

# THE EVOLUTION AND REGULATION OF THE PAYMENTS SYSTEM

*Address by Dr Philip Lowe, Assistant Governor (Financial System), to Payments System Conference 2006, Melbourne Business School, Melbourne, 14 March 2006.*

I would like to begin by thanking the Melbourne Business School for organising this conference. For far too long, discussions about payment systems typically took place behind closed doors and were largely the preserve of specialists in financial institutions. As this conference shows us, this is no longer the case, with payment systems posing challenging issues not just for the specialists, but also for academics and those involved in public policy. This more open discussion is surely in the interests of the community at large.

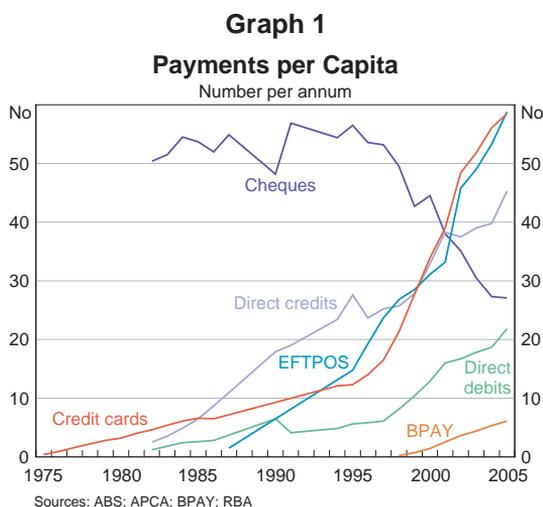
Today, I would like to address the issue of how the payments system evolves over time. As we all know, the system in 2006 looks quite different from that in 1996 and, no doubt, will look quite different again in 2016. But how well do we understand these changes and the forces driving them? And what role is there for regulation in shaping how things evolve?

## The Big and Small Pictures

I think the big picture is clear to everybody – that is, the shift from cash and cheque payments to electronic payments (Graph 1). While we do not have data on the number, or value, of cash transactions, we do know that the average number of cheques written per person in Australia

has halved since the mid 1990s. Conversely, the average number of credit and debit card payments per person has more than doubled, as has the number of direct debits and credits.

Similar trends are also evident in other countries, although Australia stands out in a number of dimensions (Table 1). First, Australia is in a relatively small group of countries in which cheques are still used frequently, although amongst these countries, the decline in cheque writing in Australia has been



**Table 1: Payments – An International Comparison**

Number of payments per capita

	Cheques		Direct debit		Debit card		Credit card	
	1997	2004	1997	2004	1997	2004	1997	2004
<b>Australia</b>	53	27	6	19	24	53	17	56
Canada	58	43	11	18	35	88	32	55
France	82	66	24	41	na	na	na	na
Germany	9	1	66	75	3	23	4	4
The Netherlands	4	0	41	65	31	77	na	na
United Kingdom	52	35	27	43	26	62	18	29
United States	239*	119	5	20	15	na	56	66

\* 1995 data  
Sources: APCA; BIS; RBA

relatively large. The second is that many Australians make less use of direct debits, and to some extent, debit cards than do people in many other countries. And the third is that use of credit cards in Australia has grown quite quickly, to the point where credit card usage is now quite high compared to that in most other countries.

While the trends clearly differ across countries, the shift towards electronic payments is undeniably global. It is driven by advances in technology and the lower cost of electronic payments, as well as the additional convenience that they can offer to consumers and businesses. It is fair to say that few people are in any doubt this shift will continue for many years to come.

However, while the big picture is pretty clear, there is much less certainty about how various individual methods of electronic payment are likely to evolve – which methods will be the winners and which will be the losers. In preparing for this conference, I was reminded of the difficulty of making predictions by a 1979 report prepared by payment system experts under the auspices of the Australian Bankers' Association. This report concluded that '... Bankcard has a great start and it is difficult to see how a competitive credit card system could now displace it as the major card system in Australia' (p 44). As you will no doubt be aware, last month Bankcard announced it was shutting down. The same report, in assessing the potential for an EFTPOS-like system, concluded 'The size of Australia and the relatively small population would make a nation-wide point of sale system difficult to establish and cost justify' (p 40). Today, the EFTPOS system is a key part of the payments landscape.

