Alan Bollard: New Zealand payment system

Address by Dr Alan Bollard, Governor of the Reserve Bank of New Zealand, to the Institute of Finance Professionals New Zealand, Auckland, 11 August 2005.

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Introduction

Today I'm going to talk about one of our key pieces of infrastructure - our payment system. I believe it is the first speech by an RBNZ Governor dedicated to that topic. I'm pleased to take it up, because it's an area where we have spent quite a bit of effort in recent years, and because it is of very significant importance to the functioning of the economy. It is also closely linked to one of the Reserve Bank's statutory objectives - "avoiding significant damage to the financial system that could result from the failure of a registered bank". I'm certainly hoping that I never have to deal with a bank failure in New Zealand, but we do need to be very well-prepared for such an event because of the need to act very quickly and confidently in order to minimise systemic impacts.

Most of the time, the various elements of the payment system work very well and are very reliable - and we often take this pretty much for granted. However, any kind of disruption can be at best very inconvenient for users - as any of you who have been in a supermarket queue when the EFTPOS system goes down will know well. Some events can quite quickly cause more serious disruption, and have an impact on economic activity. Some of you will have been affected by the recent Telecom outage, which prevented some entities from accessing payment systems for a period, and which disrupted both trading and settlement activities. There have been other incidents like this from time to time, sometimes affecting only one participant directly, sometimes affecting many. I will return later to the lessons we have learned from these experiences.

The payment system

The payment system consists of all the diverse arrangements that we use to transfer money, whether using currency, paper instruments such as cheques, or a variety of electronic channels. It is something we all use every day - whether to purchase a book from someone using cash, buying it on Lambton Quay with our EFTPOS card, buying it from Amazon using our credit card, or - for many of you - to settle trades in the equity, debt or foreign exchange markets, in a number of different ways. And these transactions add up to quite a lot - on average more than $35 billion per day in the "wholesale" systems last year, and about $6 billion per day in the "retail" systems. The numbers of transactions are also striking - only a little over 4,000 per day in the wholesale systems, but more than 4 million per day in the retail systems.

I might note at the outset that those transactions I just mentioned are all actually quite different in their characteristics. The first one - buying something with cash - is very simple: it just involves handing over some currency. No bank or settlement system is involved, and no record of the transaction is necessarily kept. That makes it all very quick and convenient, but the anonymity can lead to some problems as well, in respect of money laundering for example. That is a topic for another day. Note too that the Reserve Bank is a key participant in cash transactions, in the sense that it is providing a medium of exchange of undoubted quality. Aside from forgeries, no-one has to think about whether the money is "good".

The second transaction - buying a book on Lambton Quay - introduces some new elements. First, typically a couple of banks get involved in the process - the ones where the bookseller and ourselves have our accounts. There's a pipeline going from one account to the other which is not instantaneous, and the bank receiving the money will often not let the recipient draw on it until it is sure that it has itself received the money from the paying bank.

Secondly, customers wishing to make or receive payments need to maintain a transaction account with a bank - and this does involve them in accepting some risk in the event that their bank gets into trouble. In this sense, money "in the bank" is not quite as safe as Reserve Bank money.

Thirdly, a merchant is now involved, and merchants participate in things like card schemes on a different basis from cardholders - for example, merchants may bear some risks of losses when cards are used fraudulently; and banks may bear some risks when merchants do not deliver the goods paid for.

The third example, buying the book from Amazon, adds another dimension, the cross-border element of the transaction - now a local and a foreign bank are involved in the "pipeline", and the payments may be governed by legal and contractual arrangements that differ from country to country. As an aside, the ease with which we can now conduct international transactions, and pay for things when we are traveling overseas, would have been the envy of previous generations.

In the wholesale financial markets, a final consideration comes into play - typically a local "payment" is made in exchange for the "delivery" of a security, or of some foreign currency. Not so long ago, there were often quite extensive delays between payment and delivery, implying significant risks for purchasers if the counterparty responsible for delivery failed in the interim. As I'll discuss more later, we have now moved to the happy position where most of these transactions can now be conducted on a simultaneous delivery-versus-payment (DVP) basis.

There are two main lessons to draw out of these examples.

