

Recent developments in the payment system

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The payment system plays a central role in a country's infrastructure, both in terms of financial stability and facilitating transactions among people. This article outlines a number of developments that are occurring in the payment system, internationally and in New Zealand, including the prudential issues with which the Bank is currently engaged.

1 Introduction

The payment system comprises all those entities and systems which enable banks, businesses and individuals to transfer money from one to another. Historically, paper-based systems (notably cheques) dominated the New Zealand payment system, but in recent years electronic payment systems have rapidly increased in importance, for both "retail" and "wholesale" (high-value) transactions, to the point where they now dominate. Whatever systems are used for making payments, it is clearly vital for all users and participants that they operate efficiently and reliably. Collectively, the various elements which constitute the payment system represent key infrastructure for the financial sector and for the wider economy. As the means by which funds are transferred between parties, payment systems are also a major channel through which financial shocks can be transmitted across markets and national boundaries. Sound payment systems are therefore a key element in maintaining financial stability.

The Reserve Bank's focus is on promoting the soundness and efficiency of the financial system as a whole. Matters relating to access and pricing of proprietary payment systems, such as credit card, EFTPOS and ATM systems, are subject to the same competition policy and consumer protection laws as any other industry.

This article focuses on three main topics. First, it reports on an international initiative to establish minimum standards for national payment systems, and its application to New Zealand. Secondly, it reviews some of the prudential issues with which the Bank is currently engaged. Finally, there is comment on some structural changes which are going on in the industry.

2 Core principles

The financial instability resulting from the regional crises in Asia and other emerging markets during the latter part of the 1990s, together with the growing integration of financial markets more generally, has led to renewed international efforts to strengthen the global financial architecture and to reduce systemic risk. Among these efforts have been new initiatives to promote robust payment and settlement systems.

A recent initiative of note is the development by an international task force of core principles for payment systems. The task force operated under the auspices of the Committee on Payment and Settlement Systems, a committee that advises the G10 Central Bank Governors. A number of other core principles and standards covering aspects of the financial infrastructure have also been developed in recent years.¹

Ten core principles for payment systems and four responsibilities for central banks have been proposed (box 1). The core principles set out high level principles covering key characteristics of sound payment systems and build on previous recommendations and standards. They aim to provide a universal framework for the design and operation of payment systems world-wide.

The proposed principles focus on the safety and efficiency of the payments infrastructure at the system-wide level. They

¹ See www.fsforum.org for a compendium of these standards.

Box 1

Core Principles for Systemically Important Payment Systems²

The Core Principles and central bank responsibilities Public policy objectives: safety and efficiency in systemically important payment systems

Core Principles for systemically important payment systems

- I The system should have a well-founded legal basis under all relevant jurisdictions.
- II The system's rules and procedures should enable participants to have a clear understanding of the system's impact on each of the financial risks they incur through participation in it.
- III The system should have clearly defined procedures for the management of credit risks and liquidity risks, which specify the respective responsibilities of the system operator and the participants and which provide appropriate incentives to manage and contain those risks.
- IV* The system should provide prompt final settlement on the day of value, preferably during the day and at a minimum at the end of the day.
- V* A system in which multilateral netting takes place should, at a minimum, be capable of ensuring the timely completion of daily settlements in the event of an inability to settle by the participants with the largest single settlement obligation.
- VI Assets used for settlement should preferably be a claim on the central bank; where other assets are used, they should carry little or no credit risk and little or no liquidity risk.
- VII The system should ensure a high degree of security and operational reliability and should have

* Systems should seek to exceed the minima included in these two Core Principles.

² See Committee on Payment and Settlement Systems, (2000).

contingency arrangements for timely completion of daily processing.

- VIII The system should provide a means of making payments which is practical for its users and efficient for the economy.
- IX The system should have objective and publicly disclosed criteria for participation, which permit fair and open access.
- X The system's governance arrangements should be effective, accountable and transparent.