These, of course, are not the only examples of where things have turned out quite differently from what was expected. For much of the past decade or so – including at the time of the Wallis Inquiry – there have been numerous claims that smart cards or electronic purses were about to replace cash for many payments. Yet, while there have been some advances, relatively little has happened. On the other hand, use of the internet for banking has grown by much more than many thought likely in the mid 1990s.

Today, we hear a lot about mobile payments, contactless cards, the use of biometrics, and new ways to make person-to-person payments.<sup>1</sup> No doubt some of these ideas will succeed,

1 For a recent survey see EFMA/Edgar, Dunn & Company (2005).

while others will fall by the wayside. It is simply very difficult for those in the industry, let alone regulators, to predict which products will ultimately find appeal with users and providers of payment services.

In contrast to the difficulty we have in making predictions about particular products, we do have a reasonable handle on the factors that are likely to shape the evolution of the overall system. Developments in technology are clearly important, as is the willingness of consumers to adopt new technologies. Experience has also taught us that relative prices and costs are critical, as are the arrangements under which new firms enter the market. In addition, experience suggests that the way collective decisions are made is also important.

Others at this conference are clearly better placed than I am to talk about the possibilities new technologies offer, so I would like to confine myself to the other issues I mentioned: relative prices and costs, access arrangements, and the importance of collective decision-making. As you are no doubt aware, these all are issues the Reserve Bank has taken a close interest in.

## Relative Prices

The first issue is relative prices and costs, since this issue has played a major role in the reform process so far. At the risk of stating the obvious, I will begin with the observations that, in many situations, consumers have a variety of payment methods from which to choose, and that price is one of the factors that undoubtedly influences that choice. The introduction of charges for writing cheques, for example, played an important role in the decline in the use of cheques in the late 1990s. Similarly, the rapid growth in credit card spending over this same period partly reflects the introduction of reward points, which lowered the effective price to consumers of transactions on a credit card. There are many other examples as well, although finding robust econometric estimates of the relevant elasticities has proven difficult due to lack of data and the fact that payment patterns often change only slowly.

Given the Reserve Bank's legislative responsibility to promote the efficiency of the overall payments system, an obvious question is whether the structure of relative prices is promoting the efficient evolution of the system. When we looked at this issue a number of years ago, we came to the view that it was not, with the most notable distortion being the very low (often negative) price that many cardholders faced for making a credit card transaction.

Of particular concern was that for many consumers, EFTPOS transactions were more expensive than were credit card transactions, despite the EFTPOS system having lower resource costs. When we looked at how this apparently paradoxical pricing had emerged, it was clear that the structure of interchange fees and restrictions imposed on merchants by the credit card schemes played a major role. After it became apparent that there was little prospect of these issues being addressed voluntarily, the Bank introduced a standard, establishing a cap on the interchange fees in the Bankcard, MasterCard and Visa systems, with the result that interchange fees have fallen from around 0.95 per cent of the transaction value, to around 0.55 per cent. The Bank also required the removal of the no-surcharge rule, allowing merchants to pass on the cost of accepting credit cards to those using credit cards. It has also been considering for some time the introduction of standards capping interchange fees in the EFTPOS and scheme-based debit card systems.

Overall, the reform process to date has promoted more soundly based competition in the Australian payments system. The subsidies paid to many credit card users have been reduced, as reward points have been cut and some surcharging has occurred. The decline in interchange fees has also reduced merchants' costs, and we have no doubt that this is flowing through into lower prices of goods and services than would otherwise have been the case. Lower interchange fees have also seen a re-orientation of competition in the credit card market. With less interchange revenue available, issuers are now competing for cardholders by lowering interest rates, rather than through reward points.

