ Executive Director Financial Stability, Bank of England has recently commented: "It also seems to me preferable to have the ownership and management of payments and settlements systems in private hands. Financial institutions are likely to have a better understanding of the business needs and operating features of these systems than public authorities". *Symposium on Risk Reduction in Payments, Clearance and Settlement Systems*, New York, January 1996.