Responsibilities of the central bank in applying the Core Principles

- A The central bank should define clearly its payment system objectives and should disclose publicly its role and major policies with respect to systemically important payment systems.
- B The central bank should ensure that the systems it operates comply with the Core Principles.
- C The central bank should oversee compliance with the Core Principles by systems it does not operate and it should have the ability to carry out this oversight.
- D The central bank, in promoting payment system safety and efficiency through the Core Principles, should cooperate with other central banks and with any other relevant domestic or foreign authorities.

are directed at the 'systemically important' payment systems³, although many of the principles are relevant for the design and operation of all payment systems.

In the New Zealand context, the core principles and supporting document are expected to be used as reference material to provide guidance to the Bank and the payment industry against which to review the remaining areas of risk and to assess future priorities in our payment system.

The supporting material by the task force includes guidance on the interpretation and implementation of the principles, giving examples of the alternative tools, approaches and considerations that may apply in different economic and institutional environments. The material is descriptive rather than prescriptive, thus avoiding the dangers of a one-size-fits-all approach and retaining flexibility to take country-specific factors into account in implementation.

No material change in our current approach or payment system objectives is envisaged in response to the four central bank responsibilities proposed. The Bank's underlying objective would continue to be to remove or manage any areas of significant risk at the systemic level. With the implementation of the real-time gross settlement system for high-value transactions in 1998 and the netting and zero hour legislation in 1999, particular issues looking forward may include, for instance, consideration of the failure-to-settle arrangements in each system.

To make the Bank's oversight role in the payment system in New Zealand more explicit, however, the Bank is looking to formalise its oversight objectives and responsibilities. To date, this role has been conducted informally.

3 Prudential issues

Some years ago the Bank set out its principal objectives in relation to the payment system as follows:

- to ensure that payment system risks are reduced to acceptable levels, and are managed appropriately by system participants;
- to ensure that the payment system can continue to operate without disruption in the event of the sudden withdrawal of a participant from the system, or following other types of financial crisis, or natural disasters, etc;
- to encourage movement towards delivery-versus-payment arrangements in all financial markets, especially with respect to high-value transactions;
- to help ensure that the status of payments is certain at all times, and, in particular, that the legal environment supports "finality" and "irrevocability" in payment instructions;
- to encourage banks and others to offer efficient, reliable and relevant payments services to their customers; and
- to maintain an open, flexible and competitive system, and ensure that no unwarranted entry or operational barriers exist.

It will be noted that these objectives overlap with the international core principles to a significant extent. It is pleasing to record that considerable progress has been made in relation to most of the objectives in recent years. Most significantly, the introduction of Real Time Gross Settlement (RTGS)⁴ in 1998 eliminated much of the risk in the domestic payment system (particularly with respect to high-value payments), achieved certainty and finality with respect to those payments passing through the system, and enabled the adoption of delivery-versus-payment for many securities market transactions.

At this point, the principal risk remaining in the payment system is in the area of foreign exchange settlements, where there can be long delays between the payment of the first leg of a transaction and the corresponding receipt of funds

³ Systemically important payment systems are described as those that have the capacity to trigger or transmit systemic disruptions across domestic and international financial systems and markets. This may be due, for instance, to the size or nature of the payments handled.

⁴ For a description of the RTGS system, see White B (1998).

in another currency. The failure of one of the parties during this period could lead to significant disruption and serious difficulties for any bank that did not receive a payment due to them. This was the case with the failure of Bankhaus Herstatt in Germany in 1974, and indeed this kind of risk is often referred to as "Herstatt risk".

In New Zealand, we have been keen to see action to address foreign exchange settlement risk, and we have surveyed banks on two occasions on their settlement practices in order to enhance awareness of the issues.⁵ However, to deal with the problem more comprehensively it has been necessary to await satisfactory international initiatives. Following considerable pressure from central banks around the world, and some false starts, an important development that is now getting closer to implementation is CLS Bank, which will offer (through a combination of netting and payment-versus-payment⁶) a means of substantially reducing Herstatt risk.⁷ The Bank has been actively promoting the case for the inclusion of the New Zealand dollar in the CLS system at the earliest possible date, and we are currently anticipating that this could happen around late 2002. Some of the operational requirements that are necessary to achieve this are commented on later in this article.