Not surprisingly, not everybody is happy with these changes, with at least three arguments having been made against the Bank's focus on relative prices and costs. These arguments can be briefly summarised as follows:

- i. that interchange fees are subject to the same competitive pressures as other prices in the economy, and thus cannot be distorting relative prices of various payment methods;
- ii. that economic theory provides no basis for the Bank's regulatory intervention; and
- iii. that the Bank itself has created distortions in relative prices by giving American Express (and Diners Club) an advantage over Visa and MasterCard.

I would like to briefly address each of these.

## **Interchange fees and competition**

The first of these arguments – that interchange fees are like any other price and subject to the normal forces of competition – is the easiest to respond to. In the case of each of the four-party credit card schemes, interchange fees have historically been set collectively by the members of the scheme. And, if anything, competition between these schemes creates upward – not downward – pressure on these fees. A scheme with a higher interchange fee paid to issuers is able to pay larger subsidies to cardholders, which in turn encourages use of that scheme. At least up to some limit, merchants appear unable to resist the high merchant service fees that result, being caught in a form of prisoners' dilemma. The clearest example of this perverse form of competition is the tit-for-tat increases in MasterCard's and Visa's interchange fees in the United States over the past decade.<sup>2</sup> There, interchange fees have increased much more quickly than the general level of prices, despite significant reductions in telecommunications and other processing costs.

Even when interchange fees are bilaterally negotiated, as they are in the Australian EFTPOS system, the competitive dynamics are such that, once established, the fees are very difficult to change. Not surprisingly then, the bilateral interchange fees in the EFTPOS system have been fixed for many years, despite significant changes in costs and demand conditions.

All of this experience means that, whatever one thinks about the merits of interchange fees, it seems very difficult to argue that they are subject to the same competitive dynamics as other prices in the economy.

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<sup>2</sup> See Macfarlane (2005) for details.

## Theory

The second argument – that the Bank’s focus on relative costs and prices is not supported by economic theory – raises more complex issues. Those who make this argument note that the theory of payment systems is still being developed and provides little guidance as to what constitutes an efficient configuration of interchange fees when there are multiple payment systems. By implication, this view holds that the Bank can have little confidence its interventions are welfare enhancing.<sup>3</sup>

Now it is undoubtedly true that the theory of two-sided markets and interchange fees is still evolving and realistic models are still being developed.<sup>4</sup> Moreover, most of the theory that has emerged so far relates to a single payment system; only in the past couple of years have academics started tackling the question of how interchange fees should be configured when there are competing payment methods, each with different resource costs and benefits. At the risk of oversimplifying things, as the literature currently stands it suggests that, amongst a myriad of possibilities, it may be optimal for one payment system to be priced more attractively to cardholders than another, despite that payment system having higher total resource costs. There are a number of reasons for this, but they basically relate to the argument that there are network effects, some of which generate externalities, and that these network effects and externalities differ across payment systems. Measuring these various externalities is extremely difficult and, to my knowledge, no one has yet come up with empirical estimates that one can have confidence in and that can be used for policy work.

The issue is then largely one of judgment. In particular, to the extent that any externalities exist, are they such that in an efficient payments system, credit cards should be offered to cardholders at a significantly lower per-transaction price than EFTPOS, despite credit card payments having a higher total resource cost? No doubt, one could write down a notional set of demand and supply conditions in which such a deviation from normal price-cost relationships was optimal. However, our judgment has been that the externalities are unlikely to be so large or so different across payment systems as to justify such divergent pricing.

This judgment seems to have been borne out by recent developments. In particular, when interchange fees were cut, some said that the credit card market in Australia would go into a ‘death spiral’. In less emotive language, the argument was that the network effects were such that a reduction in the subsidy to cardholders would undermine credit card usage, leading to reduced merchant acceptance, which, in turn, would further reduce usage and thus merchant acceptance etc, etc, etc.

This clearly has not happened. While growth in credit card spending has slowed (Graph 2), presumably at least in part due to the altered price signals, merchant acceptance of credit cards has shown no signs of falling off and the credit card market remains vibrant. One plausible interpretation of this experience is that the previous level of interchange fees was considerably higher than could be justified in terms of the positive network effects they generated. While clearly the additional subsidy to cardholders that was made possible by the interchange fee did increase credit card use, it appears this additional usage was not necessary to induce widespread

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<sup>3</sup> See, for example, *Evans and Schmalensee (2005)*.