First, the payment system is not a single entity. It is, in fact, quite a complex collection of disparate arrangements, with different participants, different rules, and different processes in each place. While there are similarities in the way things work internationally, each country also has its own idiosyncratic elements, reflecting its legal and banking history. The arrangements overlap and intersect at various points, and I have more than once heard them described as spaghetti. Of course, there is nothing wrong with serving spaghetti as long as you know how to handle it.

Secondly, some of the key features I have described - in particular, the existence of sometimes-long pipelines between customers and banks, and the dependence on banks and their infrastructure providers - create risks for all the participants in the system, and those risks need to be understood and managed appropriately.

I'm now going to talk about some of the significant changes in the payment system in recent years, and then about the various different roles that the Reserve Bank plays in this area, and how we go about some of them. I'll talk a bit too about the very successful risk-reduction programme that we have been pursuing. On the way, I'll have a few things to say about unfinished business and future business.

Recent innovations

There have been some fairly dramatic changes to the payment system over the last 20 years. Prior to about 1984, the system was almost entirely based on "paper", with currency and cheques being the dominant forms of payment for both retail and wholesale transactions. The first credit cards were issued in 1979, but these were also paper-based initially. The electronic era began about 1984, when EFTPOS emerged in the market. New Zealanders were enthusiastic adopters of EFTPOS, and New Zealand was - and still is - a world leader in the penetration of this technology. More recently, the use of PC-banking and the internet to initiate transactions have been growing rapidly in popularity. Cheques are progressively disappearing, but - contrary to longstanding predictions of a "cashless society" - the use of currency has continued to grow.

In the wholesale markets, the Kiwi Interbank Transfer System (KITS) began in 1987, to handle electronically some payments between the four big banks. It was replaced in 2000 by the Same-day Cleared Payment service (SCP), which can handle interbank payments and payments between bank customers on a real-time basis. In 1990, the Reserve Bank commenced to operate the Austraclear system under licence. This system, as you know, provides a depository for debt and equity securities, the facility to transfer these securities on a real-time delivery-versus- payment basis, the facility to make cash payments, and a platform for the automated provision of intra-day liquidity to the banking system.

Settlements amongst the banks in respect of each day's transactions used to take place on the books of the Reserve Bank - everything was netted down to a single number that each bank either owed to the system, or was owed by the system, and the banks' accounts at the Reserve Bank were debited and credited accordingly. No doubt this procedure started with a ledger, a clerk and a quill pen, and it

didn't change much until 1998 when the electronic Exchange Settlement Account System (ESAS) was introduced. This system enabled three main changes:

- Large interbank transactions could now be settled on the Reserve Bank's books at any time during the day, without having to wait until the end of the day, and without having to be included in the end-of-day netting wash-up. This is called Real Time Gross Settlement (RTGS)
- Austraclear transactions were now also settled using ESAS, giving the securities market delivery-versus-payment in central bank money (Austraclear had previously been DVP in commercial bank money). New Zealand was one of the earliest countries in the world to achieve this outcome.
- Reserve Bank operations to provide intra-day liquidity to enable these real-time transactions were automated though an "autorepo" facility

Finally, late last year, the New Zealand dollar entered the CLS system, which provides a payment versus payment service for settling foreign exchange transactions. This substantially reduced the largest remaining settlement risk for the New Zealand banking system, and the design also significantly economises on the liquidity required to make foreign exchange settlements. CLS is connected to ESAS in order to achieve this. CLS has been very successful in New Zealand, and has already achieved a higher penetration in the New Zealand market than in any other country, some of which joined CLS back in 2002.

Overall, it would seem that New Zealanders and New Zealand businesses get pretty good payment services by international standards - they are efficient, up-to-date, reliable and accessible. Our small size may have actually be an advantage, in that it has been relatively easier to innovate when a small number of similar institutions are involved. In addition to improving customer services, some of the innovations I have talked about have been motivated by the need to reduce risks, and I will return to that topic.

The Reserve Bank's roles

The Reserve Bank has been part of the payment system from its inception, but for most of the period had little involvement in a policy or operational sense. The various entities involved in the clearing and settlement of payments were owned and operated by the private sector. Of course, in the days when we were the Government's banker, we looked rather like other banks, with tellers and ledgers and all that stuff, and we were heavily involved with cheque processing and so on. We also had some other significant clients, like the former Dairy Board. But those parts of the business largely left the Bank during the 1980s reforms.