A further development of some significance was the passing of legislation on netting and payments finality in 1999.⁸ Netting occurs when banks or other entities are able to set-off receipts and payments due to one another, and where only the net amount is settled between them. This can have significant benefits for risk reduction, and may also be more efficient than the "gross" settlements which would otherwise be required in that liquidity requirements are likely to be lower. Prior to the passing of this legislation, the legal robustness of some netting arrangements was not certain, but the situation has now been put beyond doubt.

While some netting does occur already, the Bank considers that there is significant further scope for the use of netting, for the purposes of both risk reduction and operational efficiency. We have therefore welcomed recent industry moves to develop common standards and documentation, and hope that it will be possible to apply these, not just in the payment system, but across a broad range of business areas where they are likely to play a useful role.

However, any approaches to settlements which are not fully on a "real-time gross" basis still involve risk. Netting can reduce those risks, in some cases substantially, but it does not eliminate them. Accordingly, we need to be satisfied that where any risks remain in the payment system, they are underpinned by procedures which are legally, financially and operationally robust in the face of a settlement failure by one or more of the participants. If the risks are small, it may be possible for the surviving entities to absorb any losses directly without suffering adverse knock-on effects. However, if risks are still material in some parts of the payment system, then it may be necessary to design failure-to-settle arrangements in those areas which allow the bulk of the system to continue to operate as normal, and allocate any losses in a way which is predetermined. Some work remains to be done to quantify the risks which remain following the implementation of RTGS and any netting arrangements, and to develop agreements on how these risks will be managed in future. It will be important to ensure that the arrangements are consistent across all the types of payments that pass through the different entities which make up the system. The Bank will be discussing these issues further with the industry.

The Bank has also been paying some attention to operational risk issues in the payment system. For a period, this interest was dominated by the industry's substantial involvement in dealing with the Year 2000 problem. While the Year 2000 transition proved to be a smooth one in practice, the planning for the event involved much attention being given to ensuring the robustness of business continuity plans and contingency arrangements, and these were subject to very thorough testing. Valuable lessons were learned from this process, and ongoing arrangements for comprehensive industry-wide testing of back-up arrangements should help to ensure that

⁵ The second survey has just been conducted, and the results will be reported in a subsequent Bulletin.

⁶ Payment-versus-payment (or pvp) occurs when a party to a foreign exchange transaction pays away the sold currency and receives the bought currency simultaneously.

⁷ CLS Bank is described further in section 4.7.

⁸ See DeSourdy L (1999) for a description of this legislation and its effect.

the payment system can continue to function in the face of a range of adverse events or natural disasters.

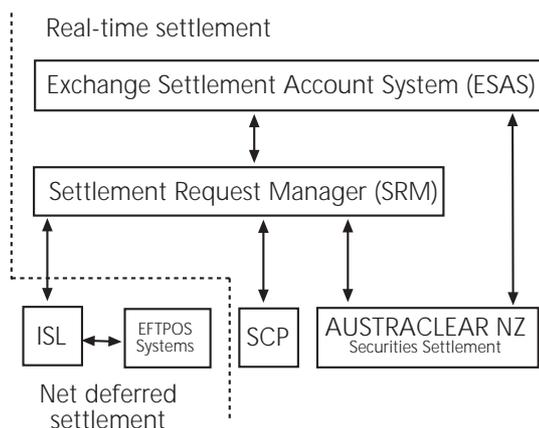
The Bank continues to focus on business continuity arrangements in the course of regular dialogues with banks. However, we have also recently commenced regular discussions with the various entities which operate the payment system, primarily in order to check our understanding of their risk management arrangements. For the most part, these payment entities do not face material financial risks – these lie with the banks and others that use the systems – so the discussions mainly concentrate on operational risk matters.