<sup>4</sup> For recent reviews see *Evans and Schmalensee (2005)*, *Guthrie and Wright (2006)*, and *Rochet and Tirole (2005)*.

merchant acceptance, and was simply distorting cardholder decisions.

While I am on this general issue of theory, I would like to repeat a point I have made elsewhere: and that is, the Bank's use of cost-based standards does not reflect a view that, conceptually, interchange fees should necessarily be set with an eye to costs on just one side of the market. We adopted a cost-based approach for two very practical reasons. The first is that it is a transparent way of moving to a lower level of interchange fees, and was one that had been used by

some card schemes to set these fees in at least some countries. The second is that under our legislation we cannot just set a particular interchange fee, but rather are required to impose a 'standard', and a cost-based approach meets the legal test of a standard. The real issue though is not what costs should or should not be included in any particular standard, but rather, what is the appropriate configuration of interchange fees across the various payment systems.

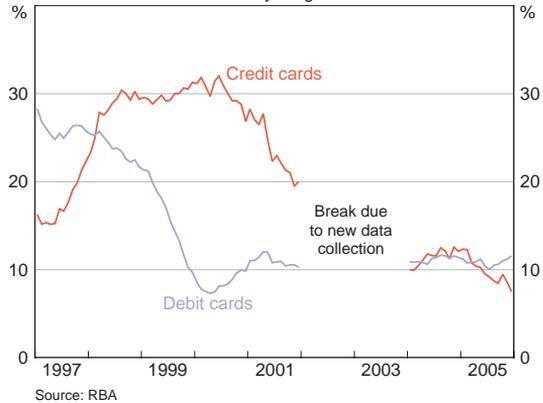
### American Express and Diners Club

The third argument about relative prices is a much more practical one: that is, the Bank's regulations have given an advantage to American Express and Diners Club. In particular, it is argued that, as a result of the Bank's reforms, American Express is able to offer its cardholders more reward points than issuers of MasterCard and Visa cards, and that this has encouraged the growth of American Express at the expense of the other schemes.

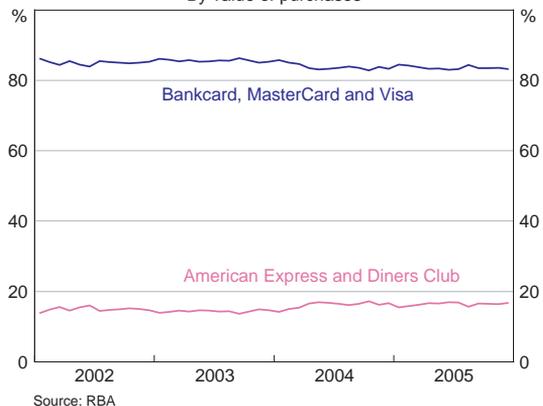
Before I respond to this argument, it is worth setting out the basic facts as to what has happened to market shares and merchant service fees.

Since the reforms came into effect there has been a small increase in the combined market share of American Express and Diners Club, including the transactions on bank-issued cards (Graph 3). In terms of the *value* of transactions, their combined market share has increased from around 14½ per cent in 2003, to around 16½ per cent today; most of this increase took place around the time that two banks began issuing American Express cards. A similar pattern is evident in the share of the