Currently, the Reserve Bank has a number of roles in the payment system, and I have mentioned some of them already:

- Issuer of currency - coin and paper (or these days polymer) "money"
- Provider of exchange settlement accounts - electronic "money"
- Provider and operator of ESAS - the facility to use our accounts for real-time transactions
- Provider and operator of Austraclear - securities trading and settlement
- Provider of liquidity to the banking system
- User of the system for FX and securities trading and settlement
- Regulator of banks and overseer of the payment system

We are very conscious that we are wearing all these different hats, and that they could involve somewhat different interests. We therefore manage each of these roles separately, although with close co-ordination, and in practice we find that they rarely come into any conflict.

Almost all of the roles are core businesses for central banks. The only exception to this is the Austraclear operation, which is more commercial in nature, and may not be an essential component of the Reserve Bank. We picked up the Austraclear business in the first place because we were interested to ensure that the New Zealand market is as well-served as possible, in terms of the

efficiency and integrity of the clearing and settlement systems, the quality of risk management, and the recognition of the interests of all stakeholders. Those outcomes remain our long-term goals. We are committed to maintaining the quality of the Austraclear service for so long as it has a role to play, and we have recently committed to a major upgrade of the Austraclear system.

Risk reduction and dealing with settlement failures

Our regulatory role started to develop around 1990, a few years after we had entered the field of formal bank supervision for the first time in 1987. That responsibility, together with an increased focus on the issues internationally, awakened our interest in the size and nature of payment system risks. We developed the view that the existing understandings about what would happen in the event of a bank failure were probably not very workable or satisfactory, and initiated a dialogue with the industry aimed at ensuring that payment system risks were identified, monitored and managed appropriately. We were also keen to ensure that the status of transactions, including those in the various "pipelines", was certain at all times, and that payment system arrangements, including failure-to-settle arrangements, were legally, financially and operationally robust. In other words, the arrangements have to work both in theory and in practice, and under acute time pressures. By financial robustness, I mean that any losses which do occur can be absorbed without strain by those bearing the losses. These remain our goals.

Much has been achieved over the last 15 years. The moves to real-time gross settlement and the entry of the NZ dollar to CLS were both landmarks in stripping large risks out of the system. They have been supported by some legislative changes that have underpinned them, and which provide a high level of certainty. A New Zealand Bankers' Association project to review the failure-to-settle rules for retail transactions has led to significant improvements and greater clarity. I am grateful to everyone who has contributed to these developments - our payment system has become much more resilient as a result.

In terms of our goals, we have now achieved a high degree of legal robustness, and much improved financial robustness. I think there is further scope to move some large payments which still go through the deferred settlement systems into the real-time systems, in order to further reduce financial risks for both banks and their customers, and this might require some changes to bank customer behaviour. A few other things may also need to be tidied up, but reasonably soon we ought to be able to reach a point where we can say that financial risks arising within the payment system itself are no longer of systemic significance.

However, operational robustness remains a systemic issue, and it is probably going to be our main pre-occupation in future. Two main things are driving us here. First, we have all seen enough incidents where operational failures have disrupted the payment system to cause us concerns. Some of these have arisen in individual banks, both large and small, but have had the potential to spill-over and affect other participants, and/or require emergency liquidity support. Others have affected a whole system or network, including the recent Telecom outage and some brief disruptions to New Zealand's access to the SWIFT network. What these experiences have shown is that:

- serious problems can arise without warning,
- they can escalate quickly if not resolved promptly
- there is sometimes inadequate appreciation of the impact on other participants
- communications to affected parties are not always adequate
- diagnosis and repairs take time
- there are not many - or any - fallbacks when some kinds of disruption occur
- business continuity arrangements do not always provide the answers in a sufficiently timely manner

The incidents have also sometimes provided confirmation that Murphy is alive and well - problems with completely unrelated causes can pop-up simultaneously, with nasty consequences.