While there has been good co-operation from the payment system providers that we have approached, we are mindful of the expectation in the core principles (outlined previously) that central banks should have the ability to carry out oversight of the payment system. Accordingly, we have recently proposed that a new part be added to the Reserve Bank of New Zealand Act to give the Bank some formal jurisdiction over the payment system. Consistent with our general philosophy, we have proposed that these additional powers should be confined to obtaining and (where desirable) publishing information about the payment system. In many respects this will simply formalise the current state of affairs, and it does not herald a material change in our role. However, it will give us a more explicit ability to throw a spotlight on any issues of concern, if this ever proves to be necessary. We are currently consulting with the industry on these proposals, and they have not yet been endorsed by the Government.

4 Infrastructural developments

Figure 1 outlines the payment system infrastructure in New Zealand.

Figure 1
New Zealand Payment System



At the centre of the New Zealand payment system is the Exchange Settlement Account System (ESAS). ESAS is owned and operated by the Reserve Bank and provides final real-time settlement to account holders (all of which are currently registered banks) across the exchange settlement accounts at the Bank. The Settlement Request Manager (SRM) handles most of the transaction flows to ESAS. Feeding into this are the information flows from other systems (or 'switches') in the structure. These payment switches process the individual payment instructions made at the wholesale and retail level.

The main wholesale payment switches are the Austraclear New Zealand System, which is used for securities and cash transactions, and the Same Day Cleared Payment System (SCP)⁹, used for high-value inter-bank and customer transactions, notably the New Zealand dollar leg of foreign exchange transactions. Cheques, ATM transactions, direct debits and direct credits, and telephone and internet banking are processed by the Interchange and Settlement Limited (ISL) system. Two bank-owned companies capture EFTPOS transactions and the majority of domestic credit card transactions.

⁹ The system is known as SCP at the retail level, but is referred to as AVPS (Assured Value Payment System) at the wholesale and inter-bank level.

The past year has seen a number of moves within the payment industry to rationalise the structure and number of payment systems in place. Key drivers have been the desire to simplify the existing framework and reduce overhead and other costs. Technological, international and legislative developments have also had an impact.

Some of the more important developments are discussed below.

4.1 Closure of KITS/Establishment of SCP

One system, the Kiwi Inter-bank Transfer System (KITS), a bank-owned system which had operated since 1988 and used for high-value payments, was phased out and replaced by SCP in July 2000.

Like KITS, SCP is an electronic payment system, which allows banks to settle payments on a real time transaction-by-transaction basis; but unlike KITS, the new system is available to bank customers to make cleared real time payments at the retail level. Retail customers may, for example, make final, same day payments for transactions such as house settlement payments and urgent or time critical payments to suppliers and other parties using the new system.

4.2 Decommissioning of SRM

A decision in principle has been taken by the bank owners to decommission SRM. SRM is used by banks to monitor and manage their liquidity and payment transactions prior to settlement, but its functionality is (or can be) substantially duplicated in the ESAS environment. Moves are currently underway to add to the functionality of ESAS and, accordingly, SRM is expected to be removed next year.

4.3 Industry rationalisation

To rationalise the corporate structure, three of the bank-owned companies and systems, SRM, SCP and ISL, were amalgamated into one company, ISL, earlier this year. The company now manages and operates the three systems.

4.4 Truncation and image processing

Several banks have recently introduced a new technology called item image processing. This follows a change in 1995 to the Bills of Exchange Act which provided for the electronic presentation of cheques as an alternative to the previous requirement to deliver cheques physically to the paying bank.

As the physical movement of cheques adds to the cost of the cheque clearing process and, to a large measure, determines the time within which cleared funds may be obtained, cheque imaging has the potential to speed up the cheque clearing process and reduce the costs of processing cheques. Banks using the system now dishonour cheques on the day after deposit and all banks have introduced improved facilities for cheque re-presentation.

4.5 Austraclear relinquishment

In May, the Bank announced that it intended to relinquish the operating licence for the Austraclear New Zealand System back to the system's developers, the Sydney-based company Austraclear Limited. The Bank believes that this is the best way to ensure that efficient clearing and settlement services for securities transactions continue to be available to participants in the New Zealand financial market.