**Graph 2**  
**Value of Transactions**  
Year-on-year growth

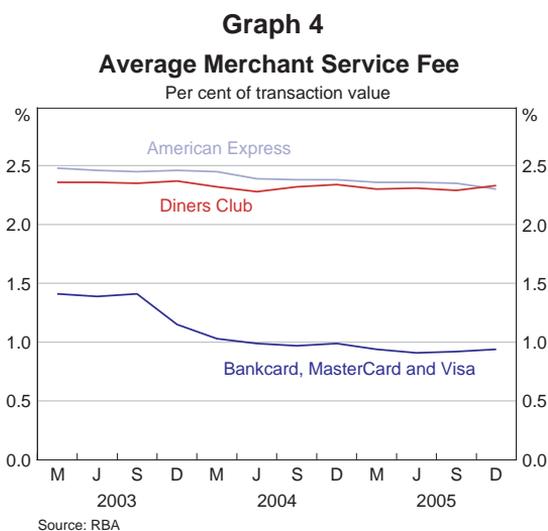


**Graph 3**  
**Market Shares of Card Schemes**  
By value of purchases



number of transactions. It is worth noting that the issuing of American Express cards by banks is not a uniquely Australian phenomenon, but is one that is seen globally; American Express now has similar arrangements with nearly 100 banks around the world.

In terms of merchant service fees, the average fee charged by American Express has been under downward pressure since the reforms, although it has not fallen by as much as that in the MasterCard and Visa schemes (Graph 4). In the December quarter 2005, the average



fee was 2.3 per cent. This is around  $\frac{1}{4}$  of a percentage point lower than in November 2003, although the effective decline over this period is larger than this, given that in some cases American Express has given increased marketing payments to merchants. In comparison, the average merchant service fee on MasterCard and Visa transactions has fallen by around 0.45 of a percentage point over the same period.

In understanding why the regulatory response to MasterCard and Visa has differed from that to

American Express and Diners Club, it is important to recognise the different structures and economics of the various schemes. In the MasterCard and Visa systems, different banks are typically on the acquiring and issuing sides of each transaction, with an interchange payment being made between the banks. In contrast, in the American Express and Diners Club systems there is simply no interchange fee paid on the vast bulk of transactions: American Express and Diners Club both act as the acquirer and the issuer. The exception to this, of course, is the bank-issued American Express cards, where American Express makes interchange-like payments to its partner banks.<sup>5</sup>

These arrangements with banks raise the obvious question of ‘shouldn’t the payments to the issuing banks be regulated in the same fashion as the interchange fees in the other schemes?’ As you know, we decided last year that the answer was no. This was for two interrelated reasons.

First, we judged that regulating payments to the partner banks would have little effect on American Express’s merchant service fees. While these arrangements look similar to the traditional four-party schemes, one important difference remains – that is, American Express is still the sole acquirer of its own transactions. This lack of competition for acquiring American Express transactions means that if regulation required American Express to make smaller payments to its partner banks, there would be very little direct pressure on it to lower its merchant fees. This stands in stark contrast to what happened when interchange fees were cut in the other schemes.

<sup>5</sup> Diners Club also has a marketing arrangement with one bank, although under that arrangement Diners Club remains the card issuer.

There, strong competition on the acquiring side of the market meant that the lower interchange fees flowed through very quickly into lower merchant fees. The same simply would not have happened in the American Express scheme.

The second reason is that it is unlikely that the banks' incentive to issue American Express cards would have been affected by the Reserve Bank requiring American Express to lower its interchange payments to its partner banks. Given the nature of the contracts between American Express and the issuing banks, lower interchange payments could have been offset with other forms of marketing and product support payments. In principle, this issue could have been addressed by regulating the totality of payments to the issuing banks, including marketing payments. In turn, no doubt there would have been calls by some for similar regulation of MasterCard and Visa. Our view, and I think one that is widely shared, is that such extensive regulation is not in the public interest.

So rather than regulating the payments for the sake of regulating, we have tried to tailor the response to the economics of the particular schemes. Ultimately, the capacity of American Express (or its partner banks) to offer relatively generous rewards stems, not from interchange fees, but from its ability to charge merchants a relatively high fee for transactions on its cards. Given this, the Bank has been keen to see that bargaining between merchants and these schemes is not distorted by restrictions imposed on merchants. It therefore sought and obtained American Express's agreement to remove its no-surcharge and anti-steering rules and to have its combined market share with Diners Club published.