Another area of operational risk is fraud, and we have all seen reports of new kinds of fraud emerging. The New Zealand financial system has not been a major fraud target to date, but no-one can afford to be complacent about the potential risks as our electronic dependence continues to grow. Sometimes

there is a difficult balance to be struck between making things as easy as possible for genuine customers and as hard as possible for fraudulent customers. Banks and other payment system participants have plenty of incentives to protect the systems from fraud, and to detect it as quickly as possible when it happens, and the Reserve Bank may not have a great deal to add. The important thing from our perspective is that risks should be managed by those best placed to manage them, typically the banks themselves. We do not think that bank customers should be unduly exposed to risks that they are not reasonably able to identify or manage.

Our second driver comes from our ongoing work on bank failure management, which some of you will be familiar with. While we are not expecting any banks to fail, we do want to be in a position to discharge our legal responsibilities if one does get into trouble. And one of the things we may well want to do is to continue to operate a bank in statutory management, and keep it as a full participant in the payment system. We also need to be able to act quickly in respect of transactions that are in the various pipelines at the point where a statutory management is declared. To do this, we potentially need fast access to New Zealand management, technological and payment system resources.

I noted earlier the complexity of the payment system overall, and I don't think that some of these questions have particularly easy answers. We are addressing some of them through our outsourcing policy, but others are likely to require alternative approaches, and some further co-operation with the industry. The goals include ensuring that key systems are designed to be "high availability" ones; that robust back-up arrangements are in place wherever feasible; that business continuity plans are effective and mutually consistent; and that rapid decision-making and communication capability is readily available. For us, this is very much "work in progress" at this point.

Legislative powers

Finally, in talking about regulation, I should note that in 2003 the Reserve Bank was given some formal legal jurisdiction over the payment system for the first time, in a new Part 5B of the Reserve Bank Act. The powers basically give us the right to obtain and publish information, and thus to throw a spotlight on any issues of public interest. They do not give us the kind of authority to scrutinise and determine prices, for example, that the Payment System Board has in Australia: here, that kind of role is performed by my former colleagues in the Commerce Commission, and we are very comfortable with that division of labour. The Reserve Bank is an advocate for competition and suitably-open access rules in the payment system.

In practice the new legislation provides a more formal basis for the kinds of things we have been doing, and does not signal any change in direction. We decided recently to publish the **principles** we would follow in our payment system oversight work, and these have been put on our website today. You will be able to read them there, so I won't go into them in detail. They do include a largely-unchanged restatement of the goals we set ourselves a decade ago:

They state that a sound and efficient payment system is one:

- that does not generate high levels of risk to participants or to users of financial services, and in which any risks that are generated are managed appropriately by system participants;
- that can continue to operate without disruption in the event of the sudden financial or operational incapacity of a participant, or following other types of financial crises or natural disasters, etc;
- that incorporates delivery-versus-payment arrangements where appropriate, and especially with respect to high-value transactions;
- in which the status of payments is certain at all times, and, in particular, in which the attributes of "finality" and "irrevocability" are supported;
- in which payment services are efficient and reliable, and are responsive and relevant to customer needs; and
- that is open, flexible and competitive, with no unwarranted barriers to entry.

We have noted in the document that these goals are not an exhaustive list and may evolve over time. They do reflect recent and currently significant payment system issues. They also overlap substantially with the main international standard in this area, the *Core Principles for Systemically Important Payment Systems* released by the Committee on Payment and Settlement Systems in 2001.

Conclusion

Our aims have been to achieve a payment system that is sound and efficient, and - in particular - that is legally, financially and operationally robust. We have made excellent progress in improving legal certainty, reducing financial risks, and improving some aspects of operational robustness. However, the system now involves increased interdependence amongst all the participants, and more stringent timing requirements, particularly since the entry into CLS. Moreover, the increased dependence on technology that we have seen develop implies that technological risks have increased commensurately, and probably now pose the greatest potential systemic threat to the payment system.

It is clearly in all of our interests that we fully understand these issues and risks, and ensure that we all have the capacity to manage them properly, so that the payment system meets the needs of the financial system and the wider economy well, and is fully resilient to stresses and strains. I am grateful for the good co-operation with the industry which has enabled the progress we have made, and I look forward to that co-operation continuing.