The Austraclear New Zealand System is a service for clearing and settlement of high-value transactions involving debt securities and equities, and also for cash transfers. The Bank has operated the system since 1990 under a formal contractual arrangement with Austraclear Limited.

The Bank's operation of the Austraclear System has proved very successful, with the majority of transactions in New Zealand debt and equity securities held by institutions and traded in the New Zealand market being settled using Austraclear. However, the system has now reached the stage where it requires significant further capital investment to update both the hardware and the software. The Bank judged that that this was not an appropriate investment for it to make, given the increased prospect of competition and rationalisation in the provision of clearing and settlement services.

The recent trend towards global rationalisation of financial markets and their supporting infrastructure means that it is

almost inevitable that, in the future, the New Zealand and Australian financial markets will be served by a single securities settlement system. Austraclear Limited already operates a settlement system in Australia. This system (Fintracs) is similar to the Austraclear New Zealand System.

In this environment, the Bank decided that relinquishing the licence, subject to the Bank and Austraclear Limited reaching agreement to ensure that efficient clearing and settlement services continue to be provided in New Zealand, was the best option. Provided that the negotiations currently underway are completed successfully, Austraclear Limited is expected to take responsibility for running the Austraclear New Zealand System in early 2001.

4.6 ESAS stand-alone

The decision by the Bank to relinquish the operating licence for the Austraclear system does not affect the Bank's interest in ESAS. The Bank will continue to own ESAS, but is negotiating with Austraclear Limited to operate the system under a facilities management agreement.

The Austraclear New Zealand System and ESAS are closely related, both having been developed by Austraclear Limited. The two systems share common functionality. For example, the auto-repo facility in ESAS, through which exchange settlement account holders can access additional liquidity by automatically entering into securities repurchase transactions with the Reserve Bank, currently depends on a link to Austraclear.

The Bank intends to separate the ESAS functionality completely from the Austraclear System, so that ESAS can operate on a "stand-alone" basis. It is expected that this separation will be completed by September 2001.

4.7 CLS Bank/SWIFT interface

As discussed above, continuous linked settlement is an initiative by more than 60 major international commercial banks aimed at reducing foreign exchange settlement risk. The planned CLS Bank will act as an intermediary in the settlement of foreign exchange transactions and will provide a form of payment-versus-payment for netted foreign exchange transactions. Seven currencies (the Australian,

Canadian and US dollars, the Swiss Franc, the Euro, the British pound and the Japanese Yen) will be included in stage one of CLS Bank. Stage one is currently expected to be operational towards the end of 2001. Other currencies will be added later and the Bank is working to facilitate the entry of the New Zealand dollar at the earliest possible date.

In particular, the Bank is currently working on ensuring that CLS Bank's requirements for the entry of a currency are met. One of those requirements is that a country has a real-time gross settlement system and that CLS Bank and its member banks will be able to conduct transactions on that system using SWIFT¹⁰ messages. In order to meet this requirement, the Bank has started work on a project to add the necessary functionality to ESAS.

Agreement has been reached to transfer the existing SWIFT messaging interface, currently owned by the banks, to the Reserve Bank. The transfer will provide the SWIFT interface to the ESAS system needed to connect CLS Bank to the settlement accounts held with the Bank, and avoid the complications and added costs of maintaining two SWIFT messaging systems in the domestic payment system architecture. It will also enable ESAS account holders to access ESAS directly using international messaging standards.

The target date for the implementation of the required ESAS/SWIFT interface functionality is by June 2001.

5 Conclusion

Considerable changes are taking place in the New Zealand payment system at present, driven by international developments, technological changes, the continual search for the most cost-effective processes, and the need to manage risks appropriately. Most of these changes will not be visible to bank customers. However, the outcome should be a system which continues to enhance the efficiency and reliability of services to customers, and is more resilient in the face of financial shocks, technological disruptions or natural disasters.

¹⁰ SWIFT stands for the Society for Worldwide Interbank Financial Telecommunication. It is an international co-operative organisation that operates a communication network for payment and other financial messages between financial institutions around the world.

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