As a result of the changes, merchants now have more options and better information. To the extent that they are prepared to use these options, the average merchant service fee in the American Express scheme will continue to fall. It should also continue to come under pressure as merchants question whether they get value for money for the increased margin they now pay on American Express transactions. Ultimately, it is this process of downward pressure on merchant fees – not the regulation of payments to partner banks – that will determine the reward points that American Express cards can offer, whether issued by American Express itself or by its partner banks.

Given the different structures of the schemes, any argument that American Express should be regulated in the same way as MasterCard and Visa is tantamount to the argument that interchange fees should not be regulated. The only way in which uniform regulation could have been applied would have been for the Bank to do no more than require the removal of the no-surcharge rule. While such an approach had the appeal of regulatory neutrality, we judged that, by itself, it would be unlikely to establish more appropriate price signals to cardholders within a reasonable time, particularly given the considerable customer resistance to being charged for credit cards. The approach that has been adopted is delivering significant net benefits – benefits that would have been foregone had the regulatory response been limited to just the removal of the no-surcharge rule.

None of this means that we are not monitoring the competitive landscape very closely. We expect that competition will lead to a further decline in American Express's average merchant service fee, and in time, this will be reflected in the structure of the products that are offered. If

this were not to happen, and the beneficial effects of the reforms were to be eroded materially, we would need to look again at whether other options were in the public interest.

## Entry

So much for relative prices. I would now like to turn to the issue of access arrangements.

In many parts of the financial system it has been the new entrants that have been the major catalyst for change and increased competition – home loans and online deposit accounts are perhaps the best examples. The new entrants typically have either new technology, and/or lower costs, and have not needed to worry about cannibalising the profits from existing customers.

Given the important role new entrants can play, the Bank has been concerned for some time that access arrangements to parts of the payments system were unduly restrictive. Our approach has been to try to work with industry to develop alternative arrangements that are fair both to the existing firms and new entrants. In the case of the credit card system, a regulatory solution was eventually required. In contrast, in the EFTPOS system, an industry solution has been found, although the Bank is proposing to place a cap on the price that an existing player can charge to provide a direct connection. The Bank has also indicated that it would also like to see access to the ATM system addressed.

The Bank's various discussions about access have highlighted the complications that can arise in payment systems built around physical bilateral linkages and bilateral business arrangements. In the case of Australia, these systems include the EFTPOS, ATM and direct credit/debit systems. Two issues in particular have been raised.

The first is the potential for existing players to block the entry of a new participant. If a potential entrant is not able to establish direct physical connections or business relationships with existing direct participants, it might find itself at a material competitive disadvantage, making viable entry difficult. One solution is for transparent and objective criteria to be established as to who has the right to join these systems – in effect removing the right of veto of existing participants. This is the approach that has been taken in some overseas systems built around bilateral contracts, and it is one that APCA has recently been considering for the direct entry system in Australia.

The second concern relates to the additional costs that can arise when new participants wish to establish bilateral connections. The Bank's intervention in the EFTPOS system has been criticised by some on the grounds that, by making it easier for new entrants, there will be a proliferation of bilateral linkages, at considerable cost to the incumbents. This is a difficult issue. One response might be to restrict the number of participants with direct linkages, and thus potentially reduce total costs – although perhaps at the risk of less competition. Another would be to establish alternative access arrangements under which there would be a single point of physical access, rather than requiring new participants to establish multiple physical connections (this of course, could be consistent with bilateral business contracts or something more centralised). Not surprisingly, this is the general approach taken in a number of overseas payment systems in which there are many players. It is also one that APCA has been considering for the EFTPOS and ATM systems as it looks at possibilities for updating the communications packages and hardware platforms upon which these systems operate.

To date, the Bank's intervention on access has taken the current physical and business structure as a given. However, we would encourage the industry to give serious thought to whether, over time, we could move to an alternative and perhaps more efficient set of arrangements.

## Collective Decisions

This brings me to my third point – that is, the role that the arrangements for making collective decisions can play in the evolution of the system.

At the heart of all electronic payment systems is a secure messaging system. A collective agreement as to the nature and specifications of these messaging systems is often required. Further, as technology evolves, updating the existing messaging systems through collective decisions about rules and standards, and investment in infrastructure, is sometimes necessary. I hasten to add though that, in many parts of the payments system, collective decision-making is not required, and would be an anathema to efficiency. In most parts of the payments system, competition serves us well.

Where decisions do need to be made collectively, co-ordination problems can arise. Institutions have different investment cycles, different strategic interests, and can have concerns that the collective investment in infrastructure may yield little competitive advantage, since all competing institutions will be adopting the same new infrastructure.

Last year the Reserve Bank raised the question of whether co-ordination was more difficult in Australia by virtue of the bilateral nature of a number of our payment systems and their governance arrangements.<sup>6</sup> Since then we have had further discussions with many users and providers of payment systems and, not surprisingly, a wide range of views has been expressed. While these discussions are ongoing, I would like to share a couple of observations so far.

The first is that while most people think Australia's payments system serves its various users reasonably well, there is a sense that we are starting to fall behind international best practice in some areas. Two examples – both relating to the structure and capability of the messaging system – have been referred to a number of times. The first is the limited nature of the messaging format in the direct entry system. This format was designed primarily for high-volume recurring payments like salaries, and has been unchanged since the 1970s. A number of businesses have noted that it is inadequate for many modern business-to-business transactions, which require a considerable amount of information to accompany the payment. The second is the limited options for making online payments. Currently, if you want to buy goods and services over the internet you have little option other than to use your credit card or signature debit card. Many businesses, and I dare say consumers, would like to be able to have an online EFTPOS-like payment option as well. In a number of other countries this option is now available.

The second general observation from our discussions is that, while we may be starting to slip behind in some areas, there is actually quite a lot of innovation going on – there are plenty of people with ideas and new products being developed. However, some of this innovation reflects a desire to find ways around the limitations of the current messaging structures. For example, given the difficulties of sending remittance data with payment instructions, a number

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<sup>6</sup> See Lowe (2005).

of products have been developed to send such data separately, but in a way that can ultimately be reconciled with the payment.

In summary, these discussions confirm that there is merit in examining further whether co-ordination issues are impeding the efficiency of the Australian payments system. I might note that over recent months it has been argued by some that by simply raising this issue, the Bank has already had a dampening effect on investment by creating uncertainty over whether the infrastructure might be appropriated by a central payment system or become stranded if duplicate infrastructure was established centrally. I must say that I find this response more than a little surprising. Let me make it clear that the Reserve Bank has no intention of appropriating investment, or requiring duplicated technology. Further, we are not saying that the particular solutions being adopted overseas should necessarily be adopted here, or that more centralisation is required. What we have done is to point to some of the implications of the current system and suggested that there is merit in taking another look at whether there might be a better way of doing things in the future. I am encouraged to see that there have at least been some tentative steps in this direction recently.

## Conclusion

Let me conclude by trying to draw the various threads together.

The trend towards electronic means of payment is likely to continue, although it is difficult to predict exactly what forms of electronic payment we might be using in a decade's time.

Exactly how the system evolves will depend, amongst other things, on the price signals that various users of the system face, on the extent to which potential entrants can participate in the market, and on decisions about the basic messaging architecture.

The structure of payment systems means that there are reasons that, compared to other markets, one might have less confidence that the system, left to itself, will evolve in a way that promotes economic efficiency. Relative prices can be distorted by interchange fees, barriers to entry can limit competition, and co-ordination problems can arise. None of these factors, of course, mean that regulation is necessarily required. Indeed, as was envisaged by the Government when it established the Payments System Board, the Reserve Bank has a strong preference for industry solutions.

The Bank's interventions to date have been about creating an environment in which competition in the Australian payments system works in a way that promotes the evolution of the system in an efficient manner. The reforms have meant that price signals are less distorted than they were previously, access has been liberalised, and restrictions on merchants have been removed. While more may still need to be done, these reforms mean that we can be more confident than previously that whatever outcomes the market delivers, they will be in the collective interests of all users of the payments system.

Thank you.

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